



## List of Acronyms

|                 |   |
|-----------------|---|
| <b>ASCLME</b>   | Agulhas and Somali Current Large Marine Ecosystem   |
| <b>BV</b>       | Blue Ventures   |
| <b>CEDTM</b>    | Centre of Study and Discovery of Marine Turtles, La Réunion   |
| <b>CI</b>       | Conservation International  |
| <b>DPRH</b>     | Direction regionale de la Peche et des Ressources Halieutiques  |
| <b>CNDO</b>     | Centre National de Données Océanographiques   |
| <b>CNRE</b>     | Centre National de Recherches sur l'Environnement, MESUPRES   |
| <b>CNRO</b>     | Centre National de Recherches Oceanographiques, MESUPRES  |
| <b>CSP</b>      | Centre de Surveillance des Peches (Ministère de la Peche et des Ressources Halieutiques)  |
| <b>FFEM</b>     | Fonds Français pour l'Environnement Mondial   |
| <b>FIMIHARA</b> | Flambanana MIaro sy HANasoa ny RAnomasina (Association for the Protection and Conservation of the Ocean)                                    |
| <b>GAPCM</b>    | Groupement des Aquaculteurs et Pecheurs de crevette Malagache   |
| <b>GEM</b>      | Grands écosystèmes marins   |
| <b>GIZC</b>     | Comité National pour la Gestion Intégrée des Zones Côtières et Marines  |
| <b>IFREMER</b>  | Institut Français de Recherche pour l'Exploitation de la Mer, La Réunion  |
| <b>IHSM</b>     | Institut Halieutique et des Sciences Marines, Toliara   |
| <b>IOSEA</b>    | Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia |
| <b>LME</b>      | Large Marine Ecosystem  |
| <b>LMMA</b>     | Locally Managed Marine Area   |
| <b>MEF</b>      | Ministère de l'Environnement et des Forets  |
| <b>MESUPRES</b> | Ministère de l'Enseignement Supérieur et de la Recherche Scientifique   |
| <b>MHNG</b>     | Natural History Museum of Geneva  |
| <b>MPA</b>      | Marine Protected Area   |
| <b>MPRH</b>     | Ministère de la Peche et des Ressources Halieutiques  |
| <b>NGO</b>      | Non-governmental organisation   |
| <b>PACP</b>     | Projet d'Appui aux Communautés des Pêcheurs de Toliara  |
| <b>PNRC</b>     | Programme National de Recherche Crevetière  |
| <b>SAGE</b>     | Service d'Appui à la Gestion de l'Environnement   |
| <b>SWIOFP</b>   | Southwest Indian Ocean Fisheries Project  |
| <b>TED</b>      | Turtle Excluder Device  |
| <b>TSA</b>      | Turtle Survival Alliance  |
| <b>WCS</b>      | Wildlife Conservation Society   |
| <b>WIO</b>      | Western Indian Ocean  |
| <b>WIO-MTTF</b> | Western Indian Ocean Marine Turtle Task Force   |
| <b>WIOMSA</b>   | Western Indian Ocean Marine Science Association   |
| <b>WWF</b>      | World Wide Fund for Nature  |

# Table of contents

|  |           |
|--|-----------|
| <b>Executive summary</b> .....   | <b>1</b>  |
| <b>Background</b> .....  | <b>5</b>  |
| <b>Objectives of workshop</b> .....  | <b>7</b>  |
| Overall Objective:.....  | 7         |
| Specific Objectives: .....   | 7         |
| <b>Résumé Day 1</b> .....  | <b>8</b>  |
| Agenda point: Opening ceremony.....  | 8         |
| Agenda point: Presentation of the IOSEA MoU on Conservation and Management of Marine Turtles..   | 9         |
| Presented by Mr Douglas HYKLE (IOSEA Coordinator) .....  | 9         |
| Agenda point: Presentation of the Fisheries Surveillance Centre « Current situation of the enforced<br>legal texts and measures of protection for the marine turtles in Madagascar » .....   | 10        |
| Presented by Mr. Rijaso FANAZAVA (CSP).....  | 10        |
| Agenda point: Presentation of the IHSM « The status of marine Turtle in Madagascar » .....   | 11        |
| Presented by Mr. Berthin RAKOTONIRINA (IHSM, Tulear).....  | 11        |
| Agenda point: Presentation of SWIOFP « SWIOFP Regional Project – Consideration of the<br>preservation of marine turtles ».....   | 13        |
| Presented by Mrs. Hajanirina Razafindrainibe (SWIOFP NCC5, SAGE): .....  | 13        |
| Agenda point: Presentation of the SWIOFP .....   | 14        |
| « General overview of the current initiatives recently conducted in Madagascar » .....   | 14        |
| Presented by Mr. Dannick RANDRIAMANANTENA (WWF): .....   | 14        |
| Agenda point: Presentation of Blue Ventures « Blue Ventures’ research activities ».....  | 15        |
| Presented by Ms. Frances HUMBER (BV Research Coordinator) .....  | 15        |
| Agenda point: Presentation of the WWF « WWF research activities ».....   | 16        |
| Presented by Mr. Harifidy RALISON (Western Indian Ocean Marine Programme Coordinator WWF)<br>.....   | 16        |
| Agenda point: Presentation of the MHNG « Work results carried out on marine turtles in the Barren<br>Isles ».....  | 17        |
| Presented by Ms. Audrey CAMPILLO (Student) .....   | 17        |
| Agenda point: ReefDoctor Presentation of « Project Fano » .....  | 18        |
| Presented by Ms. Emma GIBBONS (ReefDoctor).....  | 18        |
| <b>Résumé Day 2</b> .....  | <b>21</b> |
| Agenda point: Group work .....   | 21        |
| Agenda point: Working Group Presentations.....   | 21        |
| Group 1:.....  | 21        |
| Group 2:.....  | 24        |
| Group 3:.....  | 26        |
| Agenda point: Synthesis of group discussion and priorities.....  | 28        |
| <b>Résumé Day 3</b> .....  | <b>29</b> |
| Agenda point: Presentation by Dr. George Hughes « Management and Conservation Programs on the<br>Marine Turtles in the Indian Ocean and the results of these Programmes ».....   | 29        |
| Agenda point: Presentation by Mr. Stéphane Ciccione « Management and conservation programs on<br>marine turtles in La Réunion, Mohéli, Mayotte: the conservation impacts on the nesting population of<br>marine turtles in the southwest of Indian Ocean » ..... | 29        |
| Agenda point: Statement by Mr. Roger Samba .....   | 30        |
| Agenda point: Strategic Directions .....   | 32        |
| <b>Appendices</b> .....  | <b>40</b> |
| Appendix 1: Agenda .....   | 40        |
| Appendix 2: Table of actors.....   | 44        |
| Appendix 3: Current legal documents.....   | 50        |

## Executive summary

A workshop for “*The adoption of a management and conservation plan for marine turtles in Madagascar*” was held in Antananarivo, Madagascar, from 7-9 February 2011. The workshop was borne out of a request from Madagascar for technical support from the *Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia* (IOSEA Marine Turtle MoU). This is a non-binding framework, initiated under the Convention on Migratory Species (CMS), through which States of the Indian Ocean and South-East Asia, as well as other concerned States and partners, collaborate to protect, conserve, replenish and recover marine turtles and their habitats.

The overall aim of the workshop was to strengthen marine turtle research and conservation in Madagascar so as to achieve the country’s IOSEA programme objectives. Specific objectives of the workshop included:

- To identify the main threats to marine turtles in Madagascar;
- To highlight the gaps in research and understanding as well as the most practical and effective methods to fill these gaps;
- To support the most effective conservation efforts to reduce threats to marine turtles;
- To discuss and plan as how to implement the best practice initiatives in conservation in the whole country of Madagascar;
- To develop a national action plan or strategy setting out the most significant priorities and/or the most practical and feasible actions identified during the workshop.

Five of the seven species of marine turtles found globally occur in the waters of Madagascar and the Western Indian Ocean (WIO): Green *Chelonia mydas*, Hawksbill *Eretmochelys imbricata*, Loggerhead *Caretta caretta*, Leatherback *Dermochelys coriacea*, and Olive ridley *Lepidochelys olivacea*. All five species are categorised globally as endangered or critically endangered on the IUCN Red List; and all are listed in Appendix I of the Convention on Migratory Species.

The first day of the workshop focused on a review of the objectives and role of the IOSEA Marine Turtle MoU, threats to marine turtle populations, and current activities and ongoing programmes by the government, research institutions and NGOs in Madagascar. Various stakeholders from different organisations working on marine turtle research and conservation -- including WWF, CSP, IHSM, SWIOFP, Blue Ventures, ReefDoctor and MHNG -- presented their activities, objectives, results and future prospects. The presentations and discussions that followed gave rise to two main conclusions of the day: firstly that the main threat in Madagascar to marine turtles was unmanaged traditional fishing and its potential to lead to overexploitation; and secondly, that there was no clear consensus on the status of the laws and the relevant legal texts in regard to marine turtles.

The second day of the workshop focussed on practical approaches to conservation and research on marine turtles in Madagascar. The main objectives were to identify and prioritise the major conservation actions needed for the conservation of marine turtles in Madagascar and to identify practical actions that could be implemented by the different actors, ranging from local governments to local communities.

Five main issues were highlighted. It was noted that a lack of communication was linked to all of the major issues. '**Agenda point:** Strategic Directions' were proposed in relation to the five main issues identified by the meeting, during an open discussion involving all participants.

### **1. Lack of scientific and empirical knowledge**

The conservation of turtles should be integrated into current management sites, however it was noted that marine turtle habitat located outside MPAs may pose a challenge. Collaboration and sharing of expertise nationally was considered vital, and organisations were encouraged to exchange "lessons-learned", especially among those working within the same region. In general, better coordination and conduct of research with practical application was needed. NGOs with offices in other countries should utilize their networks to identify knowledge and studies that might be transferrable or suitable for adaptation in the Madagascar context.

### **2. Regulations are not understood or applied**

To deal with the issues surrounding marine turtle legislation in Madagascar, there is a need: 1) to identify and review the efficacy of existing legislation; and 2) to educate all stakeholders including local communities on the applicable regulations as well as the socio-economic benefits of utilizing turtles sustainably.

It was generally agreed that the current laws were insufficient for the protection of marine turtles in Madagascar. It was proposed that the marine turtle legislation in Madagascar should aim: 1) to stop commercial trade in turtles and 2) to find a way to accommodate personal consumption by the Vezo and other traditional fishers. The opportunity to invoke the use of *Dina* in marine turtle conservation was highlighted, while noting that such an instrument must comply with the prevailing national legislation.

It was pointed out that any review or amendment of legislation should technically be led by the Ministry of Fisheries, but it was suggested that other ministries be involved, perhaps through an inter-ministerial body such as the existing GIZC committee (*Comité National pour la Gestion Intégrée des Zones Côtières et Marines*).

### **3. Importance of involving local communities**

It was considered vital to involve local communities directly in the monitoring and research of marine turtles, as well as the perpetuation of useful traditional knowledge and practices. Village-level agreements could be effective tools for self-monitoring of the turtle fishery. However,

community integration would be effective only if activities were not seen as being imposed by outsiders and if community ownership of projects was instilled so that the community became the primary beneficiary. However, the support that NGOs could provide to communities was encouraged because they were able to work in remote locations.

The importance of using existing structures and organizations, in particular community-based associations, to efficiently implement future action plans was highlighted. Marine turtle conservation should be integrated into local documents and activity/action plans. The use of the *Dina* in Madagascar was potentially a very important tool in view of the fact that they were enacted and respected by the local communities. With all organisations, marine turtle conservation should not be considered as a separate issue but should be integrated as one part of overall activity plans.

#### **4. Regional cooperation**

Greater cooperation is needed to establish or strengthen national and regional networks, and to integrate them into all sectors relevant to marine turtle conservation.

The meeting considered how the different actors in Madagascar could cooperate more effectively than at present in order to move forward over the next 1-2 years, as well as the most efficient arrangement to ensure continuity from the workshop. Several alternatives were put forward for the formation of a national working group on marine turtles:

- Create a new dedicated working group within the GIZC committee;
- Add to responsibilities of the existing GIZC subgroup on ecosystem management;
- Integrate the IOSEA Focal Point functions into the GIZC subgroup.

It was suggested that as CNRE is already a member of the GIZC and that as marine turtles already figured in prior GIZC discussions, formal integration of marine turtle concerns into the subgroup on ecosystem management would be the most practical option. It would be important also to include local communities as well as NGOs and research centres in any national network.

Regional cooperation was also considered to be of paramount importance given the migratory nature of marine turtles. Experts were available within the WIO region who could share expertise and knowledge in relation to scientific research. Many were members of the WIO Marine Turtle Task Force which served to support implementation of the regional IOSEA Conservation and Management Plan. Successful efforts within the WIO region could be used to guide best practice, and stakeholders were encouraged to utilize existing funded workshops to collaborate regionally (e.g. WIO-MTTF, WIOMSA).

## **5. Political problems**

Participants noted that it would be difficult to work on long-term conservation initiatives without an improvement of the economic, political and organisational situation in Madagascar, and that it could be difficult to implement new legislation under the present circumstances.

Concluding the workshop, it was agreed that CNRE and GIZC should continue their consultations, taking into account the many useful ideas that had been expressed. The workshop's identification of important issues, coupled with the constructive interventions that were made in the spirit of addressing fundamental problems, should help Madagascar move closer to refining and adopting a management plan with the involvement of interested stakeholders.

The workshop was hosted by Madagascar's *Ministère de l'Enseignement Supérieur et de la Recherche Scientifique* with financial support provided by the IOSEA Marine Turtle MoU, through a grant from the United States Fish and Wildlife Service (Marine Turtle Conservation Fund). The workshop was co-organised by the *Centre National de Recherches sur l'Environnement* (CNRE) and Blue Ventures.

## Background

Five of the seven species of marine turtles found globally occur in the waters of Madagascar and the Western Indian Ocean (WIO): Green *Chelonia mydas*, Hawksbill *Eretmochelys imbricata*, Loggerhead *Caretta caretta*, Leatherback *Dermochelys coriacea*, and Olive ridley *Lepidochelys olivacea*. All five species are categorised globally as endangered or critically endangered on the IUCN Red List; and all are listed in Appendix I of the UN Convention on Migratory Species (CMS). Nesting and foraging marine turtles face many threats. Some of the main threats in Madagascar include exploitation of nests and nesting females, by-catch in industrial fisheries, and exploitation of foraging turtles for meat consumption.

*The Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia* (IOSEA Marine Turtle MoU) is a non-binding framework, initiated under CMS, through which States of the Indian Ocean and South-East Asia, as well as other concerned States and partners, can collaborate to protect, conserve, replenish and recover marine turtles and their habitats.

The IOSEA Marine Turtle MoU now has 32 member States, including almost all countries with significant coastlines in the Indian Ocean – South-East Asia region. Guided by an eight-member Advisory Committee comprised of eminent marine turtle scientists and other specialists, and complemented by the efforts of numerous nongovernmental and intergovernmental organisations, the Signatory States are working towards the collective implementation of an ambitious Conservation and Management Plan (CMP). The plan consists of 24 programmes and more than 80 separate activities. Madagascar signed the IOSEA Marine Turtle MoU on 22 January 2003 and it came into effect for the country on 1st April 2003.

Madagascar is also represented on the Western Indian Ocean - Marine Turtle Task Force (WIO-MTTF). This is a technical, working group comprised of specialists from eleven countries in the Western Indian Ocean -- Comoros, France (La Réunion), Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa, United Kingdom (BIOT) and United Republic of Tanzania -- as well as representatives from inter-governmental and non-governmental organisations and academia within the region. The Task Force serves as an advisory body to the member States of both the Nairobi Convention and the IOSEA.

A Technical Support and Capacity-Building Programme was established under IOSEA in order to provide technical support to Signatory States as they work towards implementation of the Conservation and Management Plan (CMP). The programme aims to build institutional capacity and greater self-sufficiency nationally and sub-regionally; to promote the integration of various key components of IOSEA in national conservation strategies; to encourage the active

involvement of key stakeholders throughout the region; and to foster more collaboration among Signatory States.

The basis of the Antananarivo workshop was borne out of a request from Madagascar for technical support from IOSEA, as a direct follow-up to a session of the WIO-MTTF that was held in conjunction with Western Indian Ocean Marine Science Association (WIOMSA) Scientific Symposium in 2009.

## **Objectives of workshop**

### **Overall Objective:**

**To strengthen marine turtle research and conservation in Madagascar so as to achieve the programme objectives for Madagascar, as a member State of the IOSEA MoU.**

### **Specific Objectives:**

- **To identify the main threats to marine turtles in Madagascar;**
- **To highlight the gaps in research and understanding as well as the most practical and effective methods to fill these gaps;**
- **To support the most effective conservation efforts to reduce the threats;**
- **To discuss and plan as how to implement the best practice initiatives in conservation in the whole country of Madagascar;**
- **To develop a « National Action Plan » or a « strategy » setting out the most significant priorities and/or the most practical and feasible actions identified during the workshop.**

## Résumé Day 1

The overall objective of the workshop for “ *The adoption of a management and conservation plan for marine turtles in Madagascar*” was to strengthen marine turtle research and conservation goals in Madagascar.

The first day of the workshop focused on a review of the objectives and role of the IOSEA Marine Turtle MoU, current threats to marine turtle populations, and current activities and ongoing programmes by the government, research institutions and NGOs in Madagascar.

Among the species of marine turtles worldwide, five are found in Malagasy waters. Throughout the day on Monday, February 7, the various stakeholders from different organisations working on marine turtle research and conservation presented their activities, objectives, results and future prospects.

The two main conclusions of the day were:

- The main threat in Madagascar to marine turtles was the unmanaged traditional fishing and its potential to lead to overexploitation.
- There was no clear consensus on the status of the laws and the relevant legal texts in regard to marine turtles.

The list of speakers for day included :

- 1) Mr. Douglas Hykle (IOSEA): Introduction to IOSEA
- 2) Mr. Berthin Rakotonirina (IHSM): A review of the status of marine turtles in Madagascar
- 3) Mr. Rijasoa Fanazava (CSP): Review of current laws on marine turtles in Madagascar
- 4) Mrs. Hajanirina Razafindrainibe & Ms Dannick Randriamanantena (SWIOFP): Objectives and components of SWIOFP and related marine turtle activities in Madagascar
- 5) Ms. Fran Humber (Blue Ventures Conservation): Blue Ventures’ marine turtle research and conservation program.
- 6) Mr. Harifidy Ralison (WWF): Research and conservation program being conducted by WWF
- 7) Ms. Audrey Campillo (MHNG): Results of the work on sea turtles in the Barren Islands.
- 8) Ms. Emma Gibbons (ReefDoctor): Results of the work on marine turtles, Project Fano, by ReefDoctor.

### Agenda point: Opening ceremony

The meeting was hosted by the Ministère de l'Enseignement Supérieur et de la Recherche Scientifique (Ministry of Higher Education and Scientific Research), whose Centre National de Recherches sur l'Environnement – CNRE (National Centre for Environmental Research) provides Madagascar’s National IOSEA Focal Point. Following welcoming remarks by the Director of

CNRE, Dr Pierre Ravelonandro, and IOSEA Coordinator Mr. Douglas Hykle, the meeting was formally opened by Mr. Christian Ralijaona, Secretary General of MESUPRES.

### Agenda point: Presentation of the IOSEA MoU on Conservation and Management of Marine Turtles

#### Presented by Mr Douglas HYKLE (IOSEA Coordinator)

Mr. Douglas Hykle presented the IOSEA MoU (<http://www.ioseaturtles.org>) to all participants. IOSEA is an intergovernmental agreement among the countries of the Indian Ocean and Southeast Asia. At present there are 32 member countries and it is the largest intergovernmental agreement in the world concerning marine turtle conservation (Table 1).

**Table 1 IOSEA Signatory states**

| IOSEA Signatory States (as of December 2010)  |
|---|
| Australia, Bahrain, Bangladesh, Cambodia, Comores, Eritrea, France, India, Indonesia, Islamic Republic of Iran, Jordan, Kenya, Madagascar, Maldives, Mauritius, Mozambique, Myanmar, Oman, Pakistan, Papua New Guinea, Philippines, Saudi Arabia, Seychelles, South Africa, Sri Lanka, Thailand, United Arab Emirates, United Kingdom, United Rep. of Tanzania, United States of America, Viet Nam, Yemen |

*The objective of the IOSEA Memorandum of Understanding is to protect, conserve, replenish and recover marine turtles and their habitats, based on the best scientific evidence, taking into account the environmental, socio-economic and cultural characteristics of the signatory States.*

Mr. Douglas Hykle went on to present elements of the IOSEA website which facilitates exchange of information between countries and partners. Each country is required to provide a standardised report periodically. On the website the following information is available to all:

- Official documents and meeting texts
- National reports including the following information:
  - Conservation activities implemented in member countries
  - Species existing at particular sites in the member countries
  - Sites of importance to marine turtles
  - Site-based threats to marine turtles and current mitigation activities
- Electronic library of reports and papers, with an initial focus on the Western Indian Ocean
- Satellite tracking information for the entire IOSEA region
- Flipper tag series used in various countries

There is also a system in place to evaluate the performance of member states, based on the activity reports submitted by each country. An overall summary of performance is presented in a colour-coded matrix, an example of which can be found in a review of IOSEA implementation prepared in 2008.

The matrix can be found in Annex 1 (p. 55) of the report, which can be downloaded from the IOSEA website: [http://ioseaturtles.org/UserFiles/File/meeting\\_files/MT\\_IO5\\_DOC06-0\\_Implementation\\_progress.pdf](http://ioseaturtles.org/UserFiles/File/meeting_files/MT_IO5_DOC06-0_Implementation_progress.pdf)

Mr. Douglas Hykle also introduced the regional committee established under IOSEA, the 'Western Indian Ocean - Marine Turtle Task Force', currently chaired by Dr. Ronel Nel (South Africa). The WIO-MTTF is comprised of experts nominated by country representatives and other relevant organisations. The aim of the group is to increase cooperation, communication, capacity building and information sharing on turtle conservation and research within the Western Indian Ocean.

**Agenda point: Presentation of the Fisheries Surveillance Centre « Current situation of the enforced legal texts and measures of protection for the marine turtles in Madagascar »**

**Presented by Mr. Rijaso FANAZAVA (CSP)**

The role of CSP is to protect and conserve fisheries and aquaculture resources through monitoring, regulations and surveillance for sustainable exploitation. CSP inspects fishing vessels and gear to ensure compliance to the fisheries regulations.

There are two main pressures that threaten the survival of turtles: traditional fishing for consumption and bycatch by shrimp trawlers.

The representative of CSP presented the various legal texts that attribute complete protection for marine turtles from national and international exploitation, in particular by Décret n°88-243.

He went on to describe the measures taken to protect marine turtles from incidental take or bycatch in commercial trawlers. Decree No. 2003-1101 on the 25th November 2003 made it obligatory for shrimp trawlers to install Turtle Excluder Devices (TEDs) and bycatch reduction devices (BRD) to their nets. The role of CSP has been to conduct audits and dockside inspections of the fishing gears. They also monitor and inspect the boats and gears at sea. This measure has seen to be a success since the incidental capture of marine turtles by trawlers is reported to have decreased from 142 in 2004 to just 2 in 2005. However, it should be noted that these figures represented only 30% of the national fleet in 4 areas in Madagascar, including the Melaky region. It was also pointed out that the extent of inspections at sea in order to confirm compliance was limited, and that there had been some cuts in funding so the capacity for observations has been reduced.

CSP pointed out that there are current failings in the existing laws because marine turtles taken in Madagascar are not the object of international trade, but rather for local consumption (which is inadequately addressed in the existing laws). He noted that a flaw exists at the application level of

the current text, affecting both fisher and sanction levels, equally concerning trade at international and local levels.

Questions and points:

- Ø There was a discussion on the clarification of difference between the Convention on International Trade in Endangered Species (CITES), which regulates trade between countries rather than consumption within a particular country, and domestic laws.
- Ø It was pointed out that the Convention on Migratory Species (CMS) is designed to promote cooperation among countries that share the same migratory species, while requiring strict protection measures for endangered species *within* each Member State. As such, CMS is perfectly complementary to CITES, which lacks these provisions.
- Ø There was a discussion that the current laws in Madagascar were unclear and participants were confused as to which text actually stipulated that marine turtles were completely protected.
- Ø Question (Mr. Tiana Ramahaleo): What measure is taken by the IOSEA regarding countries that are performing poorly/inefficiently (that have not managed to compile sufficient data)?  
Response (Mr. Douglas Hykle): IOSEA is not a legally-binding instrument, and therefore cannot impose any sanctions for non-compliance. Instead, it uses cooperation and mutual support to achieve its objectives. For example, the IOSEA has created a technical support programme that allows countries to benefit from experts who can provide on-the-ground guidance.

**Agenda point: Presentation of the IHSM « The status of marine Turtle in Madagascar »  
Presented by Mr. Berthin RAKOTONIRINA (IHSM, Tulear)**

Mr. Berthin Rakotonirina gave an overview on the current knowledge status of marine turtles in Madagascar. There are five species in Madagascar: the leatherback (*Dermochelys coriacea*), hawksbill (*Eretmochelys imbricata*), olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*) and green (*Chelonia mydas*). He presented a map showing the current known distribution (foraging and nesting) of turtle species throughout Madagascar, and of migration routes throughout the western Indian Ocean.

Mr. Berthin Rakotonirina presented the most common threats to marine turtles in Madagascar including the fishery, trade, disease and predation, which have led to a decrease in the turtle population. In particular, the consumption of marine turtles is common in Toliara. Catch estimates were presented ranging from 11,000 to 15,000 turtles taken by traditional fishers between Morombe and Androka.

**Table 2. Catch estimates for marine turtles by traditional fishers between Morombe and Androka**

| Catch rates  | Information sources                                   |
|--|---|
| 11000 turtles per year   | Hughes 1981   |
| 12000 turtles per year   | Rakotonirina 1987                                     |
| 11000 to 15000/year<br>580 in 3 years 1998-2001 (from Itampolo to Tsifota) | Rakotonirina and Cooke 1994<br>Rakotonirina, in press |

Loss of habitat from fisheries exploitation, increasing infrastructure, tourist activities and pollution also threaten marine turtles. Berthin listed the national (e.g. Arrêté présidentiel 88-243) and international laws and regulations (e.g. CMS) that Madagascar had instigated to protect and conserve marine turtles.

A number of local strategies to conserve turtles have also been implemented in Madagascar including involving local people in the conservation of hatchlings (Taolagnaro, 1998-1999), development of community-based regulations to protect turtles (Toliara, from 1998 to 2002) and the development and implementation of local management and conservation plans (Maintirano, from 2006 to present).

Finally, Mr. Berthin Rakotonirina finished his presentation with a number of recommendations:

- Encourage the development and use of “Dina”
- Develop strategies for the conservation of marine turtles and establish an action plan in relation of these strategies
- Continue to strengthen information and educational awareness campaigns
- Develop relevant laws and regulations
- Develop regional and international cooperation

**Questions and points:**

- ∅ Question: From where do the turtles come from that are found in Madagascar?  
Response: Turtles are a migratory species that live throughout the Indian Ocean.  
Nesting sites must be protected to ensure the sustainability of the species.
- ∅ Following the presentation there was a discussion on the location of important sites (nesting and foraging) for marine turtles in Madagascar.  
Mr. Douglas Hykle (IOSEA) pointed out that one useful output from the workshop would be updated site data sheets for Madagascar that would highlight important foraging and nesting sites throughout the country.

**Agenda point: Presentation of SWIOFP « SWIOFP Regional Project – Consideration of the preservation of marine turtles »**

**Presented by Mrs. Hajanirina Razafindrainibe (SWIOFP NCC5, SAGE):**

Mrs. Hajanirina Razafindrainibe presented the objectives of the South West Indian Ocean Fisheries Project (SWIOFP) which is part of the larger regional ASCLME Programme (Agulhas and Somali Current Large Marine Ecosystems) that involves nine countries.

SWOIFP is a five year project, funded by GEF and implemented by the World Bank. The overall objective is to promote the sustainable use of fisheries resources and the adoption of an ecosystem approach to fisheries management at the Large Marine Ecosystem (LME)/ *Grand Écosystème Marin* (GEM) level. There are a further three specific objectives:

- Identify and study exploitable offshore stocks in the region
- Develop institutional and human capacity
- Develop a regional structure for fisheries management and coordinated legislation in collaboration with SWIOFC

There are six components to SWIOFP. Marine turtle research and conservation falls into Component 1 (Analysis of gaps in data, data archiving and IT) and Component 5 (Integration of biodiversity in the management national and regional fisheries). The objectives and themes of Components 1 and 5 were presented. Of particular note was the relevance of several themes in Component 5 that related to marine turtles, including:

(i) Assessment of the state of knowledge on the non-consumable resources and the marine biodiversity:

- Distribution, movements, relative abundance and habitat preferences of marine mammals and sea turtles.

(ii) Understanding interactions with fisheries:

- Interactions between cetaceans, sea turtles, seabirds and longline fisheries;
- Regional approach to bycatch assessment and reduction in all fishery types;
- Classification of main zones concerned by incidental catches.

The listed activities, including expected inputs and outputs, of SWIOFP were also presented. In relation to marine turtles it was highlighted that one of the aims was to evaluate interactions between non-commercial marine resources (including turtles) and commercial fisheries, and to reduce the impacts of fishing on these non-target species.

## Agenda point: Presentation of the SWIOFP

« General overview of the current initiatives recently conducted in Madagascar »

Presented by Mr. Dannick RANDRIAMANANTENA (WWF):

Mr. Dannick Randriamanantena highlighted the current initiatives in Madagascar that relate to Component 5 (C5) of SWIOFP.

There was a training workshop on marine turtles in La Réunion from August 31st to September 2nd, 2010. The objective of the workshop was to provide technical training to the nine countries of SWIOFP and prioritise the initiatives of participating countries.

The priorities for Madagascar in relation to C5 of SWIOFP were the monitoring of important marine turtles areas (hot spots), rapid assessment of bycatch, in particular for the traditional fishing activities and satellite tracking of post-nesting individuals.

**Table 3. The recent and ongoing initiatives for Madagascar in relation to C5**

| <b>Priorities of the SWIOFP C5</b>                              | <b>Situation in Madagascar</b>  |
|---|---|
| Deployment of observers   | Existence of the CSP (Centre for Fisheries Monitoring)  |
| Assessment of catches   | Followed from fishing in areas Velondriake and Ranobe (South West) by Blue Ventures and Reef Doctor   |
| Satellite tracking  | ?   |
| Undertaking research and monitoring                             | Continuation of monitoring conducted by WWF and Chelonia on Nosy Iranja by Iranja Lodge;<br>Monitoring performed in the Barren Islands (on hold);<br>Data analysis by the Center Chelonia Reunion (DNA) |
| Intervention in important areas                                 | Southwest, Northwest (Nosy Iranja), Middle West (Barren Islands)  |
| Effective implementation of laws reducing devices bycatch (TED) | Promulgation of decree No. 2003-1101 requiring owners to place TEDs in their nets   |
| Harmonization and standardization of protocols                  | This workshop: Dialogue between actors / Planning / Integration with regional initiatives (MTTF-IOSEA / MTSG-IUCN)  |

In conjunction with the activities in Table 3, other initiatives in Madagascar include the protection of marine turtles and their habitats through the creation of MPAs (e.g. Velondriake, Salary North), community-based resource management (SW Madagascar, Menabe, Melaky) and the study of the fibropapillomas disease in the Barren Isles.

**Questions and points:**

- Ø There was an in depth discussion on issue of tagging (what is possible, resources, benefits).  
Dr. George Hughes noted that only 1% of tags are ever found even if many thousands are applied. He also commented that if tagging is conducted within a country, the objective should be clear from the beginning and the program should have a central base for distribution and recording of tags and tag returns. He also emphasized the importance of working together as a whole.
- Ø There was a short discussion on the nature of the current partnerships in Nosy Iranja between WWF, Iranja Lodge and CNRO. CNRO questioned why WWF were not working more closely with CNRO in the region.

**Agenda point: Presentation of Blue Ventures « Blue Ventures' research activities »  
Presented by Ms. Frances HUMBER (BV Research Coordinator)**

Blue Ventures (BV) marine turtle research and conservation programme was initiated in October 2007, initially focussing on assessing the status of the marine turtle fishery. Monitoring of artisanal fisheries can be difficult, especially in the face of technical, logistical and financial constraints. Therefore BV employed a network of community members that were provided with training and equipment to collect data on marine turtles landed in their village. The initial monitoring started in 12 villages surrounding the village of Andavadoaka, southwest Madagascar. In 2007, 699 turtles were recorded as part of the study, 632 in 2008 and 473 in 2009. The majority of turtles (>93%) were green and captured using the *jarifa* net. The results of this study have been used to estimate the number of potential turtles landed in the Tulear province in 2007 as it provides a conservative estimate of 600 turtles per 60 km. This would equate to approximately 10,000 to 16,000 turtles per year (Humber et al. 2011).

BVs' marine turtle programme has expanded to the Kirindy-Mite region and now also covers community awareness-raising. The programme also encourages community members and fishers to report any turtle nests they find. In 2008 this resulted in the first two green turtle nests hatching in the region within living memory and led to the local protection of the nesting beach. In the future BV plans to continue monitoring the turtle fishery and to promote community conservation of marine turtles through social marketing campaigns that use key messages to target behaviour change.

**Questions and points:**

- Ø Question: Is it actually permitted to take turtles with the Velondriake MPA?  
No, it is not permitted. It is forbidden by the law. There is also a fine of 20,000 Ariary for camping on the nesting beach.

- Ø Proposal by PACP representative: Further monitoring could be initiated within the PACP zone in southwest Madagascar, of which WCS and Blue Ventures are partners. At present 50 marine reserves have been created as part of this project.
- Ø Question: Are you able to verify that the number of turtles landed has increased?  
The data collection is affected by the effort of the community members which we are unable to account for (e.g. whether they miss some turtle landings). We know that they are not able to record all the turtles landed within their village and probably miss between 0-40%.

**Agenda point: Presentation of the WWF « WWF research activities »**

**Presented by Mr. Harifidy RALISON (Western Indian Ocean Marine Programme Coordinator WWF)**

WWF provided an overview of their current marine turtle initiatives in Madagascar. In 2003 TEDs were voluntarily adopted by the Malagasy industrial fisheries. Shrimp-fishing companies initiated a marine turtle monitoring programme showing that before TEDs, 5 to 10% of marine turtles caught would die. In 2005 all industrial shrimp fishing vessels in Madagascar were equipped with TEDs and the number of marine turtles caught is reported to have reduced to zero. This project was supported by the French Global Environment Facility. WWF has also worked with the Malagasy government to establish a national Management Plan in the framework of the MoU of IOSEA.

WWF have also worked in the north of Madagascar on Nosy Iranja since 2000, monitoring the nesting beaches, with further collaborations with the IHSM, University of Oxford and IFREMER. In 2005, a collaborative research project was set up in the Barren Isles and Maintirano, North West Madagascar, with the Natural History Museum of Geneva (MHNG) and supported by IFREMER and CEDTM. This project aimed to support the setting up of an integrated conservation and management plan for marine turtles in the Maintirano and Barren Islands region (for 2007-2010). As a result of this work there was a decrease in the level of turtle exploitation and a complete feasibility study carried out with MHNG and Blue Ventures.

WWF is committed to the long-term implementation and integration of marine turtle research conservation programmes into its marine sites which include Nosy Hara MPA, Barren Isles, Salary North and South of Tulear.

**Questions and points:**

- Ø Is the collaboration with the Museum of Geneva ongoing in the Barren Isles?  
Mr. Harifidy Ralison confirmed that there is currently no financing for the project in the Barren Isles.

Ø Are there any plans to publish the reports and outputs from the project?

Yes, the reports will be made available.

*Post meeting.* Mr. Stéphane Ciccione (Kelsonia) has sent two reports from the region to the participant list. The feasibility study will also be available on [Blue Ventures'](#) reports page.

Ø The critical importance of the Barren Isles as a site for conservation within Madagascar was reiterated by Dr. Alasdair Harris (BV).

### Agenda point: Presentation of the MHNG « Work results carried out on marine turtles in the Barren Isles »

Presented by Ms. Audrey CAMPILLO (Student)

Ms. Audrey Campillo presented work from the Barren Isles from the period October 2005 to October 2010, on behalf of Mr. Geraud Leroux. The objectives of the work were to establish an initial diagnosis on the status of marine turtle populations in the Barren Isles and to assess local interactions with the turtle populations in order to develop a strategy for marine turtle conservation.

Marine turtle research took place on foraging and nesting sites. At the foraging sites 1321 turtles were caught (1256 green, 61 hawksbill, 3 Loggerhead), their measurements were taken and they were tagged. DNA samples were also taken on behalf of IFREMER and analysed as part of a thesis on the diversity and genetic differentiation of green turtles in the Indian Ocean. The study also highlighted that 16% of turtles caught were affected by fibropapillomas (Geraud *et al.* 2010). Ms. Audrey Campillo also studies the occurrence and distribution of fibropapillomas in the Barren Isles for her thesis. Annual monitoring of nesting sites took place between December and February in collaboration with Mr. Berthin Rakotonirina (IHSM). Data from two islands (Abohazo and Andrano) show 4 to 5 nests (green and hawksbill) per season. In 2009 at least 27 turtles that came onto the nesting beaches were poached.

Ms. Campillo highlighted that there had also been a number of further ecological and socioeconomic studies on the Barren Isles by MHNG and other partners. She also listed the awareness-raising work carried out by MHNG in the region, including meetings with fishers to help conserve marine turtles and presentations in schools on the biology of marine turtles.

In April 2008 a three day workshop was organised to establish a Management Committee of the marine environment of the Melaky region with all stakeholders from the region. The biology and threats to marine turtles were discussed as part of a review of the current state of the environment in the region. The committee was formally established in June 2010.

Whilst the project officially ended in 2010, Mr. Geraud Leroux hopes to find further funding to create an MPA in the Barren Isles and to continue conservation efforts, especially as population pressure on the islands has been increasing further.

**Questions and points:**

- Ø There was a long discussion after the presentation on several issues pertinent to the Barren Isles – the issue of migratory fishers, current threats and problems, the status of turtles and current level of surveillance.
  
- Ø Question: Are turtles found to have fibropapillomas released back to nature?  
Response: Yes, they are released.
  
- Ø What nationality are illegal fishers?  
Response: Local people are fishing (eg. for sea cucumbers etc.) on behalf of Asian vessel owners (possibly mainland Chinese or Taiwanese).
  
- Ø The early months of Ms. Campillo's project were devoted to determining the distribution of fibropapillomas in the Barren Isles. After further inquiries on the occurrence of the disease throughout Madagascar, it was found to occur also in Mangily, SW Madagascar.
  
- Ø Ms. Campillo also noted that the human population increase on the islands and coast has potentially impacted the turtle populations. In 2007 the research team were able to catch on average of five turtles per day to take measurements, now they only catch one per day on average. In 2007 there were only two fishing boats on the small sandbar island of Nosy Marify but in 2010 there were up to 56.

**Agenda point: ReefDoctor Presentation of « Project Fano »  
Presented by Ms. Emma GIBBONS (ReefDoctor)**

Project Fano was established in 2008 by ReefDoctor and the IHSM, in the Bay of Ranobe, southwest Madagascar. The project runs in partnership with the fisher association of the region, FIMIHARA. The overall goal of the project is to evaluate and monitor the status of the ecosystem and the changing social practices, especially those that impact on marine turtles in the Bay of Ranobe. More specifically the project aims to increase the scientific and economic understanding of the marine turtle fishers, develop community education programs, identify the cultural significance of marine turtles and initiate discussions on turtle fisheries management with the local community. In particular, the project works closely with a team of community elders on community marine turtle conservation which reflects their strong desire for the management of marine resources. The project also works with children in order to educate the next generation of fishers of marine turtles.

The project has collected data on the distribution and size of the turtle fishery in Ifaty since 2008 through the use of local agents. In 2009, more than 169 turtles were landed, and results in 2010 showed a slight decrease in the number landed. The estimated value of this fishery in the village of Ifaty is about 12 million Ariary per year (\$ 6,000). As a final point Ms. Emma Gibbons noted there were three main questions that faced marine turtle conservation in Madagascar:

- 1) How can we manage a common resource that migrates across national and international borders?
- 2) What are the most realistic cultural, legal, socio-economic strategies for conservation?
- 3) Under what conditions (economic, environmental, social, and political) may the consumption of marine turtles be considered as sustainable?

**Questions and points:**

- Ø There was a discussion based on the example of the traditional use of marine turtles in Australia and the potential for indigenous people to become a self-regulating group. Dr. George Hughes suggested this is a possible way forward for Madagascar.
  
- Ø Questions: How it was decided to limit the hunting of large and small marine turtles? And not juveniles?  
Reply: There was a meeting among the Vezo fishers and they decided on the size of the turtle that could be landed.
  
- Ø Question: How did you value that the turtles are worth 12 million Ariary?  
Reply: Through the price that turtles are sold for in Toliara.
  
- Ø Question: What exactly is the role of the elders?  
Reply: Their role, in simple terms, is to preserve the Vezo culture connected to their identity and pass it on to their children.
  
- Ø Question: Is there a fear of turtle population decline if the taking of adults is authorised?  
Reply: We would ensure that female turtles were protected.
  
- Ø Question: How can we manage a common resource that crosses borders within a country?  
Answer: In Australia, for example, resource management practices involve indigenous rangers and represent a blend of modern and traditional fishing. Communities appreciate the cultural and economic value of their resources. ReefDoctor (and other NGOs etc) can help to catalyse this form of management.
  
- Ø Question: As a migratory resource, what approach should be taken? Especially since the issue in Madagascar is not so much the incidental take arising from turtles interacting with fisheries but the direct turtle fishery.  
Answer: It is difficult to conserve a migratory species, it is necessary to account for the species

by country and their life cycles. It is vital to have more knowledge, so that we can have a course of action, and we need a regional integration. We should ensure that all neighbouring countries are working in the same direction, and follow the same conservation plan.

Ø Question: What other countries also eat sea turtles? Mozambique, Comoros....?

Response: Yes, turtles are eaten in these countries but they have conservation measures that are effective and enforced which have increased the number of turtles.

Ø Question: To what extent are these actions appropriate for Madagascar?

As mentioned, turtles are eaten in other countries in the region and members in these other countries are seeking and creating conservation programs that work. These programs should be taken into account in Madagascar and used as sources for inspiration.

## Résumé Day 2

After a summary of Day 1 had been given by Mr. Stéphane Ciccione, the second day of the workshop focussed on practical solutions to conservation and research on marine turtles in Madagascar. The main objectives were to identify and prioritise the major conservation actions needed for the conservation of marine turtles in Madagascar and to identify practical actions that could be implemented by the different actors in Madagascar (from local governments to local communities).

### Agenda point: Group work

For this exercise, participants were divided into three groups and asked to reflect on the following questions.

1. What are the key issues for the management and research of marine turtles? If you wish, you can refer to the priorities identified in Madagascar's national report to IOSEA.
2. What are the limitations of each of the different actors and entities (government, NGO etc)? Where should they focus their individual efforts? How can we capitalise on the strengths of each entity?
3. Could Madagascar envisage an alternative system for traditional turtle fisheries management (eg. fishing quotas, fishing season etc)? Could local communities take more responsibility for resource management?
4. Other priorities?

For each problem or issue identified the group were asked to consider:

- What is the current situation? What has been done?
- What problems have been encountered?
- What action should be taken?
- Which organisation and which methods should be implemented?

### Agenda point: Working Group Presentations

#### Group 1:

| Problems   |
|--|
| <ul style="list-style-type: none"><li>• Research problems: Lack of knowledge on turtles (life cycle, migration)<br/>Habitat and population of turtles:</li><li>• Pressure on turtles, female captures in the open sea<br/>Finding: The turtles come to forage on the coasts of Madagascar</li><li>• Nesting sites of turtles: identification, assessment, protection</li><li>• Legal problems:</li></ul> |

- Lack of involvement of all actors ( e.g. non consulting of the local community during the drafting of texts)
- Problem of communication
- No combination of legislation, based on scientific knowledge, and local laws based on empirical knowledge
- Capture/fishery
  - Traditional fishing for local consumption
  - Incidental capture: *Jarifa* used by traditional fishers
  - Intentional fishing of turtles: with a spear and by hand
  - Non availability of data on the capture of turtles
  - On the industrial fishing level: lack of information on incidental fishing of turtles on trawlers without observers, longliners and seiners

**The current situation**

**Studies:**

- Cases of Nosy Hara, Nosy Ranja and the Barren Isles (study genetics).  
Results: current analysis (Barren Isles)
- Case of Tanikely, nestling sites of turtles. How to help smaller turtles to escape from predators?

**Constraints between the actors and the institutions**

***Government (laws):***

- Strengths
  - Fishery: resources management
  - Support to communities: Technical, outreach
  - Everywhere
- Limitations
  - Understanding the legislation

***NGOs:***

- Strengths
  - Proximity of presence
  - Fundraising
  - Capacity building
  - Neutrality
- Limitations
  - Geographical
  - Causes
  - Means

***Local authorities; local communities:***

- Strengths
  - Direct relation with the resources
  - Free access to resources
  - Traditional knowledge of resources
  - Traditional laws
- Limitations :
  - Low educational level
  - Difference of cultures/Diversity of cultures

***Research Institutions:***

- Strengths
  - Basic information for decision-making
  - Neutrality of results
  - Capacity building and expertise
- Limitations
  - Funding

**Capitalising on the strengths of each entity**

- Networking of the actors
- Coordinating implementation
- Capacity building of the acquired forces

**Alternative system management system**

- National laws are outdated and do not correspond with the current reality, therefore we need to revise the texts which in turn need scientific, socio-economic and anthropological basis; also refer to the *Dina*
- Empower local communities for resource management

**Others**

- To develop an action plan to define the role of the different partners to provide basis for legislative amendment

## Group 2:

| Problems   |
|--|
| <p><b><i>Laws</i></b></p> <ul style="list-style-type: none"><li>• Not enforced</li><li>• Incompatibility with the Vezo culture</li><li>• Communication / dissemination (at the community level, decentralized structures, the police at the borders)</li><li>• Out of date / not appropriate</li><li>• Verbalization (by sworn officers) and quasi inexistence of penalization towards infringement : lack of human and material resources at the level of CSP to ensure systematic controls, multiple sites</li></ul> <p><i>CSP legal proceedings, validates the PV eventually drawn up by the police</i></p> <p><i>Concerning the Dina of Velondriake: the restriction of captures is only mentioned, but not the fines.</i></p> <p><b><i>Existence of a « marine turtle » industry</i></b></p> <ul style="list-style-type: none"><li>• Fishermen specialized in turtles</li><li>• Conversion towards fishing (turtles)</li><li>• Existence of collectors</li><li>• Increase in the commercial value (related to the reduction of the availability of foodstuffs/ agricultural production in the southern area, during the lean season)</li></ul> <p><b><i>Migration of fishermen</i></b>(5 or 6 texts : decree 2054/2009, 55 to 59)</p> <ul style="list-style-type: none"><li>• Related to the scarcity of the resources</li><li>• Legislation related to the registration of the pirogues and on the fishermen's cards</li><li>• Texts not enforced</li><li>• The Ministry in charge of the fisheries cannot cover all the districts</li></ul> <p><b><i>Demographic growth</i></b></p> <ul style="list-style-type: none"><li>• Exceptionally high in coastal zone</li><li>• Implementation of legislation even more difficult</li></ul> <p><b><i>Policies and strategies</i></b></p> <ul style="list-style-type: none"><li>• In general, there are large-scale activities on any megafauna</li><li>• Turtles are not considered by the government as a promising sector for activities</li></ul> |

### *Governance*

- No good governance
- Compared to the occupation of spaces (not geometric, hotspots...)
- Civil society organisations are not well informed, not structured to put on pressure
- Corruption

### *Social Aspects*

- Fishing parents reluctant to send their children to school
- Attachment to the fishing traditions: fisherman tradition passed on from father to son

### *Research*

- More research policy, more planning guidelines for research, rather opportunistic
- Little orientation towards management or decision-making (fundamental research rather than applied research)
- Lack of coordination and monitoring of research
- Few job opportunities for young researchers
- Problem of changeover in certain fields
- Data and documentation scattered, sometimes unknown (policy of management and property of data)
- Weak development/exploitation of the national and regional expertise
- Little consideration of traditional knowledge

### *Conservation*

- Protection and conservation of priority habitats for marine turtles

### **Constraints between the different actors and entities**

- Politicization of all sectors
- No synergy between sectors and no obligation to get sectorial results
- Use of different languages (example between scientist and manager, scientist and local community)
- Sectors work in isolation (separated interventions)

### **Potential issues**

#### *Areas to on which to concentrate efforts:*

- Integrated approach/whole ecosystem management
- Management of the zones of foraging (seagrass, reefs), nesting, corridors of migration
- Communication on the value of the turtles
- Integration of the turtles in ecotourism
- Regional collaboration (migrating species)
- Partnership at various levels

***Capitalisation of the strengths of each entity***

- To gather all data and information (including repatriation of data which exist only abroad )
- To centralize all the data with the *Centre National de Données Océanographiques*(CNDO) for availability
- To redefine the roles of the ministry in charge of research and the other technical ministries (fisheries, environment, forests...)
- Research convention, controls and monitoring of the research in partnership
- Social marketing and environmental education - use all appropriate media to reach the targeted public

***Alternative system of management***

- Updating/review the legislative texts on turtles
- Prohibition of the sale of turtles and derived products – establishment of fishing season
- Development of income-generating activities for compensation
- Give responsibility to the local communities
- Support use of the *Dina* and its ratification/application
- Development of community networks for protection/preservation of turtles
- Consideration of marine megafauna in development strategies and planning
- Establishment of turtles reserves (community-managed or other)
- Equitable sharing of the benefits drawn from the preservation of turtles
- Entering of all data into a GIS
- Begin the process of developing a conservation/management plan and research funding (regional cooperation)

**Group 3:**

- |   |
|---|
| <ul style="list-style-type: none"><li>• Issues: management problems, legal blur, laws not well known since 1923, often not enforced</li></ul>   |
| <ul style="list-style-type: none"><li>• Development of strong laws and without gaps, interaction with NGOs, explanation of the purpose of the law to the local communities. Emphasize the use of the <i>Dina</i>.</li></ul> <p>In the short term, at the local level: collaboration with the GIZC (integrated management of coastal zones) committee in compliance with the conservation of the marine turtles.</p> |
| <ul style="list-style-type: none"><li>• Alternative system: delegation to the local communities; NGO have to support the communities together with the government.</li></ul>  |

### **Questions and points after group presentations:**

- Ø There remains great confusion on the current laws regarding marine turtles and how they should be implemented on the ground.
- Ø CNRO highlighted the fact that they do have a current marine turtle research programme focussing on egg translocation in the north of Madagascar.
- Ø Mr. Berthin Rakotonirina (IHSM) stated that the purpose of marine turtle conservation is not to stop the consumption of turtles but to find a sustainable way.
- Ø Dr. Mara Edouard (IHSM) raised the point of the use of SCUBA diving (for the purpose of illegal fishing) in Maintirano and if CSP has any further information? CSP remarked that they can only prosecute people that they catch in the act of SCUBA diving and that they are also located in Majunga, a considerable distance from Maintirano and the Illes Barren. Mr. Jocelyn Rakotomalala (MNP) commented that it was strange that there were people reporting the incidences but were not taking any action themselves. The Mayor of Manombo suggested that there should be in-water patrols.
- Ø Mr. Nomery Honoré (Mayor of Manombo) introduced a proposal for future community management. He suggested the introduction of a log book in each *fokotany* that would be used to record the number of turtles landed, by whom, where and if they were transported elsewhere. He remarked that the community would therefore be responsible for monitoring the turtle fishery themselves and that it could be a successful idea, especially if there were financial incentives (e.g. if someone locates a turtle nest they are paid to be the guardian). If this could be put in place he believes then a village level agreement could be more effective than changing the legislation. He remarked finally that at a community level they can be more effective at reducing the effect of outside exploitation.
- Ø Mr. Tiana Randriambola (CSP) commented that he agreed but was interested to know what the Vezo were particularly interested in eating – the meat or the eggs? He said that effective management could only work with integration of the community.

After each group presented the results of its discussion, Mr. Stéphane Ciccione then led a group discussion to synthesise all the groups' results and to summarise the five main issues highlighted.

These were:

1. A lack of scientific and empirical knowledge
2. Regulations are not understood or applied
3. Importance of involving local communities
4. Regional cooperation
5. Political problems

It was noted that a lack of communication was linked to all of the major issues.

### Agenda point: Synthesis of group discussion and priorities

1. A lack of scientific and empirical knowledge. Data and knowledge are currently partial and not centralised. In particular, a better knowledge of the biology of turtles in Madagascar was needed.

Mr. Stéphane Ciccione noted that data and knowledge is currently scattered, a fact compounded by the huge coastline of Madagascar. He highlighted the need for a centralised database and research work.

2. Regulations are not understood or applied; there appears to be no specific legal texts that specify the laws regarding marine turtles.

Current regulation does not seem to specifically address conservation of marine turtles and their habitats; and does not appear to have any specific text on turtles, although marine turtles can be found in species lists as parts of other protective legislation. Legislation must be clearly understood by all stakeholders and therefore must involve local communities. There is the opportunity to invoke the use of *Dina* in marine turtle conservation but they must comply with current legislation.

3. Importance of the involvement of local communities

The use of the *Dina* in Madagascar is potentially a very important tool because of the fact that it is enacted and respected by the local communities. Mr. Stéphane Ciccione highlighted the benefit of 'bottom up' conservation. However, it was stressed that one should not create *Dina* that are in contradiction to current national legislation.

4. Need for greater regional cooperation (outside expertise; local and regional skill); and to establish a national and regional network that is integrated into all sectors relevant to marine turtle conservation.

Regional cooperation is of paramount importance because marine turtles are a migratory species. It must take into account local and national knowledge. There are already many skills already available in NGOs, research centres etc throughout the country. The creation of a national and regional network of stakeholders and actors should be considered. There are also experts available within the WIO region, including the Marine Turtle Task Force who can increase the efficiency of research.

5. Political problems

The current situation in Madagascar means that it could be difficult to implement new legislation. It was highlighted that it is difficult to work on long-term conservation initiatives without improvement of economic, political and organisational situation in Madagascar.

6. Lack of communication (crosses across all priorities)

## Résumé Day 3

Dr. George Hughes and Mr. Stéphane Ciccione presented their previous and current research on marine turtles to provide the participants with a perspective on other research activities in the Western Indian Ocean. The presentations also helped to put Madagascar's nesting and foraging turtle populations in the context of the wider Western Indian Ocean. These presentations were followed by a statement made by Mr. Samba Roger (Velondriake) on behalf of his community. The remainder of day was devoted to creating 'The strategic directions' (axes stratégiques) in relation to the five main issues identified by the meeting and summarised by M. Stéphane Ciccione at the end of Day 2. The strategic directions were decided upon by all participants during an open discussion led by Mr. Stéphane Ciccione.

### Agenda point: Presentation by Dr. George Hughes « Management and Conservation Programs on the Marine Turtles in the Indian Ocean and the results of these Programmes »

Dr. George Hughes presented examples of loggerhead and leatherback management and conservation programs, and some of their results, in other countries of the Western Indian Ocean, including South Africa, Mozambique and Mayotte. Their coverage amounts to 400 km of protected area.

His discussion highlighted the variety of work and results from regional loggerhead and leatherhead conservation programmes, ranging from notching hatchlings to long-term nesting activity monitoring in Tongaland.

### Agenda point: Presentation by Mr. Stéphane Ciccione « Management and conservation programs on marine turtles in La Réunion, Mohéli, Mayotte: the conservation impacts on the nesting population of marine turtles in the southwest of Indian Ocean »

Mr. Stéphane Ciccione presented the conservation impacts on nesting populations of marine turtles in the Illes Eparses (Glorieuses, Tromelin, Europa, Juan de Nova), Mayotte, La Réunion and Mohéli. The Illes Eparses have been protected since 1972 and cover 640 400 km<sup>2</sup> (EEZ) and many of the islands have shown marked increases in nesting populations. For example, the number of nesting individuals in the Glorieuses has increased by 3.5% per year and there are now between 1500 to 2500 females coming to nest each year. In Europa the number of nesting females increased by 2% between 1986 and 2006, and there are a total of 7000 to 11 000 females nesting per year. However nesting populations in Tromelin have decreased (-1.7% 1986 to 2006) and in Juan de Nova increases have been low. Mr. Stéphane Ciccione also presented some results from the larger islands in the Western Indian Ocean. In Mayotte the growth rate of the nesting

population has been 1% per year since 1998. The population increase was smaller than expected, probably as a result of poaching. In Mohéli, in the Comores, nesting populations have increased at the rate of 15% per year since 2000.

Finally, Mr. Stéphane Ciccione presented results of satellite tracking data from loggerheads caught accidentally by fisheries in La Réunion, post-nesting green turtles and genetic studies.

#### **Agenda point: Statement by Mr. Roger Samba**

Mr. Samba Roger introduced 'Velondriake' – a LMMA run by a community association that manages its marine resources in southwest Madagascar. He gave an overview of the partners involved, the history of the association and some of their current work, including implementing marine reserves and training fishers. Mr. Samba noted that Vezo were not the only fishing tribe hunting marine turtles in Madagascar. He made the point that the consumption of marine turtles is not the problem, but rather the number of people now eating turtles, plus the growth of trade. He said that traditionally Vezo fishers naturally avoided hunting during the nesting season but concentrated their activities from March to May. The problem with the current legislation is that it is against the traditional rights of the Vezo, with a further problem that the younger generation were often ignorant of the traditions. He suggested that we need not only to protect turtle nests but also to encourage the traditional use of marine turtles. His final message was that when re-examining the legislation we must also consider the preservation of the culture.

#### **Questions and points:**

- Ø Following a question from Mr. Jocelyn Rakotomalala (MNP) on the WIO network, Mr. Stéphane Ciccione clarified that the data he presented on genetic analysis and migration in the WIO was still ongoing and that more information was still required.
  
- Ø Mr. Rijaso Fanazava (CSP) asked if it was enough to protect the nesting sites, if harvest continues, to produce an increase in turtle populations? Mr. Stéphane Ciccione explained that protecting nesting sites is also an important first measure. However it is not sufficient if the level of harvest is significantly greater than the level of nesting within a country. If the level of harvest is less than the level of the nesting population (eg. as in Moheli, Comoros), then protecting nesting beaches may be sufficient.
  
- Ø Mr. Nomery Honoré (Mayor of Manombo) commented that it was important not to forget the work of communities themselves and that there has been a change in attitude towards conservation. Communities are willing to partake in conservation actions but they also need external support to achieve this.
  
- Ø Mr. Tiana Randriambola (CSP) asked if turtles always returned to their hatching site to nest. Mr. Stéphane Ciccione replied that sometimes this was not the case and that turtles could nest

somewhere new (eg. La Réunion was created during a volcanic eruption but turtles came to nest there after it was formed).

- Ø Mr. Jocelyn Rakotomalala (MNP) commented that Madagascar was behind in their turtle conservation efforts. He asked, how can Madagascar catch up? Can we rehabilitate nesting sites? Can we create new nesting sites?
- Ø Mr. Stéphane Ciccione replied saying that it was not too late to start marine turtle conservation work. By putting in measures now relatively quick results (5 – 10 years) could be attained because of the country's proximity to important nesting sites in the WIO. He also talked about programmes that have created new nesting sites in La Réunion and the United States.
- Ø Mr. Harifidy Ralison (WWF) made a recommendation for the workshop, that the biggest threat to marine turtles is fishing/hunting. He said that fishers don't see the advantages of marine turtle conservation and that educational workshops were required to properly explain the benefits of conservation and subsistence use. He said it was important to show fishers the ecosystem services provided by turtles and the potential economic gain. If this is explained clearly then we will be able to respond to the threats quicker.
- Ø Mr. Berthin Rakotonirina (IHSM) noted that many fishers asked him why they should protect marine turtles. He said that it was difficult to explain the socioeconomic benefits at a community level.
- Ø Mr. Nomery Honoré (Mayor of Manombo) commented that we need to reduce the number of people who eat turtles and their transport to markets so that it is reduced to a sustainable level.
- Ø Mr. Dannick Randriamanantena pointed out that in Mr. Stéphane Ciccione's presentation the nesting peaks found in the islands near to Madagascar corresponded to the low turtle fishing period in Madagascar (December to February).

Concluding the discussion, Mr. Stéphane Ciccione observed that people had been eating turtles in Madagascar for 3000 years and they had not gone extinct in the region. Therefore turtle fishing in Madagascar can continue if it is at a sustainable level – if harvest is for local consumption only – and the threat to the wild population will be reduced. If turtles continue to be sold to markets then the pressure on the populations will increase and may not be sustainable.

## Agenda point: Strategic Directions

**Table 4. The Strategic Directions**

| DIRECTIONS  | ACTORS  | LOCATION   | PARTNERS                  | OBSERVATIONS   |
|---|---|--|---------------------------|--|
| <b>1. Scientific knowledge</b>  |   |  |                           |  |
| 1.1. Inventory of priority habitats   | <ul style="list-style-type: none"> <li>• CNRO</li> <li>• MNP</li> <li>• IHSM</li> <li>• SWIOFP</li> <li>• Local communities</li> <li>• WWF</li> </ul>   | <ul style="list-style-type: none"> <li>• Northwest: regions : Diana, Boeny, Sofia</li> <li>• MPAs</li> </ul> |                           | <p>Surveys needed (of species, areas etc); many structures are needed to conduct the inventories; collaboration with the local community.</p> <p>WWF: database on turtles in the WIO region.</p> |
| 1.2. Socio-economic studies: place of marine turtles among the local populations                | <ul style="list-style-type: none"> <li>• CNRO</li> <li>• CNRE</li> <li>• Blue Ventures</li> <li>• IHSM</li> <li>• WWF</li> <li>• MNP</li> </ul>   | <ul style="list-style-type: none"> <li>• SW</li> </ul>   |                           | <p>Blue Ventures: importance of resources on the distribution of the population in the southwest.</p> <p>IHSM: Publications on Maintirano, current publications on Toliara.</p>                  |
| 1.3. Economic assessment of the conservation and management program /ecosystem value of turtles | <ul style="list-style-type: none"> <li>• MNP</li> <li>• ESPA Project</li> <li>• WWF</li> <li>• CNRO</li> </ul>  |  |                           | <p>ESPA: submission is in process (leader BV, information WWF).</p> <p>WWF: contact with the experts, network.</p>   |
| <b>2. Regulations</b>   |   |  |                           |  |
| 2.1. Analysis of the existing texts   | <ul style="list-style-type: none"> <li>• Consultants</li> <li>• Ministère de la pêche</li> <li>• Commission interministérielle</li> <li>• CN-GIZC (Commission Gestion des Ecosystemes)</li> </ul> |  | Intervention of the IUCN? | <p>Identification of gaps in view of the amendment of the existing legislation.</p> <p>Workshop required for text enforcement.</p>   |
| 2.2. To make known the existing legislations  | <ul style="list-style-type: none"> <li>• CSP</li> <li>• Local communities</li> <li>• NGO</li> <li>• Ministère de la pêche et des ressources halieutiques</li> </ul>                               |  |                           | <p>Participation of the organisations which are present.</p> <p>Standardised materials.</p> <p>CSP: enforcement of laws.</p> <p>Ministry: development/ output of texts.</p>                      |
| 2.3. Development / implementation of texts on the turtle  | <ul style="list-style-type: none"> <li>• Mayors</li> <li>• Vigilance committee</li> </ul>   |  |                           | Municipal decrees on the prohibition of turtle trade.  |

|  |   |  |  |   |
|--|---|--|--|---|
| trade(prohibition)   | •Other actors ( <i>see point 2.2</i> )  |  |  |   |
| <b>3. Implications of local communities</b>  |   |  |  |   |
| 3.1.Structuring / to give responsibility to existing local structures                              | <ul style="list-style-type: none"> <li>•VOI</li> <li>•Associations and groups</li> </ul>  |  |  | <p>Support needed.</p> <p>Distribution of interventions in order to cover the maximum area.</p> <p>Integration of the activities into current actions.</p>  |
| 3.2 (Standardized) Training, capacity building and exchanges of experiences                        | <ul style="list-style-type: none"> <li>•Communes</li> <li>•Local structures</li> <li>•Vigilance committee</li> <li>•NGO (BV, Reef Doctor)</li> <li>•Research and training Institutions</li> <li>•MNP</li> <li>•WWF</li> </ul> | <ul style="list-style-type: none"> <li>•SW et S</li> </ul><br><ul style="list-style-type: none"> <li>•MDG</li> </ul> |  | <p>In view of the acquisition of knowledge and for marine turtle monitoring: funding required.</p> <p>To ensure the ownership of the process by the communities.</p>  |
| 3.3.Integration of the activities on marine turtles and their habitats into the current activities |   |  |  | Integrate the action plans of the associations and structures into the communal and village development plans.  |
| <b>4. Regional cooperation and networking</b>  |   |  |  |   |
| 4.1 The creation of national network/ national committee   | <ul style="list-style-type: none"> <li>•Focal Point IOSEA (coordination)</li> <li>•CN-GIZC GE</li> <li>•NGO</li> <li>•Local communities</li> <li>•Local structures</li> </ul>   |  | On the ground projects                               | <p>Identification of members and coordinators.</p> <p>To strengthen the focal point.</p> <p>Integrate marine turtles into the activities of the <i>Commission Gestion des Ecosystemes</i>(one specific sub-commission if needed).</p> |
| 4.2 Regional cooperation   | <ul style="list-style-type: none"> <li>•WWF</li> <li>•MTTF-WIO</li> <li>•KELONIA</li> <li>•SWIOFP-MDG</li> </ul>  | •WIO   | IHSM<br>Iranja Lodge<br>SWIOFP<br>IFREMER<br>Reunion | <p>Collaboration with existing organisations and conventions.</p> <p>REU: creation of database and GIS.</p> <p>MTTF-WIO: assistance, advice to integrate into existing programs.</p>  |
| <b>5. Political problems</b>   |   |  |  |   |

## **Final questions and points arising from the general discussion of priorities:**

### **1. Scientific and empirical knowledge**

- Ø Mr. Rémi Ratsimbazafy (WWF) commented that the challenge was the habitat outside of MPAs (1.1).
  
- Ø Mr. Harifidy Ralison (WWF) commented that WWF is not a donor organisation and although they have a conservation plan for their work in the WIO region which includes turtles, they cannot detail exactly at this point what they will be able to achieve.
  
- Ø Mr. Rémi Ratsimbazafy mentioned that WWF and Blue Ventures are two partners in a proposal that has been submitted to the Ecosystems Services and Poverty Alleviation programme (ESPA). There was no indication on likely success of this proposal.
  
- Ø Mr. Berthin Rakotonirina (IHSM) suggested that the country should be divided geographically and that organisations working in different regions could collaborate.
  
- Ø Mr. Jonah Ramanantoniaina (CNRO) reiterated that CNRO has been doing research in the north of Madagascar for a long time and that this is recognised.
  
- Ø Mr. Jocelyn Rakotomalala (MNP) said that MNP considers marine turtles to be one of their target conservation species and his recommendation will be that their conservation is integrated into all their current management sites.
  
- Ø Mr. Berthin Rakotonirina (IHSM) reiterated that the IHSM has worked in the Toliara (ongoing) and Maintirano (currently completed) regions.
  
- Ø Mr. Douglas Hykle (IOSEA) suggested that expertise should be sought and shared throughout the country, and that if organisations know of each others' past experience, then any lessons learned can be transferred to other entities thinking of establishing a similar study/conservation programme.
  
- Ø Mr. Harifidy Ralison (WWF) said that WWF was creating a database of regional data, and that this could include data on marine turtles.
  
- Ø Mr. Douglas Hykle (IOSEA) suggested that NGOs with offices in other countries should use their networks to find examples of similar studies that have been done in the region, which might be adapted to the context of Madagascar.

## **2. Regulations**

- Ø Mr. Todiario Pierre (CNRO) mentioned a new decree (2010-137) that regulates the management of coastal areas in Madagascar and recommends the preservation of marine resources. He noted that, at the level of the government, the sustainable use of marine resources has already been integrated into national policy.
- Ø Mrs. Hajanirina Razafindrainibe (SWIOFP) recommended that everyone needed to be educated on the existing legislation and that a consistent message was needed.
- Ø Mr. Rémi Ratsimbazafy (WWF) emphasised the need: 1) to stop commercial trade in turtles and 2) to find a way to allow personal consumption for the Vezo.
- Ø It was noted that the two steps needed to deal with the problems of legislation were to 1) identify existing legislation and then 2) educate the communities on them.
- Ø Mrs. Samueline Ranaivoson said that the current law needed to be updated and then an implementation decree passed.
- Ø Based on the discussion that had taken place, Mr. Douglas Hykle (IOSEA) reiterated the need for a review of all the existing laws– something that IUCN had the capacity to do elsewhere (i.e. in Asia) through its regional office in Bangkok.
- Ø Mr. Shawn Peabody (BV) said that a management plan should be initiated for the implementation of any new laws from the community to the ministerial level.
- Ø Mr. Tiana Randriambola (CSP) suggested that a legal consultant could be hired to analyse the current laws. Following this a workshop should be organised to discuss changes to the laws. He said that CSP could lead in the enactment of new laws.
- Ø It was noted that it should technically be the Ministry of Fisheries, and not CSP, that should lead on this action (above).
- Ø Mrs. Hajanirina Razafindrainibe (SWIOFP) recommended that it is not just the responsibility of the Ministry of Fisheries and that other ministries have a role to play too (e.g. Ministries of Land Use and Tourism). She also recommended that CSP should sensitize other sectors to take measures towards conservation of marine turtles.
- Ø Mr. Stéphane Ciccione suggested that an intra-ministry commission could be created. It was noted that this already existed in the form of the GIZC committee.

- Ø On reducing the sale of marine turtles, Mr. Berthin Rakotonirina (IHSM) suggested that the mayors could publish a decree to prohibit their sale. Mr. Tiana Randriambola (CSP) said that turtle trade was not limited to one city or commune and that a network of mayors publishing the same decree would be better.

### **3. Involvement of local communities**

- Ø Mr. Stéphane Ciccione declared that it is vital that local communities are involved in the monitoring and research of marine turtles.
- Ø BV and ReefDoctor noted that this was currently part of both of their conservation programmes.
- Ø Mr. Stéphane Ciccione said that this research is very important because although communities have a lot of knowledge, they need to be provided with a method to collate all this knowledge.
- Ø Mr. Dannick Randriamanantena (WWF) noted that WWF could work with BV and ReefDoctor in Toliara region. He also said that turtle conservation should not be considered a separate issue but should be integrated as one part of the overall activity plan. He also made the point that any changes to the law will affect the whole country, not just the Vezo in the southwest of Madagascar.
- Ø Mr. Stéphane Ciccione commented of the need to take account of other tribes in Madagascar that have a claim to hunt turtles.
- Ø Mrs. Hajanirina Razafindrainibe (SWIOFP) recommended that communities be efficiently trained in marine turtle research and conservation.
- Ø Mr. Todiario Pierre (CNRO) commented that integrating the community would be effective only if activities were not seen as being imposed by outsiders (and therefore would not cease once that person/NGO/group leaves). Ownership of any projects must be instilled so that the community is the first beneficiaries. If projects are designed by the communities themselves then they are more likely to take ownership of the project.
- Ø Mr. Rémi Ratsimbazafy (WWF) asked how best to implement standard training across the country. He suggested that community exchanges were a good method.
- Ø Mr. Harifidy Ralison (WWF) assured the group that WWF plans to focus on capacity building on marine turtles in Madagascar by 2015.

- Ø Mr. Nomery Honoré (Mayor of Manombo) argued that the workshop should acknowledge the current work of local associations. New organisations and associations did not need to be created, rather the existing ones required support. He also encouraged the supportive work of NGOs because they were able to work in more remote locations and out of villages.
- Ø Ms. Audrey Campillo said that many objectives would be difficult to achieve without finance. She also mentioned that it was hard to get people to come to meetings without providing a *per diem*.
- Ø Mr. Nomery Honoré (Mayor of Manombo) said that per diems were introduced by foreigners but if local people are to come to a meeting then they should be compensated for their loss of earnings. He once again reiterated the point that if communities were assured of their ownership of a project then they would be willing to attend meetings. He also pointed out that there seemed to be a problem of multiple projects occurring at the same sites within Madagascar and suggested that projects should cover different geographical areas.
- Ø Ms. Hajanirina Razafindrainibe (SWIOFP) said that local communities should insist that marine turtle conservation be integrated into local documents and activity/action plans.
- Ø Mr. Stéphane Ciccione highlighted importance of using existing structures and organisations to efficiently implement this action plan.

#### **4. Networking and regional cooperation**

- Ø Mr. Rémi Ratsimbazafy (WWF) suggested that we should look at which organisations are already working within a region and what activities they have in place. However he raised the question of how new work will be divided and completed without adequate funding.
- Ø Mr. Harifidy Ralison (WWF) asked what is the difference between the network under discussion and the existing WIO-MTTF? M. Stéphane Ciccione clarified that the MTTF is a network of experts working within the WIO region, to promote implementation of the regional IOSEA Conservation and Management Plan, but in this initial discussion we are seeking to create a network of stakeholders in Madagascar alone. Questions we should ask are: who, where and how often will they meet? Who will be the lead organisation? Should Madagascar be divided into regions for this purpose?
- Ø Mr. Pierre Ravelonandro (CNRO) said that there are already two structures in place: 1) the IOSEA focal point and 2) GIZC committee (CN-GIZC GE), and that these two could collaborate or harmonize their activities.

- Ø Mr. Rémi Ratsimbazafy (WWF) made the point that any network will not be of use without a real purpose and perhaps this was too ambitious without any funding. He suggested it started with informal correspondence.
- Ø Ms. Hajanirina Razafindrainibe (SWIOFP) said that it was important that local communities were included in any network, as well as NGOs and research centres.
- Ø The current situation of both the focal point and GIZC committee were explained to the group, and how they could work together to form some form of working group on marine turtles.
- Ø Mr. Pierre Ravelonandro (CNRO) commented that the normal progression for a country was for the IOSEA Focal Point's functions to be replaced by some form of national committee and a corresponding management plan.
- Ø Several suggestions were put forward for the formation of a working group on marine turtles:
- A new working group created within GIZC
  - Add to responsibilities of the existing subgroup on ecosystem management (CN-GIZC GE)
  - Integration of the IOSEA Focal Point functions into the GIZC subgroup
- Ø Ms. Marguerite Voahirana Rasolofo (CNRE) suggested that the draft 2005 action plan could be submitted to the GIZC as a working document and the ideas from the workshop could be used to update it.
- Ø Mr. Douglas Hykle (IOSEA) asked how the different actors in Madagascar could cooperate more effectively than at present in order to move forward over the next 1-2 years. What would be the most efficient arrangement to ensure some continuity from this workshop? He said it would be disappointing if there were no mechanisms put in place to continue this very productive group discussion in the future.
- Ø Mr. Harifidy Ralison (WWF) said that there was hesitation on the participants' parts because they had experienced past workshops with no further commitments achieved. He reiterated that the working group should fall under GIZC so further discussion could continue, and that many of its members were present at the workshop.
- Ø Mr. Stéphane Ciccione asked the GIZC sub-committee might be used to deal with marine turtle conservation and research.
- Ø Mr. Hajanirina Razafindrainibe (SWIOFP) said that CNRE was already a member of the GIZC and that turtles were already part of prior sub-committee discussions. Therefore, we don't need to do much; we've already started to talk about turtles in that framework.

Ø Mr. Stéphane Ciccione suggested that perhaps the GIZC sub-committee could take more responsibility.

### ***Regional cooperation***

Ø Mr. Rémi Ratsimbazafy (WWF) reiterated his suggestion to examine successful efforts within the WIO region, perhaps through the organization of an event involving other WIO countries. Stéphane Ciccione said that perhaps instead of having a new workshop, then they could utilise existing funded workshops to learn about best practices (e.g. WIO-MTTF, WIOMSA) in order to minimize costs.

Ø Mr. Harifidy Ralison (WWF) said it was a priority of WWF to strengthen cooperation at the regional level.

Ø Mr. Douglas Hykle (IOSEA) explained that Ms. Marguerite Rasolofo represented Madagascar in the WIO-MTTF. He asked if Dr. George Hughes and Mr. Stéphane Ciccione had any ideas on improving collaboration in other fields, such as genetics sampling and satellite tracking.

Ø Mr. Stéphane Ciccione said that on behalf of Kelonia, even though they did not have specific funding, they would be happy to assist and provide information. Dr. George Hughes said that he and the chair of WIO-MTTF, Dr Ronel Nel, would also be able to provide information (mostly on loggerheads and leatherbacks for SA).

Ø Mr. Harifidy Ralison (WWF) as coordinator of WIOMSA in Madagascar highlighted use of WIOMSA as a source of knowledge.

### **5. Political considerations**

Ø A representative of the GIZC committee reiterated that the committee takes into account community opinions. It was further noted that the GIZC committee was safe from political instability and government reshuffling since it reported to the 'Primature'.

Concluding the workshop, it was agreed that CNRE and GIZC should continue their consultations, taking into account the many useful ideas that were expressed during the workshop. The workshop's identification of important issues, coupled with the constructive interventions that were made in the spirit of addressing fundamental problems, will help Madagascar move closer to refining and adopting a management plan with the involvement of interested stakeholders.

# Appendices

## Appendix 1: Agenda

### **Workshop for the adoption of a management and conservation plan for marine turtles in Madagascar**

#### **Overall objective:**

To strengthen Marine Turtle Research and Conservation in Madagascar so as to achieve the objectives for Madagascar, as a member State of the IOSEA programme.

#### **Specific Objectives:**

- To identify the main threats to marine turtles in Madagascar
- To highlight the gaps in research and the understanding as well as the most practical and effective methods to fill these gaps
- To support the most effective conservation efforts to reduce the threats
- To discuss and plan as how to implement the best practice initiatives in conservation in the whole country
- To develop a « National Action Plan » or a « strategy » setting the most significant priorities (and /or the most practical/feasible) actions identified during the workshop

#### ***Monday, 7th February 2011***

#### **Review of IOSEA – Threats to the marine turtles -- ongoing activities in Madagascar**

**8:30 – 9:00: welcoming of the participants**

**9:00 – 9:30 welcoming speech**

**9:30 – 9:4 Presentation of the workshop (*Blue Ventures or CNRE*)**

- Goal, Objectives and Expected Results of the workshop
- Agenda of the workshop
- Logistic (Presentation : 10 to 15 mn ; Discussion and Questions – Responses : 15 to 20 mn)

**9:45 – 10:00 Coffee Break**

✓ **9 :30 – 12 :30 *Plenary Session***

#### **Objectives:**

- To identify the main threats to marine turtles in Madagascar
  - To present the various ongoing works on marine turtles
  - To highlight the gaps in research and the understanding as well as the most practical and effective methods to fill these gaps
- ✓ **10 :00 – 10 :30 Presentation of the IOSEA MoU on Marine Turtle Conservation and Management » (*IOSEA Coordinator*)**

**10:30 – 11:00 Review of the status of the marine turtles in Madagascar - (*Berthin*):**

- The main sites of reproduction ;
- The populations ;
- The threats.

**11:00 – 11:30 Review** of the current laws on the marine turtles in Madagascar and in other countries (exemption of the traditional uses) (*Tiana, WWF*)

**11:30 – 12:00** current activities in Madagascar (*SWIOFP team*)

**12:00 – 12:30** Discussions (Questions and Responses)

**12:30 – 14:00** Lunch

✓ **14 :00 – 17 :00 Plenary Session**

Objectives:

- To present the cases study (current research and conservations on the marine turtles, particularly focusing on what has gone well and on what did not function for the Conservation
- To make a consensual summary on the main threats and the conservation activities which were effective and successful

**14:00 – 14:30** current research and conservation programs carried out by WWF (*WWF team*)

**14:30 – 15:00 current** research and conservation programs carried out by Blue Ventures Conservation (*Blue Venture teams*)

✓ **15 :00 – 15 :15** Coffee break

**15:30 – 16:00** The results of the work carried out on the marine turtles in the Barren Isles (*Audrey Campillo, MHNG*)

**16: 00 – 16:30:** The results of the work carried out on the marine turtles by Reefdoctor

**16:30 – 17:00:** Discussions (Questions – Responses)

**Tuesday 8th February, 2011** Practical Solutions for the conservation and the development of research on the marine turtles

Objectives:

- To identify and to prioritize main actions of required conservation for the preservation of marine turtles in Madagascar.
- To identify the practical actions, this can be applied by different organizations in Madagascar (from the government level to the local communities).

✓ **08 :30 – 10 :00 Plenary Session**

**08:30 – 09:15** Summary of the first day results

**09:15 – 09:30** Definition and formation of group works

**9:30 – 10:00** Coffee Break

✓ **10 :00 – 12 :30 Group Works** (4 reflexion groups)

Questions to be considered by each group

1. *What are the main issues for the management and research of marine turtles?* Refer to the action plan of the IOSEA national report (5.2.2)
2. *What are the limitations between the different actors and entities (government, NGO, etc...), Where should the efforts to be focalized? How can we capitalize on the strength of each entity?*
3. *Could Madagascar envisage an alternative system for management integrating the traditional turtle fishery management (quota and fishing season,) in concertation with local communities? Could the local communities take more responsibility for resource management*
4. *Other priorities.*

For each problem or issue identified the group were asked to consider:

- What is the current situation? What has been done?

- What problems have been encountered?
- What actions should be taken?
- Which organisation and which means should be implemented?

**12:30 - 14:00** Lunch

**14: 00 - 15:00** Presentation of the groups' work (10mn each)

**15: 00 - 16:00** Synthesis of the groups' work

**16:00 – 16:30** Coffee break

**16:30 - 17:00** List of the priorities for the conservation and the research development on the marine turtles in Madagascar

**Wednesday, February 9th, 2011: Implementation Plan for the research and the conservation of marine turtles**

Objectives:

- To review the management plan on marine turtles developed by the previous National Committee on marine turtles and to finalise the main strategic directions and the suggested activities in the Management Plan by setting the major priorities (and/or the practical and feasible actions) identified during the workshop
- To create a national network working for the Conservation of marine turtles which can provide assistance to the IOSEA focal point (CNRE)
- To define an action plan (short, mid, long term) for an effective implementation of the Management Plan

**08:30 – 09: 00** *plenary session*

**08:30 – 09: 00** Review of the first and second days results

√ ***Group Works*** (2 to 3 groups)

**09:00 - 11:30** Discussions of the recommendations to apply the best practical initiatives of Conservation in the whole of Madagascar.

*Topics of discussions for each group*

- *Identification of the main strategic directions and the activities suggested for the Management Plan*
- *Collection of the different ongoing practices on conservations of all the actors*  
*Definition of an Action plan (in the short, mid, long term) for an effective implementation of the Management Plan*

**9:45 – 10:00** Coffee Break

**11:30 - 12:30** Summary of the groups 'work, the resolutions and the recommendations

**12:30 - 14:00** Lunch

√ **14 :00 - 17 :00** Plenary *Session* (Stéphane Ciccione)

**Objectives:**

- To define the next stages after the workshop for the implementation of the National Action Plan and the related recommendations;
- To develop the best way to achieve the goals laid down during the workshop in order to ensure the application of the ideas obtained from the workshop
- Responsibility charts

**14:00 - 16:00 Discussion and summary for the finalization of National Action Plan and action perspective**

**16:00 – 17:00** Final Recommendations and thanks.

Appendix 2: Table of actors

| Acronym  | Organisation  | Participant                        | Organisation Competence  | Region of activity | Email                  |
|----------|---|------------------------------------|--|--------------------|------------------------|
| MESUPRES | Ministère de l'Enseignement Supérieur et de la Recherche Scientifique | M. Christian Ralijaona (S.G)       | Administration de la recherche   |                    |                        |
| MESUPRES |   | M. Remi Georges (D.G)              |  |                    |                        |
| MESUPRES | Ministère de l'Enseignement Supérieur et de la Recherche Scientifique | M. Jean Maharavo (D.R.)            |  |                    | jmmaharavo@gmail.com   |
| CNRE     | Centre National de Recherches sur l'Environnement, MESUPRES           | M. Guy Rabarison                   | Centre de recherche; Execute les travaux et les projets/programmes des recherches environnementales      |                    | garabarison@yahoo.fr   |
| CNRE     | Centre National de Recherches sur l'Environnement, MESUPRES           | Mme. Pierrette Ramasiarisoa        |  |                    | ramasipl@yahoo.fr      |
| CNRE     | Centre National de Recherches sur l'Environnement, MESUPRES           | M. Pierre Ravelonandro (Directeur) |  |                    | phravelona@yahoo.com   |
| CNRE     | Centre National de Recherches sur l'Environnement, MESUPRES           | Mme. Marguerite Voahirana Rasolofo |  |                    | mrasolovoa@yahoo.fr    |
| CNRO     | Centre National de Recherches Oceanographiques, MESUPRES              | M. Jonah Ramanantoniaina           | Recherche oceanographiques (la pecherie, le environnement marin cotiers, biologie, ecologie). Recouperer |                    | jonahramanant@yahoo.fr |

| Acronym    | Organisation  | Participant   | Organisation Competence   | Region of activity       | Email                               |
|------------|---|---|---|--------------------------|-------------------------------------|
|            |   |   | les bagues des tortues au nord de Madagascar.   |                          |                                     |
| CNRO       | Centre National de Recherches Oceanographiques, MESUPRES                                | M. Todiario Pierre  |   |                          | piertodiario@gmail.com              |
| DPRH       | Direction regionale de la Peche et des Ressources Halieutiques Vatovavy Fitovinany      | M. RAVONJISOA Jean Regis (Directeur Régional Vatovavy Fitovinany) | Gestion et administration de la peche et des resrouces halieutiques (traditionelle, artisanale, industrielle) | Southest Madagascar      | ravonjisoa.jr@hotmail.fr            |
| DPRH       | Directeur Régionale de la Pêche et des Ressources Halieutiques de Melaky                | M. FANORENA Evariste Gaëtan                                       | Gestion et administration de la peche et des resrouces halieutiques (traditionelle, artisanale, industrielle) | Melaky                   | No email access (+261 32 42 690 80) |
| MPRH       | Ministère de la Peche et des Ressources Halieutiques                                    | Samueline Ranaivoson  | Responsble de la Cellule Environnementale   | Toutes les zones cotiers | samranaivo@gmail.com                |
| DPRH       | Direction regionale de la Peche et des Ressources Halieutiques                          | GILBERT Francois (Directeur Regional Atsimo Andrefana)            | Gestion et administration de la peche et des resrouces halieutiques (traditionelle, artisanale, industrielle) | Southwest Madagascar     | gilbert_francois@yahoo.fr           |
| CSP (MPRH) | Centre de Surveillance des Peches; Ministère de la Peche et des Ressources Halieutiques | M.Tiana Randriambola  | Font les suivi des activites des pecheurs sur toutes les cotes et ZEE   | Toutes les zones cotiers | csp-soc@blueline.mg                 |

| <b>Acronym</b>            | <b>Organisation</b>  | <b>Participant</b>                                    | <b>Organisation<br/>Competence</b>   | <b>Region of activity</b>         | <b>Email</b>  |
|---------------------------|--|---|--|-----------------------------------|---|
| CSP (MPRH)                |  | M. Rijaso Fanazava                                    |  |                                   | rijafanazava@yahoo.fr                                     |
| IHSM                      | Institut Halieutique et des Sciences Marines                                     | M. Berthin Rakotonirina                               | Insitution de recherche pour la formation et l'execution des travaux                   | Southwest Madagascar              | fanozaty@yahoo.fr   |
| IHSM                      | Institut Halieutique et des Sciences Marines                                     | M. Mara Edouard                                       |  | Southwest Madagascar              | mara@syfed.refer.mg;<br>maraedouard@yahoo.fr              |
| IHSM                      | Institut Halieutique et des Sciences Marines                                     | Eulalie Ranaivoson                                    |  |                                   | eulalie_v@yahoo.fr  |
| Université d'Antananarivo | Dpt Biologie Animale, Université d'Antananarivo                                  | Mme Noromalala Raminosa                               |  |                                   | rsnoro@yahoo.fr   |
| SAGE                      | Service d'Appui à la Gestion de l'Environnement                                  | Mme. Hajanirina Razafindrainibe (SWIOFP NCC5, GIZC)   | Gestion de l'environnement avec les communautes  | Tous les regions, zones cotiers   | hajanirina.sage@blueline.mg;<br>hajaniry@yahoo.fr         |
| MEF                       | Ministère de l'Environnement et des Forets                                       | Mme. Sahondra Rabesihanaka (Point focal CITES)        | L'application des lois sur l'especes protegees (avec IUCN)                             |                                   | rabe_sahondra@yahoo.fr                                    |
| GIZC                      | Comité National pour la Gestion Intégrée des Zones Côtieres et Marines           | M. Mamy Razakanaivo (Président du Comité (Primature)) | Definer les priorities des actions dans les differents zones cotiers                   | Tous les regions, zones cotiers   | razakanaivom@yahoo.fr                                     |
| GIZC                      | Comité GIZC et également le Point Focal de la Convention de Nairobi à Madagascar | Mme Andrianarivo Chantal                              |  |                                   | val@madagascar.national.parks.mg;<br>chantandri@gmail.com |
| PNRC                      | Programme National de Recherche Crevetière                                       | RANDRIAMIARISOA Miandry                               | Insitution de recherche (seulement crevettière) attache au MPRH                        | Zones d'exploitation de crevettes | miandry343@yahoo.fr                                       |
| PACP                      | Projet d'Appui aux Communautés des Pêcheurs de Toliara                           | M. Sébastien Tatangirafeno                            | Gestion de l'environnement avec les communautes  | Southwest Madagascar              | tt.sebastien@gmail.com                                    |
| GAPCM                     | Groupement des Aquaculteurs et Pecheurs de crevette Malagache                    | M. Andrianirina Ralison                               | Groupe industrielle pour la perrennisation de l'exploitation crevettiere et la gestion | Zones d'exploitation de crevettes | gapcm.sg@blueline.mg                                      |

| <b>Acronym</b>       | <b>Organisation</b>                     | <b>Participant</b>                  | <b>Organisation Competence</b>              | <b>Region of activity</b>                        | <b>Email</b>                 |
|----------------------|---|-------------------------------------|---|--|------------------------------|
|                      |   |                                     | durable                                     |  |                              |
| Consultante          |   | Mme. Faratiana Rafatsifandriamanana |   |  | yfaratiana@yahoo.fr          |
| WWF                  | World Wildlife Fund                     | M. Tiana Ramahaleo                  |   |  | tramahaleo@wwf.mg            |
| WWF                  | World Wildlife Fund                     | M. Dannick Randriamanantena         |   |  | drandriamanantena@wwf.mg     |
| WWF                  | World Wildlife Fund                     | M. Rémi Ratsimbazafy                | WWF Marine Programme - WIOMER               | WIO Islands                                      | rratsimbazafy@wwf.mg         |
| WWF                  | World Wildlife Fund                     | Harifidy Ralison                    |   |  | horalison@wwf.mg             |
| TSA                  | Turtle Survival Alliance                | M. Herilala Randriamahazo           |   |  | herilala@turtlesurvival.org  |
| CI                   | Conservation International              | Mme. Ando Rabearisoa                | Research and conservation                   | North East Madagascar                            | arabearisoa@conservation.org |
| Université de Tuléar |   | Mme. Audrey Campillo                |   | Maintirano & Illes Barren                        | audreycampillo@yahoo.fr      |
| Velondriake LMMA     | Velondriake Locally Managed Marine Area | M. Roger Samba                      | Locally managed marine area                 | Southwest Madagascar                             | sambaroger@blueventures.org  |
| ReefDoctor           | ReefDoctor                              | Mme. Emma Gibbons                   |   | Bay of Ranobe, SW Madagascar                     | gibbons.e.l@gmail.com        |
| WCS                  | Wildlife Conservation Society           | M. Ambroise Brenier                 |   | North West, North East and South West Madagascar | abrenier@wcs.org             |
| WCS/REBIOMA          | Réseau de la Biodiversité de Madagascar | M. Tantely Tianarisoa               | Cartography and species occurrence database | All Madagascar                                   | tantely@rebioma.net          |

| <b>Acronym</b>  | <b>Organisation</b>                      | <b>Participant</b>  | <b>Organisation Competence</b>   | <b>Region of activity</b> | <b>Email</b>                     |
|-----------------|--|---|--|---------------------------|----------------------------------|
| MNP             | Madagascar National Parks                | RAKOTOMALALA<br>Jocelyn (antenne regionale)                     | gestion des aires protegees  | All Madagascar            | jocelyn08angap@yahoo.fr          |
| BV              | Blue Ventures                            | M. Shawn Peabody  | Community-based conservation and local management of fisheries                                 | Southwest Madagascar      | shawn@blueventures.org           |
| BV              | Blue Ventures                            | Mme. Frances Humber   |  |                           | fran@blueventures.org            |
| BV              | Blue Ventures                            | Dr. Alasdair Harris   |  |                           | al@blueventures.org              |
| Commune Manombo | le Maire de Manombo                      | M. Nomery Honoré  |  |                           | None                             |
| DELC            | Development and Environmental Law Center | Lalaina Rakotoson   | Environmental law clinic   | All Madagascar            | lalatsitohaina@gmail.com         |
|                 | Iranja Lodge                             | Mr Igance Vandry  |  | Nosy Iranja               | vandryignace@yahoo.fr            |
| C3              | Community Centred Conservation           | Mme. Patricia Davies  | Community-based conservation   | North Madagascar          | patricia@c-3.org.uk              |
| C3              | Community Centred Conservation           | M. Chris Poonian  |  |                           | chris@c-3.org.uk                 |
| IOSEA           | IOSEA Technical Adviser                  | M. Stéphane Ciccione  |  |                           | stephaneciccione@kelonia.org     |
| IOSEA           | IOSEA Coordinateur                       | M. Douglas Hykle  | Coordinates intergovernmental agreement among 32 States, including Madagascar                  |                           | iosea@un.org                     |
| IOSEA           | IOSEA Technical Adviser                  | Dr. George Hughes   |  |                           | george.hughes@iuncapped.co.za    |
| QMM             | QIT Madagascar Minerals / Riotinto       | M. Tsirivelo Ratovoson (Coordinateur en Ecosystèmes aquatiques) | Gestion de la biodiversité marine et côtière avec les communautés dans la zone de Fort Dauphin | Southest Madagascar       | Tsirivelo.Ratovoson@riotinto.com |

| <b>Acronym</b> | <b>Organisation</b>   | <b>Participant</b>   | <b>Organisation Competence</b>   | <b>Region of activity</b>             | <b>Email</b>                  |
|----------------|---|--|--|---------------------------------------|-------------------------------|
| DRPRH          | Direction Régionale de la Pêche et des Ressources Halieutiques Anosy                | M. Razafimandimby Jean Chrysostophe (Directeur Régional Anosy) | Gestion, administration de la pêche et des ressources halieutiques (traditionnelle, artisanale, industrielle)                                  | Southest Madagascar                   | chrysostophe@yahoo.fr         |
| CIRAD          | Centre de coopération internationale en recherche agronomique pour le développement | Dr Miguel PEDRONO  | Le Cirad est un centre de recherche français qui répond, avec les pays du Sud, aux enjeux internationaux de l'agriculture et du développement. |                                       | miguel.pedrono@cirad.fr       |
|                | Independent   | Geraud Leroux  |  | Maintirano & Illes Barren             | geraud.leroux@sunrise.ch      |
|                |   | Pr Rejo Félicitée Fienena                                      |  |                                       | rejo_felicite@yahoo.fr        |
|                | Independent   | Max Felici   |  | Nosy Ankazoberavina (west Madagascar) | <u>ulysexplorer@gmail.com</u> |

### Appendix 3: Current legal documents

Decret No. 2006 - 400

**REPOBLIKAN'I MADAGASIKARA**  
**Tanindrazana-Fahafahana-Fandrosoana**

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**MINISTERE DE L'ENVIRONNEMENT,  
DES EAUX ET FORETS**

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**DECRET N° 2006 - 400**  
**portant classement des espèces de faune sauvage**

Le Premier Ministre, Chef du Gouvernement

Vu la Constitution,

Vu l'Ordonnance n° 60-126 du 3 octobre 1960 fixant le régime de la chasse, de la pêche et de la protection de la faune,

Vu l'Ordonnance n° 62-020 du 18 août 1962 sur la détention des lémuriens,

Vu l'Ordonnance n° 75-014 du 5 août 1975 ratifiant la Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction,

Vu la Loi n°2005-018 du 17 Octobre 2005 sur le commerce international des espèces de faune et de flore sauvages,

Vu le Décret n° 69-085 du 25 février 1969 réglementant la chasse au papillon,

Vu le Décret n° 94/700 du 8 novembre 1994 sur la gestion du crocodile du Nil,

Vu le Décret n° 2003-007 du 12 janvier 2003 portant nomination du Premier Ministre, Chef du Gouvernement,

Vu le Décret n°2003-008 du 12 janvier 2003 modifié par les décrets n°2004-001 du 5 janvier 2004, 2004-688 du 05 juillet 2004 n°2004-1076 du 07 décembre 2004 et n°2005-144 du 17 mars 2005, n°2005-700 du 19 octobre 2005 et n°2005-827 du 28 novembre 2005 portant nomination des membres du Gouvernement,

Vu le Décret n° 2005-334 du 31 mai 2005 fixant les attributions du Ministère de l'Environnement, des Eaux et Forêts ainsi que l'organisation générale de son Ministère,

Vu le Décret 2006-097 du 31 janvier 2006 fixant les modalités d'application de la loi sur le commerce international des espèces de faune et de flore sauvage

Vu le Décret n°2006-098 du 31 janvier 2006 portant publication des annexes révisées de la Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction,

Sur proposition du Ministre de l'Environnement, des Eaux et Forêts,  
En Conseil de Gouvernement,

## DECRETE :

**Article 1 :** l'article premier de l'ordonnance 60-126 du 3 Octobre 1960, les espèces de faune sauvage (oiseaux et autres animaux sauvages) sont réparties en trois catégories : espèces protégées, gibier et espèces nuisibles.

**Article 2 :** Les espèces de faune sauvage relevant de la Catégorie I (espèces protégées) sont réparties en deux classes.

Les espèces de la Catégorie I, Classe I bénéficient d'une protection absolue sur tout le territoire de la République Malgache et ne peuvent ni être chassées, ni capturées, ni être détenues sauf dans les cas prévus par l'article 20 de l'ordonnance n°60-126 du 3 octobre 1960.

Les espèces de la Catégorie I, Classe II peuvent donner lieu à délivrance d'autorisation de chasse ou de capture, commerciale ou sportive dans les conditions réglementaires. Le quota de collecte pour chaque espèce de cette classe est fixé annuellement par l'Organe de Gestion CITES sur proposition de l'Autorité Scientifique CITES

**Article 3 :** Les espèces animales relevant de la Catégorie II peuvent être chassées en tout temps en tant qu'espèces nuisibles.

**Article 4 :** Les espèces sauvages constituant le gibier sont classées dans la Catégorie III. Elles peuvent être chassées ou capturées en vertu d'autorisation de chasse respectant les périodes de chasse.

**Article 5 :** Les Annexes au présent décret contiennent les listes des espèces de faunes sauvages concernés. L'énumération des espèces des Catégories I et II est limitative, celle de la Catégorie III est indicative.

**Article 6 :** La composition des catégories définies aux articles 2, 3 et 4 ci-dessus sera périodiquement mise à jour par arrêté du Ministre chargé des Eaux et Forêts sur proposition de l'Autorité Scientifique CITES.

**Article 7 :** Le présent décret abroge le décret n°61-096 du 16 février 1961 modifié par le décret n° 88-243 du 15 juin 1988 répartissant en trois catégories, les oiseaux et autres animaux sauvages vivant sur le territoire de la République Malgache et toutes les dispositions antérieures contraires.

**Article 8 :** Le Ministre de l'Environnement, des Eaux et Forêts et le Ministre de l'Education Nationale et de la Recherche Scientifique, sont chargés, chacun en ce qui le concerne, de l'exécution du présent décret qui sera publié au Journal Officiel, diffusé et communiqué partout où besoin sera.

Antananarivo, le **13 juin 2006**

Par le Premier Ministre,  
Chef du Gouvernement

*Jacques SYLLA*

Le Ministre de l'Environnement,  
des Eaux et Forêts

Le Ministre de l'Education Nationale  
et de la Recherche Scientifique

*Charles Sylvain RABOTOARISON*

*Haja RAZAFINJATOVO*

**ANNEXE AU DECRET N° 2006 - 400 du 13 juin 2006  
PORTANT CLASSEMENT DES ESPECES DE FAUNE SAUVAGES**

| CATEGORIE I, CLASSE I : ANIMAUX PROTEGES |                    |                            |                         |             |
|--|--------------------|----------------------------|-------------------------|-------------|
| Genre                                    | Espèce             | Nom malgache               | Nom français            | Nom Anglais |
| <b>Tortues</b>                           |                    |                            |                         |             |
| <i>Caretta</i>                           | <i>caretta</i>     | Mondroy                    | Tortue caouanne         |             |
| <i>Chelonia</i>                          | <i>mydas</i>       | Fanonjoaty,<br>Fanozaty    | Tortue verte            |             |
| <i>Dermochelys</i>                       | <i>coriacea</i>    | Fano valorirana            |                         |             |
| <i>Eretmochelys</i>                      | <i>imbricata</i>   | Fano hara                  | Tortue caret            |             |
| <i>Geochelone</i>                        | <i>radiata</i>     | Sokake                     | Tortue radiée           |             |
| <i>Geochelone</i>                        | <i>yniphora</i>    | Angonoka                   | Tortue à soc            |             |
| <i>Lepidochelys</i>                      | <i>olivacea</i>    | Fanosasara                 | Tortue de<br>Ridley     |             |
| <i>Pyxis</i>                             | <i>arachnoides</i> | Tsakafy, Kapika,<br>Zakapy | Tortue araignée         |             |
| <i>Pyxis</i>                             | <i>planicauda</i>  | Kapidolo                   | Tortue à queue<br>plate |             |

