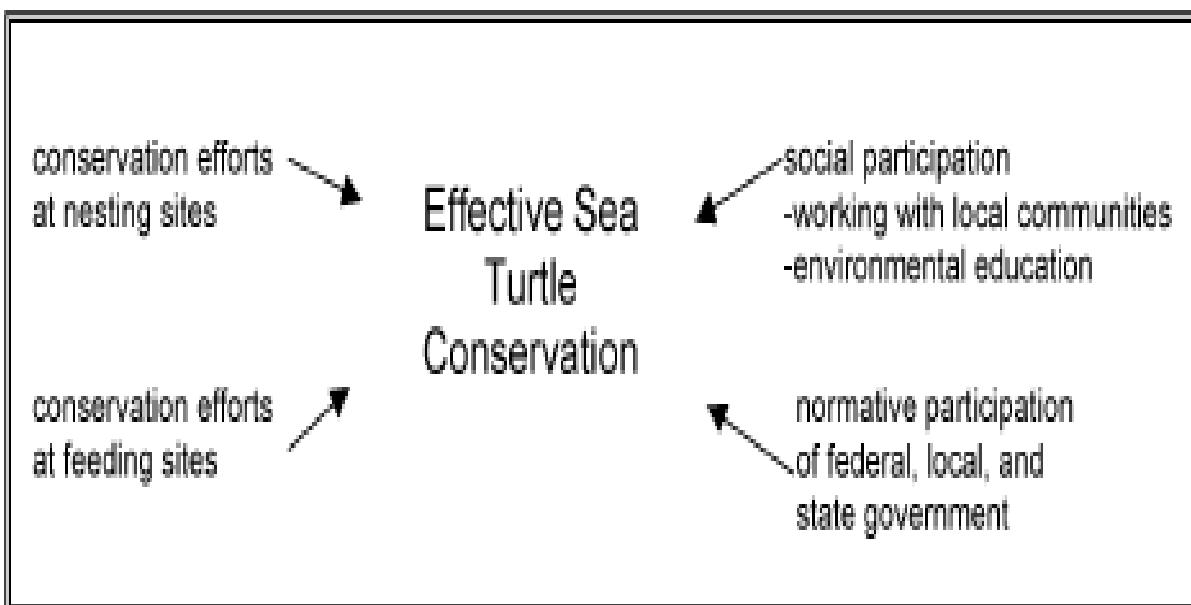




**Mustapha Aksissou**

## **SUBMISSION OF PROPOSALS FOR A “PRESIDENT” TO HOST THE 7TH MEDITERRANEAN CONFERENCE ON MARINE TURTLES**

At the western end of the Mediterranean, is Morocco. A country where little work on marine turtles were made. The organization of 7TH CONFERENCE ON MEDITERRANEAN MARINE TURTLES will make known sea turtles in Morocco and develop research, education and conservation of sea turtles in the Mediterranean. The Conference encourages discussion, debate, and the sharing of knowledge, research techniques and lessons in conservation, to address questions on the biology and conservation of sea turtles and their habitats.



**1- President-Elect Application:**

Name: Mustapha Aksissou

e-mail: aksissou@yahoo.fr

Professional affiliation(s): Faculty of Sciences, PO Box 2121 Tetouan, Morocco

Position: Professor

NGO affiliation(s): Association de Protection des Tortues marines au Maroc

Position: President

Country of residence: Morocco

- How would you describe your work with marine sea turtles? (for example: researcher, teacher, resource manager, activist, policy specialist, etc.)

**Specialty:** Marine Ecology

**Best part about my job:** Being able to contribute to the protection of marine turtles, either through rehabilitation of stranded injured turtles or working with fishermen in NW Morocco to reduce mortality due to incidental capture. I also enjoy publishing pieces in local newspapers about marine turtle conservation.

**Biggest challenges I face:** Reconciling conservation and the realities of society (e.g. the lack of environmental education, the fragile economic well-being of fisherman, personal competition amongst conservationists, etc.)

**The most unusual or exciting thing that's happened to me while working in the field:** I helped treat a small loggerhead turtle that was found stranded and completely covered in oil. Following successful rehabilitation, we were able to release it back into the ocean near where it originally stranded.

**Why I like being a member of the MTSG:** Share information and experiences with the members of the group and also other conservation workers in general

- How many Annual Sea Turtle Symposia, or Annual Workshops have you attended?

**4 ISTS (Philadelphia, Miami, Crete and Dalaman),**

- How many MedConfs have you attended?

**5 MedConfs (Kemer, Hammamet, Naples, Dalaman and Porec)**



In Kemer, 2005



In Naples, 2011

**2- Responsibilities stemming from the organization and realization of such an event, e.g. fund-raising, scientific program, proceedings, communications.**

We will apply for many organisations to have support for the 7TH MEDITERRANEAN CONFERENCE ON MARINE TURTLES

Barcelona Convention

RAC/SPA

Bern Convention

Bonn Convention (CMS)

University Abdelmalek Essaadi

Faculty of Science Tetouan

Faculty of Science and Technique Tanger

INRH\_Tanger

ACADEMIE REGIONALE DE L'EDUCATION ET DE FORMATION (Tanger - Tétouan)

Centre National pour la Recherche Scientifique et Technique (CNRST)

Ambassade de France à Rabat

OREDD, AMENDIS, AESVT, Fondation Sigma, WWF, NOAA, ATOMM, USFWS

**Organizing Committee**

Mustapha Aksissou

Manjula Tiwari

Wafae Benhardouze

Adel El Shawafi

Hicham Awadh

Fahd Darsi

Rachid Fadel

Soumia Fahd

Nard Bennas

Majida El Alami

Boutaina Belqat

Kaoutar Kettani

**Scientific Committee**

Mustapha Aksissou

Manjula Tiwari

Paolo Casale

Yakup Kaska

Jribi Imed

Jacques Fretey

Daniella Freggi

Oguz Turkozan

Jesús Tomás

**Keynote Speakers**

Manjula Tiwari

Jacques Fretey

Juan Antonio Camiñas

Matthew H. Godfrey

- 3- Adequate institutional backing (e.g., University, NGO), the main use of it being available in receiving funds and clearing up the finances of the conference in compliance with the accounting procedures in the respective country.**

Faculty of science-Tetouan or ATOMM NGO are able to receive the fund for the 7TH MEDITERRANEAN CONFERENCE ON MARINE TURTLES

See : [www.fst.ac.ma](http://www.fst.ac.ma)  
[www.atomm.ma](http://www.atomm.ma)

**Support letter will be presented as soon as possible\*\*\*\*\***

**4- Location of the conference and the existence of the appropriate facilities  
(i.e. conference venue, hotel), preferably close to an international airport.**

Movenpick Hotel and Casino Tangier

Avenue Mohamed VI | Baie de Tanger | 90000 Tanger | Morocco

+212 539 32 93 00/50 | [hotel.tangier.casino@moevenpick.com](mailto:hotel.tangier.casino@moevenpick.com)

<http://www.movenpick.com/en/africa/morocco/tangier/hotel-tangier/overview/>



Tangier by night



### Hotel Mövenpick

The Mövenpick Hotel is located in Tangier Bay, offering views of the Strait of Gibraltar and the entire city. It is about 14 km from the airport and 2 km from the city center.

Each of the 4-star rooms has a balcony, some with views of the bay and views of the Spanish tip of Gibraltar. They are equipped with air conditioning, television, minibar, safe, telephone and wireless internet.

Its facilities include a 1,000-square-meter swimming pool, equipped with sun loungers and parasols. Guests can also enjoy the spa with sauna, steam room, jacuzzi, gym and massages done in 3 cabins. The casino and its 200 slot machines, among others, welcome players 24 hours a day and offer in its walls bars and restaurants.

The gastronomic offer is provided by 2 restaurants where to taste traditional dishes of the Moroccan and international cuisine is one of the possibilities. 2 bars are also available.

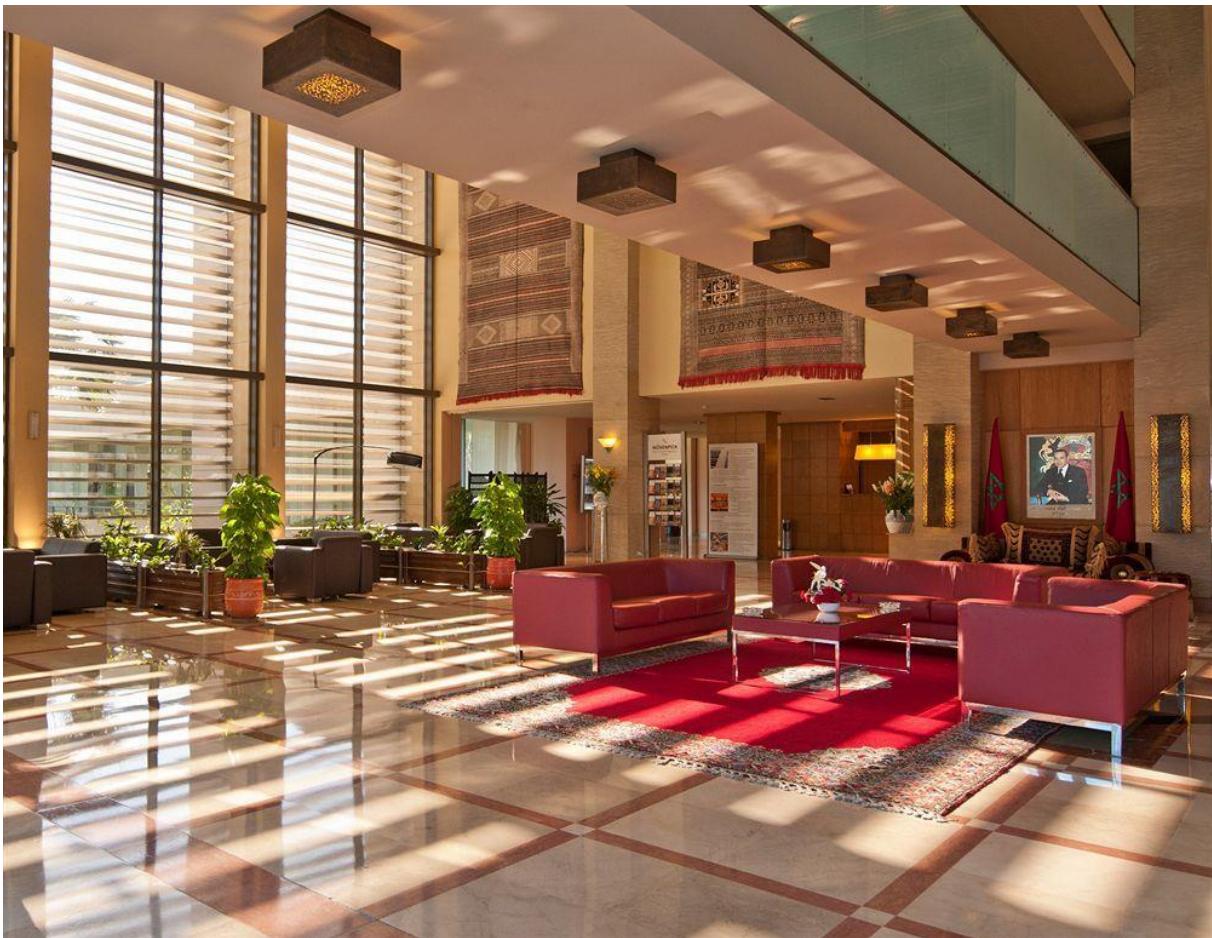
For events and conferences, the hotel offers meeting rooms with a maximum capacity of 300 people equipped with adequate technological equipment.



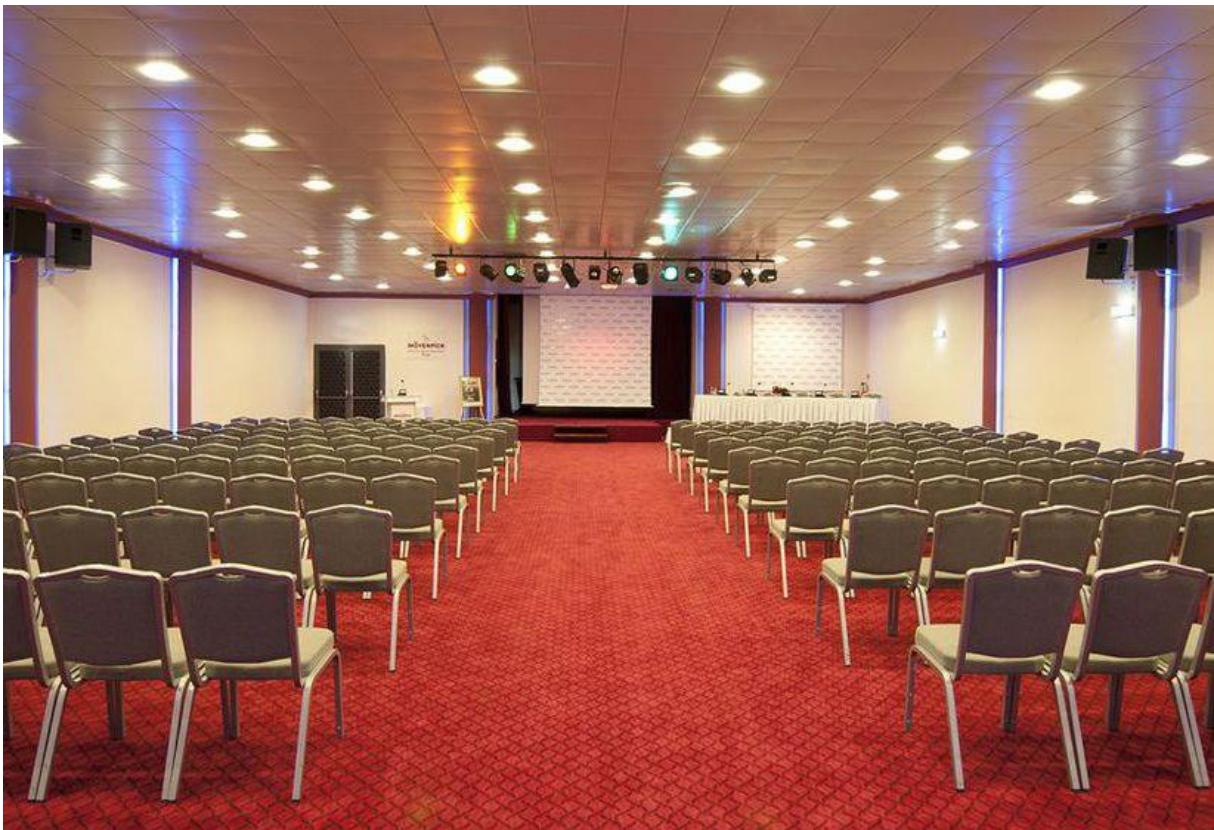
Hotel in front the sea



Hotel by Night



Hotel Hall



Conference Room



Meeting Room



**ATOMM Report about the Project: Building capacity for an effective Sea Turtle  
research and conservation program in the Kingdom of Morocco**  
[www.atomm.ma](http://www.atomm.ma)

Given the decline in loggerhead nesting numbers in the southeastern United States (50 % in past 10 years, Florida Fish and Wildlife Conservation Commission *unpublished data*), the threats to the important loggerhead nesting population in Cape Verde, and the apparent decline in nesting in Morocco, evaluating and mitigating mortality of sea turtles in Morocco and creating a greater awareness for their protection are crucial to the survival and recovery of several nesting populations. Efforts have been underway since 1999, and more intensively since 2003, to survey potential nesting beaches, organize sea turtle workshops at major ports, and recruit and train fishermen to collect data on turtles caught in their gear. To further promote these efforts, a new NGO, Association pour la protection des Tortues Marines de Maroc (ATOMM: [www.atomm.org](http://www.atomm.org)) was created in 2008 and is dedicated to sea turtle conservation and research in Morocco. Now, extensive surveys and evaluation of potential nesting areas, the recruitment and training of fishermen, and greater involvement by local NGOs, students, universities, the government, and the general public in marine conservation are necessary to promote the importance of Morocco in the conservation of loggerheads in the Atlantic and the Mediterranean and to establish an effective sea turtle conservation program in the country. A central component of this project is to transfer knowledge and experience and empower the local fishermen, various groups and researchers.

The broad objectives of this project are indicated followed by the activities undertaken to address each objective:

- 1. Conduct extensive surveys of the Moroccan coastline, interview fishermen, and measure sand temperature to establish a clearer understanding of the nesting status of loggerheads—past and present—in Morocco.**

ACTIVITIES: The survey along the Mediterranean coast has been completed and work along the Atlantic coast is still ongoing.



Lunch at Tanger after beginning project on Sea turtles interaction with Fisheries in Morocco by Manjula, Wafae, Benoit and Mustapha in 2003.



Manjula team in Plage blanche\_2006\_looking for nesting



Asking fishermen in South Morocco

## 2. Recruit and build the capacity of students, local biologists, and fishermen so that they can actively participate in sea turtle research and conservation in Morocco and in the development of a sea turtle strandings network.

### ACTIVITIES:

- Participation by Abdelhak Chekrouni in 19ème édition des JOURNEES DE LA RECHERCHE. Contribution à l'étude des Interactions entre les Cétacés et la Pêche à la Senne en Méditerranée – Cas de la Région de M'diq.Tetouan, 9 March 2018.

**Contribution à l'étude des Interactions entre les Cétacés et la Pêche à la Senne en Méditerranée – Cas de la Région de M'diq**

Abdelhak CHAKROUNI<sup>a</sup>, Said BENCHOUCHA<sup>b</sup>, Mustapha AKSISSOU<sup>a</sup>

<sup>a</sup>Département de Biologie, Faculté des Sciences, Avenue de Sebta, Mhannech II 93000 Tétouan  
<sup>b</sup>Institut National de Recherche Halieutique, Cap Malabata Dredge BP 5268 Tanger

**1-Introduction**  
La pêche aux petits pélagique à la senne coulissante constitue l'une des principales activités dans la baie de M'diq, ce secteur de pêche est marquée par une importante exploitation des ressources halieutiques.  
Les interactions entre les grands dauphins et les activités de la pêche constituent un grand problème qui commence à se faire sentir, car la fréquence de ces attaques n'a cessé d'augmenter au cours de dernières années, ce qui pousse actuellement les pêcheurs à se plaindre auprès des gestionnaires des pêches.  
Pour évaluer la fréquence d'attaque de grand dauphin sur les filets de pêche au niveau de la zone de M'diq (voir figure au dessous), nous avons mené une étude approfondie pour quantifier cette interaction à travers des sorties de terrain au niveau du port de M'diq pour trouver des solutions alternatives de ce problème.

**Situation géographique des sites de pêche**

**2- Méthodologie**  
Des données MAIA (système statistique marocain géré par l'Office National de la Pêche (ONP)); Les données des statistiques de la pêche de l'INRH de 2004 à 2015  
Les données de la DPM (Délégation du Département de la Pêche à Tanger).  
■ Enquêtes;  
■ Enquêtes à terre (port): les informations recueillies concernent les informations relatives aux interactions de la senne avec le grand dauphin.  
 Nombre opération attaquée /mois;  
 Nombre des sorties annulées à cause des attaques;  
 Nombre de jours –ramendeur/mois;  
■ Enquêtes à bord des senneurs (les embarquements);  
Durant la période d'étude de 3 mois s'étalant entre les mois de juin et d'août, 7 embarquements à bord des senneurs de M'diq (de 19H.00 à 8H.00) ont été réalisés.  
La description de l'opération de pêche;  
■ Traitement et analyse des données collectées;

**3- Résultats et Discussion**  
On présente les résultats suivants :

- ❖ Evolution de l'effectif des senneurs au niveau du port de M'diq

Année	Nombre des senneurs
2012	~45
2013	~40
2014	~38
2015	~38

- ❖ Production et fréquence d'attaque

**4- conclusion**  
En effet, plusieurs types de pertes et dégâts résultant de l'interaction, ont été identifiés. Ils se résument, comme l'illustre la figure suivante :

**5- Recommandation**  
Les principaux systèmes de lutte contre les interactions filets de pêche-Cétacés, mis en place à l'échelle mondiale :

1. télémétrie satellite;
2. modification du comportement des pêcheurs;
3. utilisation des répulsives acoustiques
4. développement du *Whale watching*;

**6-Références**

BEARZI G, 2002. Interactions between Cetaceans and Fisheries in the Mediterranean Sea. ACCOBAMS.  
INRH, 2015. a. Evaluation des pertes économiques qui résultent de l'interaction entre les senneurs et le Grand Dauphin en Méditerranée marocaine.20pp.  
MINISTÈRE DES PECHE MARITIMES, 2001. [La mer en Chiffre. MPIM, Maroc](#)

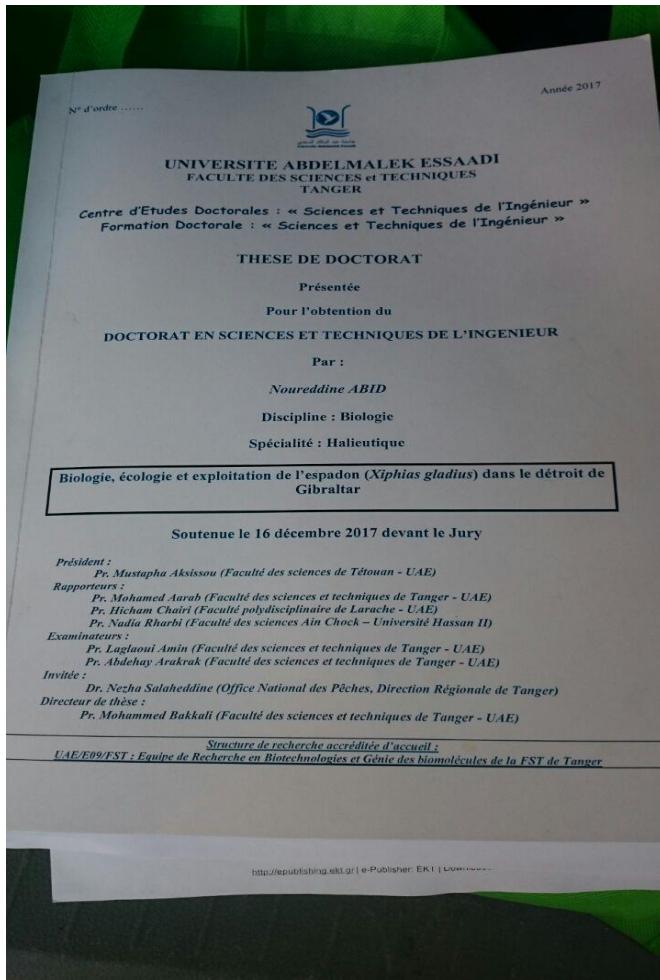
\*Auteur correspondant  
E-mail: [ch\\_abdelhak92@gmail.com](mailto:ch_abdelhak92@gmail.com)  
Adresse : Département de Biologie, Faculté des sciences, Avenue de Sebta, Mhannech II 93000 Tétouan, Maroc.

Poster

Participation in Jury of Noureddine Abid, PhD Dissertation in Tangier Faculty: Biology, Ecology and Exploitation of Swordfish (*Xiphias gladius*) in Gibraltar strait



Thesis jury members



Cover Page of the Thesis

- I'm doing a course about Biology and Ecology of Sea Turtles for 33 Master students every year at the Faculty of Sciences\_Tetouan since 2000.
- I'm doing since 2000 a course about Biology of Reptiles\_Sea Turtles for about 300 Licence students every year at the Faculty of Sciences\_Tetouan
- 1 student (Wafae Benhardouze) completed her Master's dissertation (2004) and Ph.D (2009) at the University of Tetouan under the supervision of Dr. Mustapha Aksissou and Dr. Manjula Tiwari
- 1 student (Lematt Mint Hama from Mauritania) completed her Master's dissertation (2009) and Ph.D (2015) at the University of Tetouan under the supervision of Dr. Mustapha Aksissou, Dr. Manjula Tiwari and Jacques Fretey
- 1 student (Isidore Ayissi from Cameroun) completed his Ph.D dissertation (2015) at the University of Tetouan under the supervision of Dr. Mustapha Aksissou, Dr. Manjula Tiwari and Jacques Fretey
- Hicham Awadh from Yemen is doing his PhD at the University of Tetouan on Sea turtles byatch in Yemen

- Fahd Darasi from Yemen is doing his PhD at the University of Tetouan on Sea turtles byatch in Yemen
- Omar Izzabaha is doing his PhD at the University of Tetouan on sea turtles byatch in south atlantique Morocco
- Keltoum Chahban is doing her PhD at the University of Tetouan on sea turtles byatch in Mediterranean Morocco
- Zineb Feddal is doing her PhD at the University of Tetouan on Fibropapillomatosis of sea turtles in Morocco
- Ibtissam Elmoussaoui is doing her PhD at the University of Tetouan on sea turtles byatch in north Atlantic Morocco
- 19 students completed their Master's dissertation and/or Licence degrees at the University of Tetouan on sea turtle related topics and fisheries since 2010
  - \* Ikram Nemmich: Bycatch in fishing village Fnideq, 2011
  - \* Hassan El Jaabak Saoud: Sea turtles strandings in North Morocco, 2011
  - \* Ould Lemrabott Mohamed Lemine: Bycatch in fishing village Amsa, 2011
  - \* Ould Ahmed Mohamed Ainine: Fishing in village Martil, 2011
  - \* Mariam Saroukh: Illegal fishing in village Martil, 2011
  - \* Fouad Hazim: Bycatch in fishing village Jebha, 2012
  - \* Noura Elamarty; Hayat Boudaghia and Ouiam Nkhili: Comparison of *Caretta* reproduction in USA; Cap vert and Mediterranean East.
  - \* Saroukh Ihssane: *Caretta* migration
  - \* Majda Aouititen: Jellyfish in north Morocco
  - \* Amina Analla: Evolution de la flottille de pêche au port de Mdiq
  - \* El Mahzoum Iman: Evolution de la production halieutique au port de Mdiq
  - \* Benyaich Hanan: Evolution de la production halieutique au port de Tanger
  - \* Samira Ahajtan: Biology and ecology of *Caretta*
  - \* Marghnia Messaoudi: Biology and ecology of *Dermochelys coriacea*
  - \* Soukaina Akdi: Biology and ecology of *Chelonia mydas*
  - \* Najoua Erraji: Biology and ecology of *Eretmochelys imbricate*
  - \* Soukaina Louzari: Biology of sea turtles
- 10 surveys with students in the north Moroccan coastline to search sea turtles strandings



*Dermochelys* stranding in Larache

- Many photos (bycatch, stranding, workshops etc...) are in the following websites:

<http://www.seaturtle.org/imagelib/?user=2262&cat=500&thumb=1>

<http://www.seaturtle.org/imagelib/?si=wafae&stype=1&thumb=1&perpage=12&sort=1&cat=500&user=2262>

<http://atomm.org>



Juvenile Seaturtle rehabilitation in Laboratory after rescue by African Seaturtles specialist in Tangier (Morocco). Seaturtle stranded by oil pollution !!



Caretta toward the sea after rescue by African Sea turtles specialists in Tangier (Morocco), 2004



Researchers (Wafae and Naima) from University Abdelmalek Essaadi-Tetouan measuring dead incidental capture loggerhead turtle (CCL=39 cm), Tangier port, Morocco



Caretta standing in Azla



Shells sold in M'diq



Stranded alive Loggerhead (CCL=28cm) in Atlantic near Tangier (Morocco), March, 2010.



Future conservationists (Ayoub and Anass) release rehabilitated Loggerhead in Atlantic near Tangier (Morocco), March, 2010.

- 3. Train fishermen to collect data on sea turtles captured in the local fisheries and determine its impact on source populations (i.e., nesting beaches in the Western Atlantic, Cape Verde, and the Mediterranean).**

ACTIVITIES:



We organized 13 training workshops for more than 300 fishermen and 100 students at:

- Jebha port and Chamaala port (5 June 2015)
- Larache port (5 June 2014), <http://oceaneology.org/african-sea-turtle-newsletter/>



Larache workshop

- Oued Laou port (9 June 2013)
- Kae Asrass Village (7 June 2013)



Kae Asrass workshop,

[https://cmsdata.iucn.org/downloads/atelier\\_kaeasrass\\_juin2013\\_1\\_.pdf](https://cmsdata.iucn.org/downloads/atelier_kaeasrass_juin2013_1_.pdf)

- Martil Village (8 June 2012)
- M'diq (10 June 2011)  
[http://www.iucn.org/news\\_homepage/news\\_by\\_date/?12835/Atelier-de-formation-des-pecheurs-sur-l'environnement-marin-et-tortues-marines-au-port-de-Mdiq-Maroc](http://www.iucn.org/news_homepage/news_by_date/?12835/Atelier-de-formation-des-pecheurs-sur-l'environnement-marin-et-tortues-marines-au-port-de-Mdiq-Maroc)
- Al Hoceima port (13 November 2009), <http://azir.jimdo.com/tortugas/>



- Agadir port (11 July 2008)



Agadir workshop (11 July 2008)

- Tangiers port (4 July 2008)



Tangiers workshop for fishermen

about Sea turtles conservation in Morocco

- Laâyoune port (17 Novembre 2006),  
<http://www.seaturtle.org/blog/africa/000503.html>



Laayoune workshop

- Casablanca port (12 May 2006), <http://www.seaturtle.org/blog/africa/000486.html>



Casablanca workshop

- Tangiers port (25 November 2005),  
<http://www.seaturtle.org/blog/africa/000462.html>



Tangier workshop

We and Manjula have reports of these training workshops.

These workshops were part of a collaborative study between ATOMM and fishermen association to evaluate the impact of fisheries on sea turtles found in these waters.



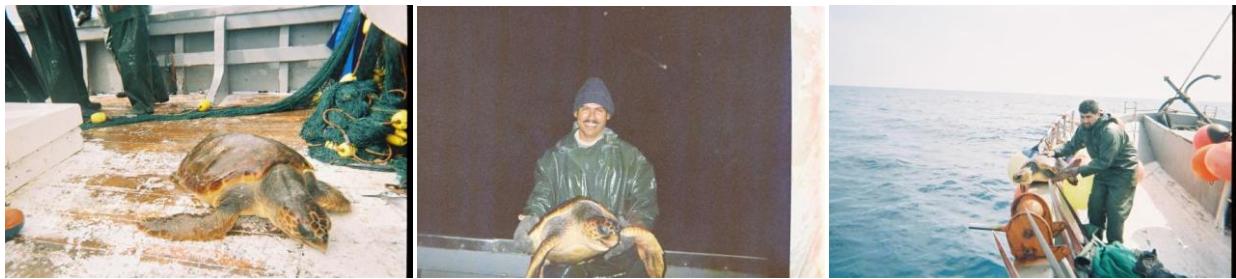
Caretta (CCL=70cm) captured in Trawl and released in Dakhla, 2015



Caretta (CCL=71cm) captured in Trawl and released in Dakhla, 2015



Bycatch of Caretta by drifnet in Tangier area (2004, Morocco)



Caretta captured and released in Tangier



Measurements of Loggerhead caught in a trawl net around Agadir, Morocco.



Loggerhead tagged (TTM 126) in Atlantic near Tangier Port (Morocco)on 30 April 2006



Moroccan sea turtle researchers, Mustapha Aksissou, Wafae Benhardouze and their son distribute datasheets in French and Arabic to fishermen willing to provide data on sea turtles captured in their nets/hooks at Tangier port, Morocco, 2003



Datasheets in French and Arabic sent to fishermen willing to provide data on sea turtles captured in their nets/hooks at Tangier port, Morocco.



Poster in Arabic for fishermen to have data about bycatch



Loggerhead carapaces being sold as guitars at Tetouan (Mediterranean city) market in Morocco, 2003



Loggerhead carapaces being sold as wall lamps at Tangier market in Morocco, 2003

**4. Develop capacity of and expertise within local NGOs, government institutions, and universities to promote an effective sea turtle and marine conservation program.**

ACTIVITIES:

- Master Program entitled “Marine Biodiversity Conservation” accepted by the Ministry of Higher Education in Morocco and will start in October 2018 at the university Abdelmalek Essaadi. This program will allow to integrate a lot of students in the theme of conservation.
- Participation by Wafae Benhardouze and Mustapha Aksissou in National Workshop for Adoption of the Marine Biodiversity Monitoring Program in the Moroccan Mediterranean (IMAP). Rabat, 04 July 2017.



Participants in the Workshop

- Many local NGOs are partenaires with ATOMM: Fondation Sigma, Club IEGB, AESVT Tetouan, Association Jebha, Associations des pêcheurs, etc...
- We are ACTIVE JELLYWATCH FOCAL POINT in CIESM, the Mediterranean Science Commission, JellyWatch Program, Monitoring jellyfish blooms along Mediterranean coasts and in the open sea. <http://www.ciesm.org/marine/programs/jellywatch.htm>
- Participation in Atelier Provincial sur le réseautage associatif organisé au profit des associations environnementales de la province de Tétouan et la province de Mdiq – Fnideq (Tetouan, 1 August 2015).
- Participation in Environment and Sustainable Development in North of Morocco (Tangier, 7-8 June 2014)

- Participation in Coastal Day (Martil, 24 May 2014).
- Participation in NGO environmental training (Tangier workshop, 8-11 May 2014).
- Participation in 6<sup>th</sup> Festival of sciences in Tangier (23-27 December 2013)
- Participation in WEEC, Marrakech (9-14 June 2013)
- First Scientific Meeting of Intercontinental Biosphere Reserve of Mediterranean: Biodiversity and Cultural Heritage, Chefchaouen, 9 June 2011. Interaction between sea turtles and fisheries in Amsa village. Mohamed Ould Lemrabott & Mustapha Aksissou  
See: <http://assated.com/images/programme.pdf>
- We organised 3 Conferences entitled « Biology, ecology and statut of sea turtles in Morocco »:
  - Faculty of Sciences, El Jadida, 23 April 2011
  - Faculty of Sciences, Agadir, 22 April 2011
  - Faculty of Sciences, Casa-Aïn Chock, 20 April 2011
- Groupe of students and members of ATOMM participate in training course about Elaboration of international projects on cooperation programm for the development organised by Association Marroqui and Ayuntamiento de Malaga. 27 February 2011, Centre Culturel, Martil.
- Wafae Benhardouze participated in Workshop for Environmental Associations in the North of Morocco. 18-21 May 2011, Tangier, Morocco
- 3 members of ATOMM participate in Al Hoceima workshop: Establishment of a stranding network of mammals and sea turtles in southern Alboran, 14-16 January 2011, Al Hoceima, Morocco. In Al Hoceima workshop we do presentation: Aksissou M, Benhardouze W et M. Tiwari. 2011. Stranding in the NW Morocco

See: [http://www.2m.ma/Infos/node\\_3807/2011/node\\_25427/12h45-19](http://www.2m.ma/Infos/node_3807/2011/node_25427/12h45-19)



Al Hoceima workshop

- Aksissou Mustapha. Plenary lecture/Statut of Sea Turtles in Morocco. 2nd Mediterranean Congress of Herpetology, Marrakech, 23-27 May 2011.
- Wafae Benhardouze, Mustapha Aksissou & Manjula Tiwari. Sea turtles bycatch around Tangier fisheries: conservation study. 2nd Mediterranean Congress of Herpetology, Marrakech, 23-27 May 2011. See:  
<http://www.schildkroeten-sfb.ch/fileadmin/docs/news/CMH2.pdf>

- Groupe of 5 students and members of ATOMM participate by Exposition-Panel in the 5<sup>th</sup> Festival of Sciences, Tanger, 26 april-1<sup>st</sup> may 2010 organised by Fondation Sigma.
- See:

<http://www.fondation-sigma.org/fondation/>



5<sup>th</sup> Festival of Sciences, Tanger,

- A seminar on Species and Protected areas in NW Morocco was given at the University of Tetouan (see: [www.atomma.ma](http://www.atomma.ma)).

## 5. Participate in ISTS, Mediterranean Conference on Marine Turtles and regional initiatives to mitigate sea turtle bycatch.

### ACTIVITIES:

- Participation by 2 Posters in 6th Mediterranean Conference on Marine Turtles in Porec, Croatia, 2018

**BYCATCH OF MARINE TURTLES ALONG THE EASTERN MEDITERRANEAN OF MOROCCO**

ATOMM  
Centre de recherche et de formation en sciences marines

INRH  
Institut National des Recherches en Hydrobiologie

NOAA-NMFS, Marine Turtle Ecology and Assessment Program, Southwest Fisheries Science Center, La Jolla, CA 92037, USA

Port Al Hoceima

**ABSTRACT**

In Morocco, three species are known to occur: the loggerhead, which is the most common, the leatherback, which is regularly observed, and the green turtle, which is rare. This study examines the bycatch of marine turtles along the eastern Mediterranean coast of Morocco at the Port of Al Hoceima, which were recorded between November 2013 and December 2015. The maritime district of the Port of Al Hoceima extends over 100 km (132 coastal fishing boats, 631 artisanal fishing). The coastal fishing boats range in size from 12 m to 22 m and the artisanal boats from 4 m to 6 m. Coastal fisheries include seine, trawl and longline. Artisanal fishing includes small boats about 5 m in length and can use hooks or nets. The most frequently caught species in this study was the loggerhead, followed by the green turtle and the leatherback. The interaction with seines and longlines is higher than with trawls. Capture seems to be mainly marine turtle bycatch. Awareness and education of fishermen on the protection of sea turtles can reduce and mitigate the mortality of these endangered species in the Mediterranean. Finally, the implementation of conservation requires the integration of social, economic, cultural and political issues.

**INTRODUCTION**

Bycatch is recognized as a global threat to marine turtles, and it is necessary to minimize this interaction (Hall et al., 2000, Lewison et al., 2004, Jnr et al., 2007, 2008). In Morocco, 3 species are recorded: the loggerhead (*Caretta caretta*), which is the most common, the leatherback turtle (*Dermochelys coriacea*) is regularly observed and the green turtle (*Chelonia mydas*) is rare (Bennhardouze et al., 2012). The broader objective of this study is to examine the bycatch of sea turtles along the eastern Mediterranean Sea of Morocco, from Al Hoceima in the west to Cape Water in the east. Here only the work from Al Hoceima is presented.

**METHODS**

The study area includes the Port Al Hoceima whose maritime district extends over a length of 100km (132 coastal fishing boats, 631 artisanal fishing). Coastal fishing vessels range in size from 12m to 22m and artisanal boats are 4m to 6m in length. Coastal fishing includes seine, trawl and longline. Artisanal fishing includes small boats about 5m in length and can use hooks or nets. The information analyzed in this study was collected by asking qualified fishermen to fill out a questionnaire. The data relate to the fishing periods between November 2013 and December 2015. The information provided by the fishermen is as follows: place, date of observation, species of turtle, carapace length and width, and condition of the turtle.

**RESULTS AND DISCUSSION**

Questionnaires were filled by 10 boats and 3 artisanal fishing boats, including 4 sardine boats at the port of Al Hoceima. Of the 48 observations reported, 22 were captures in fishing gear and 26 were observations at sea. Loggerhead were the main species with 33 observations, including 15 captures by trawls, 20 by the net and 2 by longline. Two were caught by trawls, 6 by seines and 7 by longlines. Captures mainly occurred during the summer (Fig. 3). The implementation of conservation requires the integration of social, economic, cultural and political issues and better fisheries management in order to hope to successfully conserve marine turtles (Casale 2011).

**Fig. 1. Location of Al Hoceima on the Mediterranean coast of Morocco**

**Fig. 2: Number of marine turtles observed or captured at Al-Hoceima port**

Species	Number
Loggerhead	~30
Green Turtle	~15
Leatherback	~2

**Fig. 3: Monthly distribution of sea turtle**

Month	Number
Jan	~5
Feb	~6
Mar	~5
Apr	~6
May	~10
Jun	~10
Jul	~10
Aug	~10
Sep	~10
Oct	~10
Nov	~10
Dec	~10

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- Bennhardouze, W., M. Bennhardouze and M. Thivet. 2012. Incidental capture of sea turtles in the drift net and longline fisheries in northwestern Morocco. Fisheries Research, 127-128: 126-132.

**Acknowledgments**  
We are grateful to cooperation of the fishermen in Morocco. Financial support comes from U.S. Fish and Wildlife Service.

## Poster in 6th Mediterranean Conference on Marine Turtles in Porec, Croatia, 2018

- Participation by 2 Posters in the 35th Sea Turtle Symposium and the 5th Mediterranean Conference on Marine Turtles, 18 - 24 April 2015, Dalaman, Turkey
- Poster 1: Abstract ID: 6130, Type: Poster, Subject: Education, Outreach and Advocacy, Country: Morocco, Submitted By: Mustapha Aksissou: GETTING FISHERMEN TO PARTICIPATE IN THE BYCATCH PROJECT IN MOROCCO

### GETTING FISHERMEN TO PARTICIPATE IN THE BYCATCH PROJECT IN MOROCCO

Mustapha Aksissou<sup>1</sup>, Wafae Benhardouze<sup>1</sup> and Manjula Tiwari<sup>2</sup>

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**INTRODUCTION**  
To evaluate the incidental capture of sea turtles in the coastal fishing fleets along the Atlantic and Mediterranean waters of Morocco (Figure 1), ATOMM (Association to Protect Sea Turtles in Morocco) has been collaborating with local fishermen since 2009. In the process of our collaboration, ATOMM has conducted 10 training workshops in nine ports for about 300 fishermen.

**METHODS**  
Generally, on the occasion of World Oceans Day (June 8), ATOMM in collaboration with different partners (INRH, Faculty of Science Tetouan, etc ...) organizes training workshops for fishermen in the ports of Agadir, Hhich, M'diq, Tangier, Casablanca, Agadir, Laayoune) or in fishing villages (Oued Laou, Kaasras) of Morocco. Fishermen, port authorities and fisheries officials are invited to these workshops.

During these workshops, we give detailed presentations (in Arabic dialect) on sea turtles present in Morocco, their geographical distribution, their feeding ecology, life history, threats, stressors and conservation. We show fishermen how to identify species of marine turtles, take measurements, fill forms, read and apply the tags and treat an injured turtle. We give fishermen identification sheets in Arabic and French to enable them to recognize the species caught incidentally (Figure 2).

**ACKNOWLEDGEMENTS**  
This work was supported by U.S. Fish and Wildlife Service.  
The presentation was supported by a Travel Grant provided by the 25th Annual Sea Turtle symposium.

**RESULTS**  
From June 2009 through December 2013, 111 incidental captures of loggerheads and 3 leatherbacks were recorded by 7 fishermen who participated in non permanent. Figs. 3 & 4) on fishing trips leaving from ports in the Tangiers and Agadir region. 108 loggerheads were alive at time of capture and release, and 5 were dead. The mean size of loggerheads was 57.25 cm CCL. Mean incidental captures were reported from June to September (period of more fishing effort).

**DISCUSSION**  
The coastal and industrial fleet interacts with sea turtles in Morocco (Aksissou et al. 2010; Benhardouze et al. 2012). Fishermen are the most appropriate people from whom to get results on the bycatch. We have been able to involve fishermen to collaborate with the bycatch project by educating them through several actions: training workshops, equipment for fishermen, permanent contact, involvement of the women and children of fishermen through drawing competitions, equipment distribution, and regular discussions between the women and researcher Wafae Benhardouze. Over the course of the project, the trust of the fishermen was gained through frank discussions and through regular contact with them. It was found that the younger fishermen and/or those with higher levels of education were better collaborators. Undoubtedly, the success of the bycatch project in Morocco relies entirely on the participation of the project and volunteering their help. Future plans include further collaboration with and training of fishermen to minimize captures and/or mortality of sea turtles in Moroccan waters.



Figure 1. Map of Morocco and location of different ports



Figure 2. Poster for fishermen



Figure 3. Loggerhead and Leatherback caught in a trawl net around Agadir, Morocco. The turtles were removed and released alive.  
CCL=70cm CCW=64cm



Figure 4. Measurements of Loggerhead caught in a trawl net around Agadir, Morocco.  
CCL=135cm CCW=95cm

## 35th Sea Turtle Symposium Poster

- Poster 2: Abstract ID: 6176, Type: Poster, Subject: Fisheries And Threats, Country: Morocco, Submitted By: Wafae Benhardouze: IMPACT OF POLLUTION ON MARINE TURTLES (C. Caretta AND D. Coriacea) IN NW OF MOROCCO

- Participation in 3<sup>rd</sup> meeting of the International Working Group for the Conservation and Management of the Northwest Atlantic Loggerhead Nesting Population. January 22-24, 2013 in Madrid, Spain.
- Participation by Poster in a 4th Mediterranean Conference on Marine Turtles - Napoli, 7 - 10 November 2011
- Participation by Poster in a symposium "Climate Change, Agri-Food, Fisheries, and Ecosystems: Reinventing Research, Innovation, and Policy Agendas for an Environmentally and Socially-Balanced Growth", May 19-21, 2011, Agadir (Morocco). Dossa Justine, ManjulaTiwari, Mustapha Aksissou. Threats to sea turtles and

preliminary on their nesting and foraging areas in Senegal. See:  
[http://www.trunity.net/files/169401\\_169500/169448/provisional-program.pdf](http://www.trunity.net/files/169401_169500/169448/provisional-program.pdf)

- Aksissou M, Benhardouze W et M. Tiwari. 2010. Overview of Loggerheads in Morocco. 2<sup>nd</sup> meeting of the International Working Group for the Conservation and Management of the Northwest Atlantic Loggerhead Nesting Population. September 14-16, 2010 in Horta, Azores, Portugal. See:  
<http://www.nmfs.noaa.gov/pr/pdfs/statusreviews/loggerheadturtle2009.pdf>



Trip in Azores, 2010

- Aksissou M, Benhardouze W et M. Tiwari. 2010. Importance of the Strait of Gibraltar in the conservation of Mediterranean marine biodiversity. CIESM Workshop "Mediterranean Marine Peace Parks – A CIESM Initiative" (18-20 November 2010), Syracuse (Sicily), Italy. See: <http://www.ciesm.org/news/ciesm/011210.htm>



A short break from the discussions of the CIESM Workshop 41 on transfrontier marine protected areas. [Photo: CIESM]

- Aksissou M. Biology and Ecology of sea turtles. 2010. Fourth International Meeting for World Ocean Network “Act together for the Blue Ocean future”, Nausicaa, Centre National de la Mer, Boulogne-sur-Mer, France, 9-12 May 2010. See:  
<http://fourthinternationalmeetingwon.over-blog.com/>

- Participation in Training Course on Sea Turtles Rescue and Rehabilitation (7-12 December 2009) at the Stazione Zoologica in Bagnoli, Naples, Italy



Flegra and Sandra asking participants about stranding network in Mediterranean countries at Training Course on Sea Turtles Rescue and Rehabilitation (7-12 December 2009) at the Stazione Zoologica in Bagnoli, Naples, Italy

- Participation in Third Mediterranean Conference on Marine Turtles, Tunisia, 2008



Third Mediterranean Conference on Marine Turtles

- Participation by Poster in the 25th Sea Turtle Symposium, 18-22 January 2005, Savannah, Georgia

## CAPTURE OF SEA TURTLES IN FISHERIES AROUND TANGIER, MOROCCO

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<sup>3</sup> SEATURTLE.ORG & North Carolina Wildlife Resources Commission, 1507 Ann Street, NC 28516, USA

### INTRODUCTION:

Sea turtles regularly visit the coast of Morocco, increasing the risk of incidental capture with different fisheries operating in Moroccan waters. For example, at some times of year, loggerhead turtles are at high risk of incidental capture in the Moroccan drift net fishery operating on the Mediterranean side of Tangier (Tudela et al. 2005). In addition, between 1998 and 2001, 27 dead loggerhead turtles on average have been observed each year on the Atlantic side of Morocco (Ocáña et al. 2002). In the present study, we conducted interviews with fishermen in order to obtain information on sea turtle bycatch in different fisheries working out of ports in and around Tangier at the northern tip of Morocco.



Figure 1. Location of Tangier in northern Morocco. Note that the study area included both Atlantic and Mediterranean zones around Tangier.



Figure 2. Informal interviews being conducted with fishermen in Tangier port in 2003

### METHODS:

We visited boats and docks in 4 fishing ports in the northern Mediterranean region (Tangier, Ksar Sghir, Midig and Tangier proper). Fifty fishermen were approached and asked to share information with us. Only 7 agreed to share detailed information. The surveys were informally structured, and revolved around what turtle species (if any) were seen during fishing trips, how many, and whether they were alive or dead and if they were captured or released (Figure 2). They were also asked to provide details about their boats, equipment, trips, effort, and seasonality of incidental captures of turtles (if any). The fishermen agreed to keep a record of any incidental captures on future trips. We provided waterproof ID cards, tape measures, waterproof cameras (for species documentation), and field notebooks to be taken on trips

### RESULTS:

From June 2003 through September 2004, 21 incidental captures of sea turtles were recorded by fishermen on fishing trips leaving from ports in the Tangier region (Table 1). All were alive at time of capture and released, although one was injured and two had fresh injuries from the interaction. Except for one leatherback, all captures were loggerheads, with a mean size of 55.2 cm CCL (Figure 3). Most incidental captures were reported from September to January, although it is not clear whether this pattern is due to a bias in fishing and/or reporting effort.

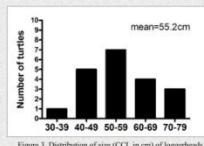


Figure 3. Distribution of size (CCL, in cm) of loggerheads incidentally captured in Moroccan fisheries.

### DISCUSSION:

This initial results reveal a potentially major source of mortality for sea turtles in Moroccan waters around NW Morocco. The majority of captures were loggerheads, consistent with other studies on bycatch in the area (e.g. Tudela et al. 2005). The size class suggests that most were juveniles, although nesting female loggerheads in Cabo Verde can be as small as 54.2cm CCL (López-Jurado et al. 2003). Capture-related injuries were common (Figure 4), so further study on this is warranted (Figure 4). Future plans include further collaboration with and training of fishermen to minimize captures and/or mortality of sea turtles in Moroccan waters.



Figure 4. Juvenile loggerhead caught in a seiner net around Tangier, Morocco. The turtle was removed and released alive.

## 25th Sea Turtle Symposium Poster

### 6. Carry out education and awareness campaigns throughout the country.

#### ACTIVITIES:

- Tara Expeditions: ATOMM participated at Tara Workshop, ANTHROPISTATION ET POLLUTIONS EN MEDITERRANEE: IMPACTS ET SOLUTIONS, Tangier, 5 November, 2014.



Awareness Poster

- 25 Visited schools

See: <http://iucn-mtsg.org/members/member-profiles/mustapha-aksissou/>  
[http://www.fondation-sigma.org/fondation/index.php?option=com\\_content&view=article&id=32:caravane-des-science-a-tetouan-2009-2010&catid=4:caravane-des-sciences&Itemid=13](http://www.fondation-sigma.org/fondation/index.php?option=com_content&view=article&id=32:caravane-des-science-a-tetouan-2009-2010&catid=4:caravane-des-sciences&Itemid=13)

[http://www.iucn.org/fr/nouvelles\\_homepage/nouvelles\\_par\\_date/?9206/Les-eleves-de-lecole-Dar-Almanahil-a-Tetouan-Maroc](http://www.iucn.org/fr/nouvelles_homepage/nouvelles_par_date/?9206/Les-eleves-de-lecole-Dar-Almanahil-a-Tetouan-Maroc)

[www.aesvt-maroc.org/attachment/319343/](http://www.aesvt-maroc.org/attachment/319343/)

- Document (kit in Arabic) distribution for children in Morocco

<http://www.medasset.org/en/resource-centre/students-educators/328-kit-in-arabic>



Activities in Tetouan schools



Drawing contest for children in Morocco

-ATOMM Logo of Association to Save the Sea Turtles in Morocco (ATOMM) to make on T-shirts



ATOMM Logo on T-shirts

- On the occasion of World Day of the Ocean in Morocco (8 June 2011), interview by Mustapha Aksissou with media (Radio Medi1) has been carried. See:  
[http://www.medi1.com/redaction/magazines/mag\\_emission.php?Id=376](http://www.medi1.com/redaction/magazines/mag_emission.php?Id=376)  
<http://www.medi1.com/player/player.php?ite=4913737>

- Prof. Mustapha Aksissou and Dr. Wafae Benhardouze (members of IUCN's Species Survival Commission) participated in the IUCN North Africa Members Forum, 5 to 7 October 2011 in the Hotel Ibis Moussafir in Rabat, Morocco. Interviews with media (IUCN Malaga) has been carried by M. Aksissou and W. Benhardouze. See:

[http://iucn.org/fr/propos/union/secretariat/bureaux/iucnmed/communication/communique\\_s\\_de\\_presse/?8419/Concerns-about-pollution](http://iucn.org/fr/propos/union/secretariat/bureaux/iucnmed/communication/communique_s_de_presse/?8419/Concerns-about-pollution)

[http://iucn.org/fr/propos/union/secretariat/bureaux/iucnmed/communication/communique\\_s\\_de\\_presse/?8418/More-research-needed-to-save-nature](http://iucn.org/fr/propos/union/secretariat/bureaux/iucnmed/communication/communique_s_de_presse/?8418/More-research-needed-to-save-nature)



IUCN North Africa Members Forum, 5 to 7

October 2011 in the Hotel Ibis Moussafir in Rabat

- In 8 June 2010, ATOMM and Etablissement Dar Almanahil organised one activity for school children in Tetouan coast.

<http://oceanensemble.free.fr/index.php/content/view/164/87/>

**معلومات عن السلاحف البحرية في المغرب**

السلحفاة البحرية هي رواج طهور في العالم منذ أكثر من 100 مليون سنة، أنها مثلت مصدراً مهماً في التراث البيولوجي العالمي.

في المغرب، هناك نوعان فقط من السلاحف البحرية: صحمه الرأس والخدرية، يمثل السلاحف صحمه الرأس حوالي 95% والسلاحف الخدرية 5% من سبعة السلاحف البحرية في المغرب.

**نحو السلاحفة صحمه الرأس أو رسقنا**  
Caretta caretta

**نحو السلاحفة الخدرية**  
Dermochelys coriacea

هذه السلاحف تعيش في المحيط الأطلسي والمحيط الأطلسي للنهر.

**السلاحفة صحمه الرأس تعيش في المحيط الأطلسي**

وتم تحرير هذه السلاحفة في أحد الصادين في منطقة طرقية شمال طرقية.

**نحو سلاحفة صحمه الرأس في المحيط الأطلسي**

نحو سلاحفة صحمه الرأس في المحيط الأطلسي، حيث أنها تعيش في المحيط الأطلسي.

**نحو سلاحفة صحمه الرأس في المحيط الأطلسي**

نحو سلاحفة صحمه الرأس في المحيط الأطلسي، حيث أنها تعيش في المحيط الأطلسي.

**Data on Sea Turtles in Morocco**

In Morocco, the two most common sea turtle species are loggerheads and leatherbacks. They are captured accidentally in fishing gear or found stranded along the Mediterranean and Atlantic coasts of Morocco. Loggerheads represent 95% and leatherbacks 5% of these captured and stranded turtles.

**Loggerheads or Caretta caretta stranded in two mediterranean beaches, Azla and Restinga**

**Luth or Dermochelys coriacea stranded on Larache beach**

**Loggerheads captured accidentally in the west of Tangier**

**Loggerhead released by a fisherman in the region of Tangier**

**Leatherback captured accidentally in the north of Tarfaya**

**Loggerhead stranded near Tangier because of oil pollution and rehabilitated in the laboratory**

**Loggerheads released in the sea near Tangier after rehabilitation**

**Données sur les tortues marines au Maroc**

Les tortues marines sont des reptiles apparus dans les eaux du globe il y a plus de 100 millions d'années. Elles représentent une composante ancienne et importante de la biodiversité mondiale.

au Maroc, uniquement deux espèces sont présentes: Caouanne et Luth. La Caouanne représente 95% et Luth 5% de la population des tortues marines du Maroc.

**Caouannes ou Caretta caretta échouées sur les plages d'Azla et Restinga**

**Luth ou Dermochelys coriacea échoué sur la plage de Larache**

Ces tortues marines sont parfois capturées accidentellement en mer ou échouées sur les plages de la Méditerranée ou de l'Atlantique du Maroc.

**Caouannes capturées accidentellement à l'ouest de Tangier**

**Caouanne libérée par un pêcheur dans la région de Tangier**

**Luth capturé accidentellement au nord de Tarfaya**

**Caouanne échouée près de Tangier à cause de la pollution par les hydrocarbures et libérée dans le laboratoire**

**Caouannes libérées en mer près de Tangier après réhabilitation**

Poster in 3 languages (Arabic, English and French) about Data on Sea Turtles in Morocco

## 7. Publications

1. Feddal Zineb and Mustapha Aksissou. 2018. Heavy metals assessment in three fish species: *Boopsboops*, *Sardinapilchardus* and *Trachurustrachurus* from north-east of Morocco. Int. J. Adv. Res. 6(4), 351-356

2. Awadh H., M. Aksissou, W. Benhardouze, F. Darasi& J. Snaiki. 2018. Socioeconomic status of artisanal fishers in the west part of Moroccan Mediterranean. *International Journal of Social Ecology and Sustainable Development (IJSESD)*, 9(1): 40-52.
3. AwadhH., F. Darasi, M. Aksissou& M. Tiwari. 2017. Marine Turtle Bycatch in Artisanal Fisheries in Yemeni Red Sea Waters. *African Sea Turtle Newsletter*, 7: 16-19.
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## 8. Scientific communications

1. Aksissou M. 2018. Development of marine turtles researches in Morocco. Rabat, Morocco.

National Workshop, Protection et valorisation des espaces littoraux et marins – Quelle vision et quelles actions pour une gestion intégrée et durable ? Faculty of Science, Rabat 27 June 2018. I participated in this workshop by presentation: Sea Turtles Research Development in Morocco since 1960.



Mustapha Presentation



Faculty Team

2. Aksissou M, Benhardouze W et M. Tiwari. 2011. 3rd Northwest Atlantic Loggerhead Working Group Meeting, 22-24 January 2013. Madrid
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25. Aksissou M. 2004. Conservation and fisheries in NW of Morocco. 4<sup>th</sup> World Fisheries Congress, Vancouver, B.C., Canada, May 2-6, 2004.
26. Aksissou M. 2002. Foraging zone for *Caretta caretta* in the Mediterranean sea of Morocco.22nd Annual Symposium on Sea Turtle Biology and Conservation.Miami, FloridaUSA, 4-7 April 2002.
27. Aksissou M. 2001. Conserveation of *Caretta caretta* in the west Mediterranean sea of Morocco. 21st Annual Symposium on Sea Turtle Biology and Conservation, Philadelphia, PA, 24-28 February 2001.
28. Benhardouze W, Aksissou M, Saoud Y, De Los Rios Y Los Huertos A and O. Ocana. Le régime alimentaire de la tortue marine *Caretta caretta* au NW du Maroc. Second Mediterranean Conference On marine Turtles, 4-7 May 2005. Kemer, Antalia,

#### **9. Training courses**

- Stage de formation sur le Sauvetage et réhabilitation des tortues marines, Station zoologique de Naples, Italie, Décembre 7-13, 2009.
- Stage de formation sur les techniques cellulaires et moléculaires pour les vertébrés marins, université de Palermo, Italie, Novembre 8-21, 2004

#### **10. Member of NGO's**

- President of ATOMM (Association de Protection des Tortues Marines au Maroc) : see [www.atomm.ma](http://www.atomm.ma)
- Member of MTSG (Groupe des Spécialistes des Tortues Marines)
- Member of AFS (American Fisheries Society)
- Member of many associations of Environment in Morocco