



AFRICAN SEA TURTLE NEWSLETTER



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Amdjers de Mar: Bringing waves of change for women in fisheries on Sal Island, Cabo Verde.

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Manjula Tiwari

Ocean Ecology Network
Research Affiliate of:
NOAA-National Marine Fisheries Service
Marine Turtle Ecology & Assessment Program
Southwest Fisheries Science Center
La Jolla, California, USA
email: Manjula.Tiwari@noaa.gov

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Bringing Waves of Change for Women in Fisheries with “Amdjers de Mar”

Shannon Sutherland

Project Biodiversity, Santa Maria, Sal, Cabo Verde (email: ssutherland38@gmail.com)

When asked to provide a word to describe the assembly of women around them, both Lucy Duarte and Nataly Soares choose the same: *guerreira*. It is the Portuguese word for warrior, and if there was ever a group that embodied it, it is the *peixeiras* – women fishworkers – of Sal Island, Cabo Verde. Today, they are sharing their experience as they finish up a week of intense training designed to equip them with the tools needed for a very particular battle.

Before the summer of 2020, Lucy, Nataly, and their fellow *peixeiras* were an iconic part of the daily scene at the pier in Santa Maria, using buckets and their own material to sort, cut, and clean the daily catch hauled in by local artisanal fishers. While this attracted the attention of tourists in search of a good photograph, the lack of space, safety regulations, and formal knowledge and organization left them at a significant social and economic disadvantage.



Two “peixeiras” (women fishworkers) selling their catch on the pier in Sal, Cabo Verde (Photo: S. Sutherland).

Nataly has been working as a fish processor and vendor on and off for the past several years, and after her most recent re-entry 8 months ago, she is determined to find success in the industry despite its many challenges.

Some of these challenges, she says, she enjoys: the feeling at the end of a hard day’s work when she arrives home with an aching back after having sold all of her stock with just enough to bring home for dinner.

Other challenges are much more tiresome and difficult to tackle – like when her clients cancel their order at the last minute and at the end of the day when it is nearly impossible to sell the fish to

someone else, or the fact that many restaurants import their fish instead of buying it locally.

Lucy Duarte is both a seasoned vendor and a fisher in her own right, having fished alongside



One of two cohorts of Projeto Empodera’s “Amdjers de Mar” (Photo: A. Ramos).

her fathers and brothers since childhood. Her biggest obstacle as a fisher, she says, has been the misconception that women belong onshore and not in the boat. The biggest challenge as a vendor is competition – from hotels and local businesses and amongst the women themselves.

The *peixeiras* face similar obstacles to women in the fisheries sector worldwide. Despite an estimated 85% of representation in fish processing activities, women fishworkers continue to battle poor conditions, lack of resources, and gender discrimination in the sector. In Cabo Verde, the lack of social security

benefits and poor labor law parameters for the fisheries sector also contribute to their everyday challenges.

Enter Projeto Empodera, an initiative implemented by Project Biodiversity to build capacity among the women fishworkers of Sal through a series of workshops on financial management, food safety and handling, and leadership. The end goal? The establishment of an association dedicated to ensuring the sustainability of both their livelihood and the marine resources they rely on.

According to Carla Corsino, the coordinator and facilitator of Projeto Empodera, the solutions



lie not only in investing in the economic empowerment of the peixeiras, but in their social and personal empowerment as well. In order to address practical issues such as financial management and organizational leadership, she had to create space to explore the effects of hardships unique to women – the burden of expectation that they will raise a family, run a household, and provide for it without any significant support from partners.

Coordinator Carla Corsino with three women fishworkers of Projeto Empodera (Photo: A. Ramos).

“All of the women in this programme are more than capable,” says Carla, “it is just a matter of having access to the tools to organize and manage their own conditions, to formalize their existing work to enable them to make the most of their skills and role in the fisheries industry, and to feel secure in their knowledge and experience.”

For Lucy and Nataly, their participation in the programme has broadened their horizons with both practical, hard skills such as financial management, food safety, leadership, as well as something much deeper – a sense of power over their circumstances and solidarity with other peixeiras to forge a brighter path forward for their profession.

What that path looks like remains to be seen. In the next few months, many of the peixeiras will also engage in the island-wide campaign “Sustentável do mar ao prato” (<https://www.projectbiodiversity.org/sustainable-fisheries>) in an effort to strengthen sustainability throughout the local fisheries supply chain. Nataly dreams of a future where local hotels and restaurants will source their fish locally, allowing for a consistent stream of income for the whole group. Lucy hopes to one day open her own fish market and a restaurant that serves the catch straight from her boat. Now armed with new skills and new uniforms, Lucy, Nataly, and all the “Amdjers de Mar” are well on their way.



Drones as New Working Tools for Cabo Verde's Biodiversity Conservation NGOs

Aurélien Garreau

Consultant for PPI and CEPF, West Africa (email: aurelien.garreau@live.fr)

From 1 – 5 March 2021, 16 staff members from eight NGOs in Cabo Verde met on the island of Boa Vista to improve their skills on the use of drones for conservation in marine and coastal areas. This week was an opportunity for the participants to both share their experiences on the use of drones and learn new scientific protocols and techniques.

Scientific technologies have lately evolved a lot and are becoming more and more accessible. Drones are one of these tools, which can have a real impact on the work of conservationists and on the management of marine and coastal areas, as long as they are used with care and follow specific protocols. Quadcopter drones can be used for the monitoring of turtles, sharks, birds, and plants, but also for monitoring impacts in marine protected areas. It is already used in Cabo Verde as an anti-poaching method. On a less scientific level, it is often used for communication.

The following NGOs from Cabo Verde were represented: Associação Projeto Biodiversidade, Bios CV, Biosfera, Fundação Maio Biodiversidad, Fundação Tartaruga, Lantuna, Natura 2000, and Projecto Vito. This demonstrated a promising involvement from major conservation NGOs in Cabo Verde.

The week had two components. The first two days consisted of exchanges in experience facilitated by Albert Taxonera from Associação Projeto Biodiversidade and the following three days were facilitated by three trainers from the University of Queen Mary of London (Christopher Eizaguirre onsite, and Gail Schofield and Liam Dickson online on Zoom). The training covered the following topics:

- Types of drones and their characteristics
- Flight protocols
- Test of different types of drones
- Monitoring protocols
- Mapping



Field exercises (Photos: A. Garreau).

The participants created a WhatsApp group to share their experiences following the training and planned site exchanges amongst them to improve their skills.

The training was organized by PPI (Programme de Petites Initiatives). PPI is a French program financed by FFEM (French Global Fund for Environment) and MAVIA, which support biodiversity conservation projects by African civil society organisations (www.programmeppi.org).



Presentation on different types of drones (Photo: A. Garreau).



Presentation on the use of drones for mapping (Photo: A. Ramos).



Field exercise (Photos: A. Garreau).



Cas d'une Tortue luth échouée et libérée à Al Hoceima (Méditerranée, rivage du Maroc)

Mohamed Keznine¹, Hassan Benaissa² & Mustapha Aksissou¹

¹Département de Biologie, Faculté des Sciences, UAE, Tétouan, Maroc
(email: mohamedkeznine2015@gmail.com)

²Muséum d'Histoire Naturelle, Université Cadi Ayyad Marrakech- Maroc

Abstract: We rescued a leatherback sea turtle that stranded on Al Hoceima Beach on 16 March 2021. The turtle was injured and its left flipper was partially amputated and entangled in fishing net. After 3 hours of work, we were able to release the flipper from the net and help the turtle return to sea.

La circonscription d'Al Hoceima, au Maroc, est caractérisée par la présence d'un parc national qui favorise la diversité biologique marine (UICN 2012 ; Keznine *et al.* 2021). De nombreux habitats dans la circonscription d'Al Hoceima présentent un intérêt pour la conservation en Méditerranée et sont listés dans de nombreuses conventions et accords internationaux. Dans ce sens plusieurs études (Tiwari *et al.* 1999; Benhardouze 2004; Benhardouze *et al.* 2005; Benhardouze *et al.* 2009; Tiwari *et al.* 2006; Aksissou *et al.* 2010; Benhardouze *et al.* 2012; Aksissou *et al.* 2020) et enquêtes (Chahban *et al.* 2017; Kaddouri *et al.* 2018) sont réalisées avec les pêcheurs signalant la présence de Caouannes (*Caretta caretta*), Luths (*Dermochelys coriacea*) et Tortues vertes (*Chelonia mydas*). Ces trois espèces sont parfois observées en mer, capturées accidentellement ou échouées sur les plages marocaines de la Méditerranée ou de l'Atlantique. D'après les statistiques des captures accidentelles et des échouages, la Caouanne représente 95% et la Luth 4% des observations de tortues marines du Maroc (Benhardouze 2009). L'année 2015 est exceptionnelle sur l'Atlantique où il y a eu 5 échouages de Luths mortes (Masski et Tai 2017). Et sur la même région, des échouages de Caouannes sont signalés (Rihane *et al.* 2018).

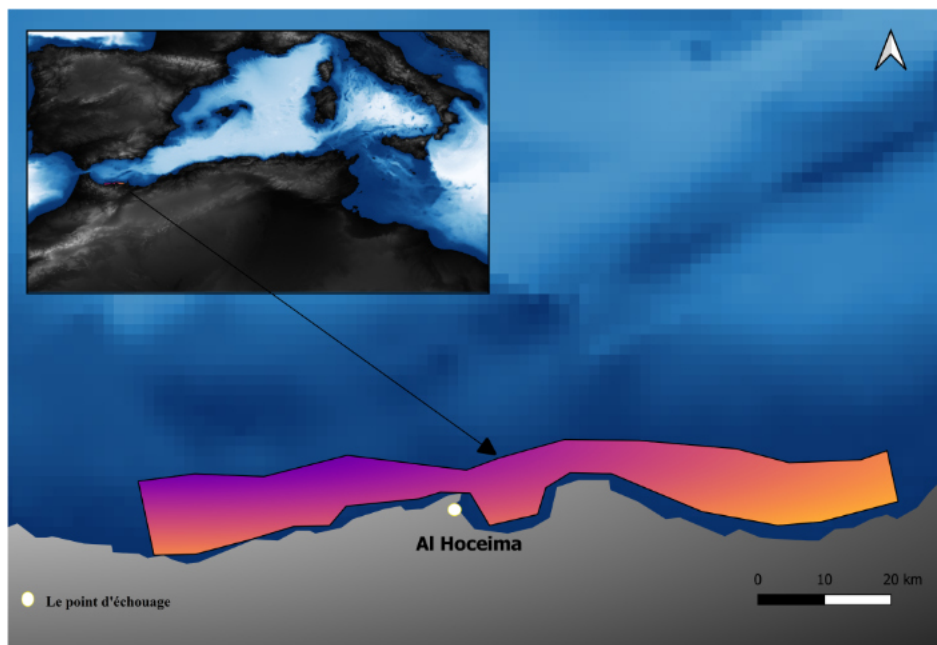


Figure 1: Site d'échouage de la Luth dans la région de Al Hoceima.

Le 16 mars 2021 à 19H00 heures du Maroc lors de la marée haute, une information nous est parvenue sur une tortue noire (Luth) qui est échouée sur la plage de Calabonita Al Hoceima (Fig. 1). Nous nous sommes rendus sur place rapidement pour voir que la Luth avait la nageoire antérieure gauche amputée en partie et emmêlée dans des filets de pêche (Fig. 2).

Cette blessure et le filet faisaient souffrir la Luth et la rendait immobile. L'état de l'animal montrait qu'il était resté fort probablement attaché à ces filets pendant longtemps. Nous avons libéré la patte de la tortue et nous avons pu l'aider à regagner son milieu de vie naturel. Les caractéristiques morphologiques de l'animal sont une longueur totale (longueur de la carapace + cou + tête) de 2 m et une largeur courbe de la carapace de 90 cm et le poids de plus de 150 kg (Fig. 3).

Ceci laisse à réfléchir sur les accidents qui peuvent avoir lieu en mer volontairement ou involontairement pour les tortues marines en Méditerranée. Un effort reste à déployer surtout chez les pêcheurs pour mieux les former et les sensibiliser au trésor que représentent les tortues marines, et la biodiversité marine pour la durabilité de la pêche et la survie de l'Homme.



Figure 2: Luth emmêlée dans un filet de pêche (Photo: M. Keznine).



Figure 3: Libération de la Luth (Photo: M. Keznine).

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Sea Turtle Interactions with the Artisanal Fisheries in Belyounech (Strait of Gibraltar)

Mohamed Rida Derdabi & Mustapha Aksissou

University of Abdelmalek Essaâdi, Faculty of Sciences, Tetouan, Morocco
(email: medridaderdabi@gmail.com)

Fishing is a prehistoric practice, however, with technological development and increased fishing effort, 75% of the world's fish stock is currently in a state of overexploitation (Schorr 2005). In the Mediterranean Sea, 82% of fish stocks have been overexploited (Di Franco *et al.* 2014). This over-exploitation is often attributed to the industrial fishing sector, in particular the fleets using trawls and driftnets, which cause a large amount of bycatch. However, the negative impacts of artisanal fishing have also been reported, especially those that target juvenile fish, use non-selective gear such as drift gillnets, and impact marine mammals and sea turtles (Rodríguez-Rodríguez 2014).

In the Mediterranean and in Morocco, the three main species of sea turtles are the loggerhead (*Caretta caretta*), the leatherback (*Dermochelys coriacea*) and the green turtle (*Chelonia mydas*) (UNEP/IUCN 1990; Aksissou *et al.* 2010; Benhardouze *et al.* 2012; Chahban *et al.* 2017; Kaddouri *et al.* 2018; Aksissou *et al.* 2020). Over 60,000 turtles are accidentally caught while fishing in the Mediterranean, with mortality reaching more than 50% of the individuals caught (Lee and Poland 1998). These accidental captures usually take place near the surface, when turtles come up to breathe (Bradai 1995; Camiñas 1997a). At the Strait of Gibraltar, loggerhead turtles can be trapped in drift gillnets used to target swordfish between April and September (Caminas 1997b; Silvani *et al.* 1999).

No study has so far been conducted at the Belyounech fishing site, which is located within the Strait of Gibraltar, a corridor for sea turtles and in particular for loggerheads, which migrate from the Atlantic to the Mediterranean in early spring and from the Mediterranean to the Atlantic in the summer (Camiñas and Valeiras 2000).

The present study aims to draw up an inventory of possible interactions that may take place between the artisanal fishermen from the fishing village of Belyounech and sea turtles, and establish a database that can subsequently be completed and used for rigorous monitoring of the various interactions with sea turtles in the region.

Study area: Belyounech fishing site is located in northern Morocco, overlooking the Strait of Gibraltar (Fig.1).



Figure.1: Study area.

It is within the Marine Protected Area of Jbel Moussa (PNUE/PAM-CAR/ASP 2016). The area around Jbel Moussa has swells ranging from 1 – 1.5 m. The tide is semi-diurnal with slight diurnal irregularity (SOGREAH 2007). The area hosts great biological diversity in species and habitats, and in particular species such as red coral (*Corallium rubrum*), coralline red alga (*Lithophyllum byssoides*), colonial orange coral (*Astroides calycularis*), and eelgrass (*Zoostera marina*), which are protected by several international conventions (PNUE/PAM-CAR/ASP, 2016).

Table 1: Questionnaire used to interview the fishermen.

Socio-demographic data	1-Age	18-27, 28-37, 38-47, 48- 57, > 58
	2- Fishing experience (years)	< 10, 11-20, 21-30, > 31
	3- Education level	Illiterate, Koranic school, Primary school, Junior high school, Senior high school, University
	4- Position on boat	Captain, crew
	5- Other activities carried out	
Fishing boat & activity	6- Number of crew members	
	7- Boat characteristics (Length, engine power, gross tonnage)	
	8- Which types of fishing gear do you use?	Bottom longline, Surface longline, Hook & line, seine, trawl, trap, trammel, octopus jig
	9- Fishing period	
	10- Number of fishing days per week	
	11- Fish targeted	
Interactions with sea turtles	12- Have you ever seen sea turtles?	Yes, No
	13- How frequently?	A few times, every year, every month
	14- What species of turtles do you see?	Loggerhead sea turtle, leatherback sea turtle, green sea turtle
	15- In which season?	Summer, Autumn, Winter, Spring
	16- Is there any bycatch?	Yes, No
	17- Have you caught turtles in the past year?	Yes, No
	18- Condition of turtles caught	Dead, Alive
	19- Turtle size	
	20- Have you ever eaten a turtle?	Yes, No
	21 - To your knowledge are there any laws for the protection of sea turtles?	Yes, No

Methodology: Four field trips were conducted between mid-October and mid-November 2020 and consisted of face-to-face interviews. Twenty fishermen were interviewed and interviews lasted for approximately 20 minutes. Fishermen selected the location for the interview (e.g., the harbor, a coffee shop, or the fisherman's home). The questionnaire, containing 21 questions (Table1), consisted of: socio-demographics of the fishermen, fishing boat and activities, and interactions with sea turtles.

Results and Discussion:

Socio-demographic data: Our questionnaire covered 13 captains and 7 crew members. They were on average 41.5 ± 12.8 years old and their average fishing experience was 18.4 ± 11.9 years. Most of them went to Koranic school in their childhood (Fig. 2). All fishermen declared that fishing was their only source of income.

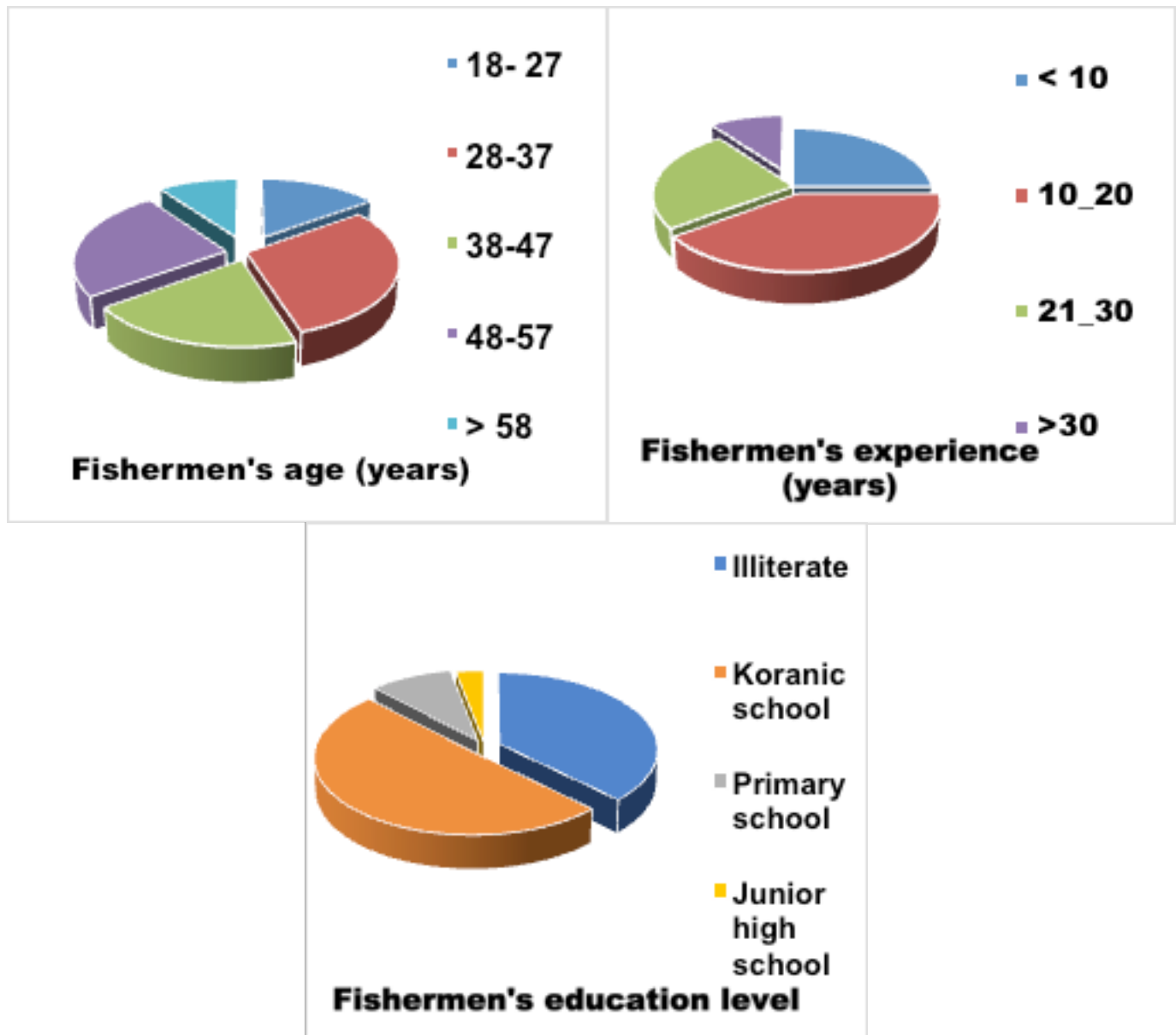


Figure 2: Socio-demographic data of fishermen.

Table 2: Boat characteristics (GT = gross tonnage; HP = horse power).

	Number of boats	Length (m)	GT (t)	HP	Age (years)
Max	20	6.2	1.79	25	37
Min		4.3	0.91	15	3
Average		5.62±0.08	1.45±0.04	16.84±0.77	12.95±7.76

Fishing activity: Boats used are small and equipped with low power engines and have a small gross tonnage (Table 2). Hook & line, and in particular the blackspot seabream line is the most widely used and widespread gear at the Belyounech fishing site. Other gears such as trammel and longline gear are used, but less frequently. Fishermen fish all year round and their activity is interrupted only during cases of force majeure (death, birth, illness, religious holidays, and bad weather). The most targeted species in the study area is the blackspot sea bream (*Pagellus Bogaraveo*), belonging to the Sparidae family.

Interactions with sea turtles: All fishermen claimed to have seen sea turtles at least once in their life (Fig. 3). The loggerhead and the green turtle were the most commonly observed in the region (Fig. 3). According to these fishermen, sea turtles are observed throughout the year, but especially during the spring. Camiñas (1997a; b) indicated that loggerheads migrate from the Atlantic to the Mediterranean through the Strait of Gibraltar during the first half of the year. The turtles observed were generally 1 – 2 m in length. Four of the 20 fishermen questioned said that they had a turtle stuck in their trammel net, and only two of them were still alive (Fig. 4). A study by Lee and Poland (1998) showed that the mortality of accidentally caught turtles ranges from 10–50%. The rest of the fishermen said that interactions between sea turtles and hook & line and bottom longline gears are almost non-existent. Studies carried out in the Mediterranean have shown that floating longlines and driftnets are the main causes of sea turtle accidental captures; the set net is also responsible for a large part of the mortality (Camiñas and De La Serna 1995; Di Natale 1995; Sugget and Houghton 1998). None of these studies cited hook & line and bottom longlines as being responsible for incidental captures, which confirms the statement of the fishermen in this study. None of the fishermen claimed to have eaten turtle meat, and none of them had heard of laws or regulations that protect sea turtles.

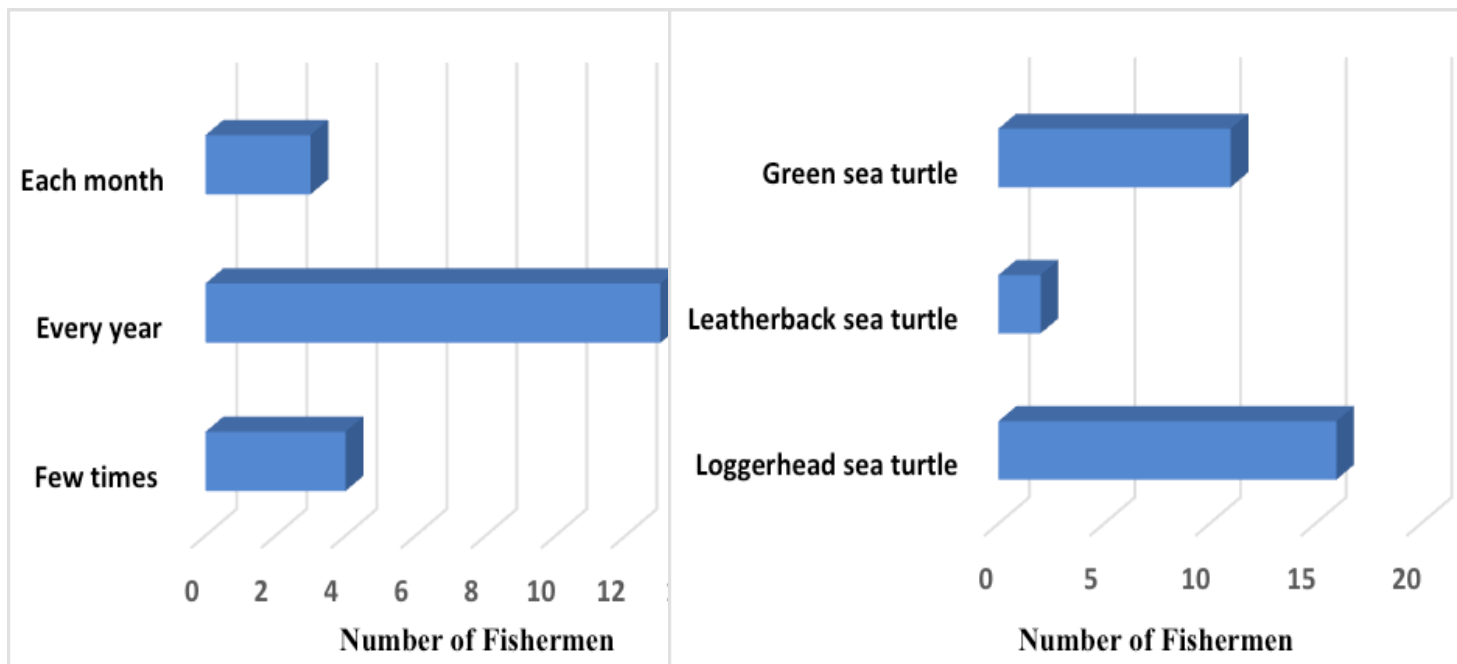


Figure 3: Observed frequency of sea turtles (on the left) and of sea turtle species (on the right).



Figure 4: Sea turtle saved by a fisherman (Photo: M. Chellaf).

In conclusion, this study constitutes a first step towards the regular monitoring of interactions between the artisanal fisheries and sea turtles at the Belyounech fishing site. The collective consciousness of local fishermen should be integrated into programs for the protection and preservation of turtles. Communications and education of these fishermen should be done through meetings and workshops where all the laws, conventions, and interests behind the conservation of sea turtles are explained.

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Death and Hope on the Coast of Central Senegal

Pearson McGovern¹, Awa Wade¹, Tomas Diagne^{1,2} & Lucy W. Keith-Diagne²

¹African Chelonian Institute, BP 80 Joal, Thies 23015, Senegal

²African Aquatic Conservation Fund, BP 80 Joal, Thies 23015, Senegal

(emails: (English) pearsonmcg21@gmail.com or (French) awade@africanchelonian.org)

In April 2020, in the midst of a worldwide pandemic (COVID-19), our team was made aware of active sea turtle poaching near a major fishing port, Joal, in central Senegal. This discovery led to monthly surveys and a greater overall vigilance of the beaches and lagoons (where many of the turtles were being butchered and their carapaces stashed to clean for sale to tourists or expatriates) stretching from Cape Finio in Joal to Mbodiene, Senegal (Fig. 1). Most of this area is included in the Joal-Fadiouth Marine Protected Area (J-F MPA, Aire Marine Protégée de Joal-Fadiouth I Direction des Aires Marines Communautaires Protégées (DAMCP) (www.sec.gouv.sn). Senegal's waters are home to five species of sea turtles – leatherbacks (*Dermochelys coriacea*), greens (*Chelonia mydas*), hawksbills (*Eretmochelys imbricata*), olive ridleys (*Lepidochelys olivacea*), and loggerheads (*Caretta caretta*) – (Dupuy 1986). However to date, on surveys between April 2020 – March 2021, we have documented only green turtles in our ~20 km study area. All turtles were found either swimming or nesting, or their remains were found while surveying the beach and mangroves around the lagoon; predominantly adults have been documented, though juveniles are seen as well. A possible explanation for green turtles being the dominant species in our area may be the highly productive sea grass beds that characterize these coastal waters. Green turtles are known to utilize shallow coastal waters for feeding (Hays *et al.* 2002; Senko *et al.* 2010), which are often heavily threatened by various fishing practices and overall habitat degradation (Groombridge and Luxmoore 1989). Though year-round presence of sea turtles off the Senegalese coast has not yet been reported, we herein suggest that as in Banc d'Arguin National Park in Mauritania (Maigret and Trotignon 1977), some green turtles may be year-round residents of the productive coastal waters of the J-F MPA. While sea turtles face many threats throughout their range, including by-catch, destruction of nesting beaches, drowning in ghost nets, and pollution of their marine environment, herein we focus on the threat of poaching and, on a more hopeful note, documentation of successful nesting.



Figure 1. Map of the survey area as well as the locations of the three Marine Protected Areas whose staff attended training workshops in 2021.

Poaching: All sea turtles have had formal protection in Senegal since 1986 (République du Sénégal 1986, Law 86-04), however, both specialist hunters as well as opportunistic consumers are still easily found. Between 20 April 2020 and 31 March 2021, our team found the remains of 60 green turtles near the coastal village of Mbodiene, Senegal. We estimate, based on carapace length or the size of disarticulated carcasses, that 35 of these individuals were mature, reproductive adults (Table 1). The majority of carcasses were found over the course of nine surveys, totaling ~45 hours, though some were found opportunistically while at the beach. During these surveys we were made aware of some interesting facts, such as many of the encountered carapaces had been stashed for future sale as household decorations. We found carapaces both buried in the soil bordering the thick mangroves of the Mbodiene Lagoon as well as in the trees themselves, likely to allow them to dry while remaining concealed. We were also able to uncover a butchering site in an abandoned building near the lagoon, where we found two recently butchered carcasses as well as the knife that was used. The meat is sold and consumed locally as well as transported to Dakar (and possibly further) on demand. Unfortunately, we suspect that the carcasses we found represent a mere fraction of the total, with reports that many sea turtles are killed at sea and their remains thrown overboard (also evidenced by carcasses that have washed ashore). Additionally, on 10 September 2020 our partners at the J-F MPA intercepted a boat with eight live adult green turtles that were released on site. The boat captain was arrested and the engine confiscated. It is likely that this was a specialist hunter, one of several in the region.

The results of our surveys (which occurred in the months of February, March, April, May, June, July, August, September, October of 2020 and 2021) represent one reason why we are suggesting the presence of a year-round resident population of green turtles in Senegal. All carcasses were either removed or marked during surveys to facilitate our recording of new carcasses each time, therefore, we are confident that new carcasses were found on each survey. In addition to our survey effort, we have also formed valuable partnerships with and trained the local wildlife authorities, increased our vigilance of beach activities through the building of a watchtower and the purchase of a motorbike, and started funding boat patrols in an effort to diminish poaching. These boat patrols (carried out in the months of February—May of 2020 and 2021), as well as unrelated boat activities by our team in the J-F MPA (including drone surveys in November 2019; Farinelli and Keith-Diagne *unpublished data*), add further evidence of potential year-round residency by green turtles, with turtle sightings during each outing.

Nesting: Green turtle nesting data (no other species has been documented) have been opportunistically collected in the J-F MPA since 2014 (Table 2). However, search effort has been variable over time, leading to varied year-to-year results. In 2014, a total of 17 green turtle nests were recorded on the beaches of the J-F MPA and fenced for protection, of which 11 successfully hatched. Even after the fencing was installed to protect each individual nest, stray dogs (*Canis familiaris*) and Nile monitor lizards (*Varanus niloticus*) were able to destroy and depredate six nests as well as damage the fencing for several others. These damaged fences resulted in an underestimation of the number of successfully hatched hatchlings (n = 234) by the J-F MPA staff. In 2015, J-F MPA staff did not record any nesting activity. It is unclear if this was a result of minimal survey effort or a legitimate lack of nesting. A total of 21 nests were discovered and protected between 2016 and 2018, with the earliest nest in any year being discovered on 4 August (2017) and the last nest discovered on 31 October (2016). Similar to 2015, no nests were recorded in 2019, however, unlike in 2015, we have been able to confirm that surveys were in fact carried out in 2019. Given the limited number of females nesting within the J-F MPA (see nest counts in Table 2), and the fact that individual females do not tend to nest every year (Davenport 1997), it is entirely possible that no females came to shore to nest in 2019. Between 2016 and 2018, no data were recorded on the success rate of nests or the number of hatchlings. In 2020, a year in which survey effort was greatly increased as a result of our and our partners' increased beach presence to dissuade illegal poaching activities, a total of 17 nests were documented in the J-F MPA. All nests were fenced for protection from predators except for one nest that was relocated by J-F MPA staff further up the beach away from the tide line. This nest was depredated by a Nile monitor lizard before

fencing was installed. In addition, one nest of 94 eggs failed to hatch. The remaining 15 nests hatched successfully, resulting in 760 recorded hatchlings successfully making their way to the ocean (Tables 2 & 3). Upon hatching, nests were dug up and unhatched eggs were counted for 14 of the 16 protected nests. A total of 673 unhatched eggs were counted amongst the 14 excavated nests resulting in a 53% average hatch rate (range = 0–87%) for nests where both unhatched eggs and hatchlings were recorded. Also, as a result of increased presence on the beach in Mbodiene (outside of the J-F MPA), another 20 nests were recorded. No data were collected for these nests, but the majority was reportedly lost to predators. All 2020 nests were discovered between 6 August and 13 November with a peak around mid-September.

Table 1: Date and morphometric measurements for all 60 green turtles carcasses found on the beaches or in the mangroves between Joal-Fadiouth and Mbodiene, Senegal between 20 April 2020 and 31 March 2021. Abbreviations: CCL = Curved Carapace Length, CCW = Curved Carapace Width, NA = Not Available. All measurements are in cm. Entries below the bolded line represent individuals for which measurements were not possible. NA values for individuals above the bolded line represent specimens with incomplete carapaces.

Date	CCL	CCW
20-Apr-20	102.8	90.6
20-Apr-20	107.2	98.5
20-Apr-20	98.6	96.1
20-Apr-20	103.3	95.1
20-Apr-20	106.7	95.1
20-Apr-20	105.2	100.3
4-May-20	43.7	42.5
4-May-20	48	46.1
4-May-20	44.9	42.3
4-May-20	50.5	49.9
4-May-20	63	59.4
4-May-20	82.6	71.5
4-May-20	67.3	NA
4-May-20	75.3	71.6
4-May-20	68.9	62.8
4-May-20	90.3	82.4
4-May-20	76.9	69.3
4-May-20	94.7	84.3
4-May-20	81.4	72.2
4-May-20	72.2	69.1
4-May-20	90.5	79.9
4-May-20	102.9	92.6
4-May-20	62	NA
4-May-20	89.2	76.1
4-May-20	58.4	53.8
9-Jun-20	103	92
9-Jun-20	105	93
9-Jun-20	88	76
9-Jun-20	84	77
9-Jun-20	86	77
9-Jun-20	95	83
9-Jun-20	42	39
9-Jun-20	90	83
22-Jul-20	77	69
8-Aug-20	65	51
16-Aug-20	51	47
17-Aug-20	49	46
20-Aug-20	77	69
24-Aug-20	113	106
17-Sep-20	88	84
2-Oct-20	52	47
16-Oct-20	52	46
16-Oct-20	72	64
3-Feb-21	69	64
3-Feb-21	54	49
3-Feb-21	88	83
3-Feb-21	92	78
3-Feb-21	60	47
31-Mar-21	63	56
31-Mar-21	93	81
4-May-20	Plastron only	Adult
4-May-20	Old shell fragments	Adult
4-May-20	Plastron only	Juvenile
4-May-20	Old shell fragments	Juvenile
4-May-20	Plastron and skull	Adult
3-Feb-21	Carapace disarticulated	Juvenile
3-Feb-21	Carapace disarticulated	Juvenile
3-Feb-21	Carapace disarticulated	Juvenile
3-Feb-21	Plastron and skull	Adult
3-Feb-21	Plastron only	Adult

Table 2. Nesting activity within the Joal-Fadiouth Marine Protected Area in central Senegal between 2014 – 2020. Survey effort and nest protection were variable year-to-year. Entries represent minimum values (*indicates not all hatchlings were counted).

<u>Year</u>	<u># of Nests Laid</u>	<u># of Nests Hatched</u>	<u># of Hatchlings</u>
2014	17	11	234*
2015	0	0	0
2016	10	NA	NA
2017	8	NA	NA
2018	3	NA	NA
2019	0	0	0
2020	17	15	760

Table 3. Number of hatchlings produced from 16 protected nests in 2020 in the Joal-Fadiouth Marine Protected Area, Senegal.

<u>Nest ID</u>	<u>Total eggs</u>	<u>Total hatchlings</u>
1	66	50
2	94	0
3	154	61
4	166	29
5	120	93
6	118	10
7	47	23
8	46	29
9	75	27
10	88	60
11	98	64
12	NA	65
13	85	73
14	73	50
15	89	77
16	NA	49

Conclusions, future challenges and opportunities: Poaching remains a threat to sea turtles in Senegal’s coastal waters. It is likely that the carcasses we found represent just a sample of the total killed. Through these poaching surveys, we confirmed nesting in the J-F MPA, and opportunistic boating activities helped confirm green turtle presence in the protected area for

10 months of the year, lending weight to our assumption of a year-round resident population. To confirm this assumption, however, future studies must show that sea turtle sightings in the J-F MPA do not merely represent migrating individuals passing through the area during all months of the year. For this, tagging of encountered individuals and subsequent long-term monitoring of the area are required. Our team plans to incorporate tagging into our ongoing conservation, education, and training programs focused on ensuring a future for Senegal's sea turtles. In March 2021, our team conducted two training workshops for the community leaders living in and around the three Marine Protected Areas near our base in Joal, Senegal (Fig. 1). These programs will improve habitat conservation, increase youth involvement and community stewardship, and maximize valuable data collection for Senegal's understudied sea turtles.

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Projet d'étude et de conservation des tortues marines en République de Djibouti à l'entrée de la Mer Rouge

Jacques Fretey,¹ Patrick Triplet,¹ Roman Bourgeois² & Nicolas J. Pilcher³

¹ Center for Sea Turtle Research - Chélonée, Mas du Ringué, 46260, Beauregard, France
(email: jfretey@imatech.fr)

² DECAN, Route de l'aéroport - BP2136 - Djibouti (République de Djibouti)

³ Marine Research Foundation, Sabah (Malaysia)

Abstract: Djibouti, located at the entrance to the Red Sea, is an important hotspot for marine biodiversity. The presence of four species of marine turtles has been indicated and they are protected by Djiboutian law, but updated information on marine turtle species and their habitats are not available. Chélonée, a French NGO, has initiated a marine turtle observation network through French soldiers who scuba dive during their free time and who also frequently observe hawksbill turtles nesting on Maskali Island from December to April. This platform can be used to improve our knowledge on the distribution and abundance of the four marine turtle species, especially hawksbills. This initiative also highlights how citizen scientists can participate and assist science and management agencies to improve their knowledge of marine biodiversity.

La République de Djibouti (Fig. 1) est située sur la côte occidentale de l'entrée de la Mer Rouge, avec comme pays voisins la Somalie au Sud, l'Éthiopie et l'Érythrée au Nord-Ouest. Ce pays possède aussi une frontière maritime avec le Yémen, à travers le détroit Bab-el-Mandeb et le golfe d'Aden.

Dans le Golfe d'Aden, Djibouti est un important hotspot de biodiversité marine en raison de la confluence des eaux chaudes de la mer Rouge et des eaux froides des régions somalienne et arabe, créant ainsi un écosystème marin exceptionnel.

Un Plan de Gestion Intégré des Zones Côtières (GIZC) de 2005 se veut l'outil de planification et de réflexion d'un développement durable pour la conservation des écosystèmes marins et littoraux. Le point 4.5.2. de ce plan indique que la protection des espèces en danger comme les tortues marines doit faire l'objet de mesures de protection avec la mise en œuvre de plans d'actions régionaux et du développement de mesures spécifiques.

The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) a publié en 2004 les actes d'un plan intitulé "Regional Action Plan for the Conservation of Marine Turtles and their Habitats in the Red Sea and Gulf of Aden". La présence de la Tortue verte, *Chelonia mydas*, de la Tortue imbriquée, *Eretmochelys imbricata* et de la Tortue caouanne, *Caretta caretta*, est signalée dans ce plan dans les eaux djiboutiennes, bien qu'aucune recherche locale n'ait eu lieu sur ces espèces.

Le président de la République de Djibouti a cependant signé un décret (n° 2004-0065/PR/MHUEAT) portant protection de la biodiversité et les incluant. L'article 5 de ce décret interdit la capture, le commerce, l'exportation et l'importation de la Tortue imbriquée, de la Tortue caouanne, de la Tortue verte et de la Tortue luth, ainsi que leurs produits. L'article 6 interdit la chasse sous-marine, sous quelque forme que ce soit, dans les limites des eaux territoriales.

L'association Chélonée commence un projet à Djibouti en partenariat avec l'association locale Duncan qui gère trois aires protégées (Djalelo, Assamo et Douda), un refuge animalier et un centre pédagogique. Le présent projet complétera d'autres activités dans la région qui ont été mises en œuvre depuis l'élaboration du Plan d'Action Régional.

Convoitée par les puissances régionales pour sa position stratégique à l'entrée de la Mer Rouge et le passage des cargos entre océan Indien et mer Méditerranée, la République de

Djibouti, indépendante depuis 1977, a pu préserver son indépendance grâce à l'accord de défense signé avec la France. La présence des forces militaires françaises (FFDj) sur le territoire djiboutien est encadrée par le Traité de coopération en matière de défense signé le 21 décembre 2011 entre la République de Djibouti et la France. Il comporte 1 500 militaires. Les FDDj contribue à la défense de l'espace comprenant le territoire de la République de Djibouti et de ses eaux territoriales, offre un appui aux opérations de secours en mer sur les territoires des Etats de l'IGAD, le territoire de l'Erythrée et le territoire du Yémen. Le FDDj anime également une coopération régionale avec des détachements espagnols et allemands pour des opérations multinationales comme par exemple l'opération européenne Atalante, de lutte contre la piraterie.



Figure 1. Localisation de Djibouti (en jaune ocre).

Ces militaires, souvent stationnés à Djibouti avec leurs épouses, font beaucoup de plongée et passent souvent leurs week-ends de repos sur les îles. Ils voient beaucoup de tortues marines lors de leurs plongées dans une mer très limpide et assistent à des pontes et à des émergences de nouveau-nées. Chélonée a donc pris l'initiative récemment d'animer un groupe d'observateurs volontaires parmi eux.

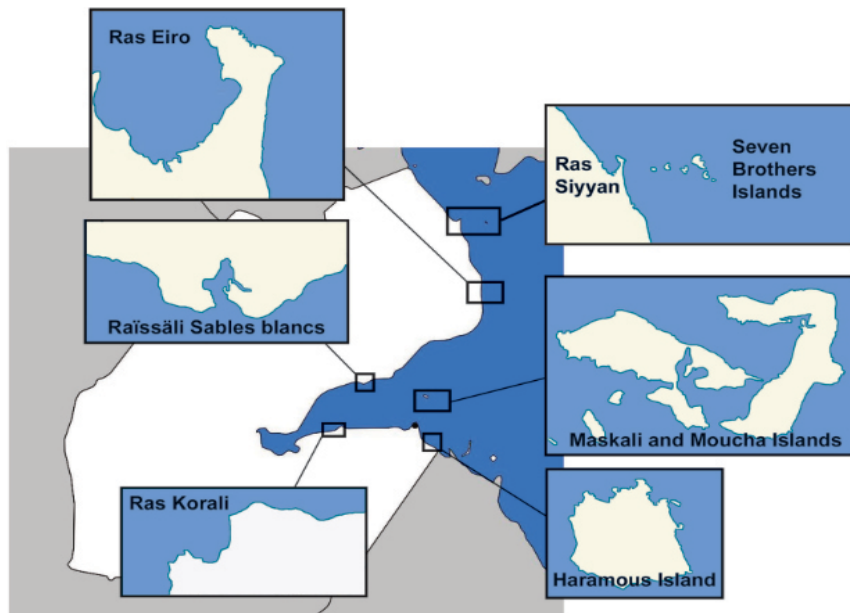


Figure 2. Position des six sites actuellement prospectés.

La base de données préliminaire créée à partir de photos et de vidéos prises par ces familles de militaires et autres expatriés français montre l'importance de six sites (Fig. 2).

Tortue verte: De nombreuses observations de Tortues vertes immatures d'une longueur courbe carapace (CCL) d'environ 40–50 cm sont faites lors de plongées en face des lieux-dits Raïssâli / Sables blancs. Ces tortues sont essentiellement observées au repos entre des formations coralliennes (Fig. 3).



Figure 3. Tortue verte immature au repos dans un récif corallien à Raïssâli en avril 2021 (Photo: C. Tardy).

Nous ne disposons actuellement d'aucun document visuel de Tortues vertes subadultes et adultes s'alimentant sur des herbiers, mais des individus de ces classes d'âge ont été filmés près de la plage de Ras Korali sur des fonds sableux.

PERSGA (2004) indique la nidification de cette espèce de janvier à avril sur les îles Moucha et Maskali, à Ras Siyyan et sur les Seven Brothers Islands (Sawâbi). La population est estimée à environ 100 femelles. Cette donnée, sans références bibliographiques, est cependant douteuse.

Al-Mansi *et al.* (2003) indiquent avoir dénombré 15 Tortues vertes en mer à Gabel, à 2 km au nord d'Obock, lors de leur chasse du 5 octobre 2003. Ils les ont marquées avec des bagues en titane. La longueur CCL de 9 tortues mesurées était en moyenne de 66,67 cm (57 à 108,50 cm). Ils citent également l'observation sur la plage Bouffard de l'île Maskali de la dossière d'une femelle de 68,50 cm de long tuée alors qu'elle était montée pour pondre dans la nuit du 15 avril 2003, afin de récupérer de la viande et de la graisse. La figure 16 (Al-Mansi *et al.* 2003) sensée représenter cette Tortue verte montre une dossière de Tortue imbriquée. À l'inverse, la photo de figure 19 (Al-Mansi *et al.* 2003) montre les dossières de 2 Tortues vertes immatures identifiées « hawksbill ».

Ces auteurs écrivent avoir observé 4 traces fraîches de locomotion de la Tortue verte et dix cuvettes corporelles début mai dans la zone de Rasyan (entre 19°271 N et 19°186N). Les gardiens de l'île Mousha leur ont indiqué des pontes de Tortues vertes sur trois plages : Hom'mad (300 m de long, plage visitée par 1 à 3 femelles par nuit), Palétuvier (400 m, 3 à 5 femelles par nuit), et Sheraton (1 500 m 10 à 15 femelles par nuit).

Al-Mansi *et al.* (2003) rapportent aussi que sept tortues baguées à l'étranger ont été revues dans les eaux territoriales de Djibouti. Deux provenaient du Sri Lanka et avaient parcouru environ 27 000 km, les quatre autres venaient d'Oman situé à quelques 1 800 km, et une autre de Socotra à 1 100 km. De ces sept tortues, les auteurs ne précisent que pour d'eux d'entre elles que ce sont des Tortues vertes.

Tortue imbriquée: Cette espèce semble la plus commune. Des immatures et des adultes sont

souvent observées par les plongeurs dans les coraux au large de Raïssâli / Sables blancs. De l'autre côté du Golfe de Tajroua, le site de Ras Korali semble également très fréquenté par cette espèce (Fig. 4). Un crâne a été trouvé sur la plage de Siyyân.

Au large de Siyyân, les rares plages des Seven Brothers Islands, dans le détroit de Bab el Mandeb (29 km de large) séparant Djibouti du Yémen, avec essentiellement la grande plage arquée à l'est de l'île de Khadda Dabali, pourraient accueillir des pontes de la Tortue imbriquée. Cet archipel étant militairement très sécurisé, nous n'avons pas d'informations pour l'instant.



Figure 4. Tortue imbriquée adulte femelle nageant au large de Ras Korali (Photo: C. Deloffre).

Selon tous les observateurs nous ayant donné des informations, l'île de Maskali est un site connu pour accueillir très régulièrement des pontes de la Tortue imbriquée (Fig. 5). Leurs photos prouvent leurs témoignages et l'identification de l'espèce. Selon eux, la saison de ponte s'étalerait de fin décembre à début avril. PERSGA (2004) cite des pontes de la Tortue imbriquée de mars à juin sur Ras Siyyan et sur les Seven Brothers Islands, mais sans citer ses sources. Des recherches sur ces sites nous paraissent indispensables.

Al-Mansi *et al.* (2003) écrivent avoir capturé en mer à Gabel une Tortue imbriquée d'une longueur CCL de 59,50 cm, et ailleurs quatre autres spécimens de cette espèce ayant en moyenne une longueur CCL de 53,85 cm.

Tortue caouanne: Une coopérative djiboutienne de pêcheurs, inquiète que de nombreuses espèces marines menacées se retrouvent prisonnières dans leurs filets, montre en photos les exemples d'une Tortue verte et d'une Caouanne adultes. C'est actuellement le seul document accessible montrant cette présence de la Caouanne dans les eaux djiboutiennes.

PERSGA (2004) cite la Caouanne de Haramous Loyada, sans citer l'origine de cette donnée.

Tortue luth: Hamann *et al.* (2006) rapportent des observations de Luths dans les eaux de Djibouti par des pêcheurs, mais les auteurs n'étaient pas certains de l'exactitude de ces témoignages.

Lors d'une expédition de recherche du Shark Research Institute dans les eaux de Djibouti, le 2 décembre 2019, un spécimen de Luth a été observé et photographié en surface dans le

Golfe de Goubet, près du site de plongée nommé « La Faille » (11°34 45,1 N 42°31 25,2 E). Sa longueur de dossière (CCL) fut estimée à 1 m. C'était donc une subadulte (Boldrocchi *et al.* 2021). C'est la première preuve formelle de présence de la Luth dans ce pays.



Figure 5. Tortue imbriquée en oviposition au sud de l'île de Maskali en avril 2014 (Photo: M. Bullou).

Discussion: A Djibouti, la zone de Raïssâli/Sables blancs semble être un habitat corallien très fréquenté par les Tortues imbriquées. Selon le Plan de Gestion Intégré des Zones Côtières, ce site aux fonds exceptionnels constitue un attrait touristique très fort pour la plongée.

Il est estimé qu'environ 450 à 550 Tortues vertes et 450 à 650 Tortues imbriquées nidifient chaque année le long des côtes de la mer Rouge (Mancini *et al.* 2015).

La présence de la Luth n'est documentée que rarement dans le Golfe d'Aden et en Mer Rouge. Elle est citée des eaux yéménites par Hamann *et al.* (2006), et Pilcher et Saad (2006). À Djibouti, Omar *et al.* (2016) indiquent que la mousson du sud-ouest induit un mouvement vers l'est des eaux de surface, ce qui a pour effet d'améliorer la remontée d'eaux riches en nutriments dans le golfe Goubet. Une augmentation conséquente de la population de zooplancton et de méduses est constatée d'octobre à décembre (Boldrocchi *et al.* 2020). L'observation de la Luth par le Shark Research Institute s'est produite pendant ce pic de biomasse de zooplancton. Cette augmentation de la disponibilité des proies peut représenter un facteur important pouvant expliquer la présence de la Luth dans les eaux de Djibouti pendant cette période de l'année (Boldrocchi *et al.* 2021).

L'observation récente d'une Luth subadulte dans le Golfe Goubet, avec les autres observations au Yémen (Saad 2002; Pilcher et Saad 2006) et en Somalie (Van de Elst 2006), tendrait à laisser supposer que le Golfe d'Aden pourrait être un habitat plus important pour les Luths que précédemment reconnu (Boldrocchi *et al.* 2021).

Nous n'avons pas actuellement d'informations sur la présence de tortues marines dans le site Ramsar de Haramous-Loyada qui comprend des étendues côtières sableuses, et ceci malgré l'affirmation de la convention de la présence de la Tortue verte et la Caouanne sur ce site.

Les militaires de différentes nations et leur famille semblent faire beaucoup de plongée et

séjourner sur des plages potentiellement de nidification, nous allons préparer un protocole afin de normaliser les photos et pouvoir les entrer dans une base de données standardisée. En ce qui concerne la Tortue verte et la Tortue imbriquée nous recommanderons la prise de photos de profils céphaliques afin d'identifier les individus par leurs postoculaires.

Concernant le dérangement à terre des femelles, nous allons voir avec les autorités concernées, la faisabilité de former des volontaires pour effectuer des patrouilles de surveillance et faire un comptage des traces sur les îles Maskali et Mousha.

Remerciements: Merci à Céline Schmitt-Ader d'avoir été la première personne à Djibouti à nous avoir envoyé des photos et des vidéos de pontes, de nouveau-nées et de tortues dans un habitat corallien. Elle est devenue une efficace collaboratrice pour coordonner les observations volontaires. Les auteurs remercient aussi Yannick Antunez, Catherine Tardy, Karine Racape, Michel Bullou pour les renseignements fournis et la mise à disposition de leurs vidéos et photographies.

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Sammy Safari: Winner of the Prestigious Whitley Award 2021

Gladys Kimani

Local Ocean Conservation, Kenya, (email: info@localocean.co)



***“I grew up under the guidance of my father who taught me how important it is to protect nature and all that it offers.”
Sammy Safari***

Sammy Safari, a local conservationist working with Local Ocean Conservation Kenya (LOCK) (<https://localocean.co/>), recently received the prestigious Whitley Award (<https://whitleyaward.org/>) for his lifelong dedication to conservation and his work as a LOCK team member. Based in Watamu, East Africa’s oldest Marine Park and Reserve, LOCK’s flagship programme is Watamu Turtle Watch. Sammy plays an integral role as head of LOCK’s anti-poaching programme and as a Community Liaison Officer. LOCK’s varied programmes revolve around practical marine conservation, research and data collection, and inclusive community involvement through awareness and education.

LOCK’s field teams engage with more than 1,900 fishers and fishmongers, working to change negative, retrogressive practices and ideologies linked to sea turtle poaching and the destruction of marine habitats. By deepening and inculcating the cultural value and respect for the ocean and its resources, LOCK, together with local fisher communities, has established a successful sea turtle Bycatch and Release Programme. Over 21,000 sea turtle rescues have been conducted, which is an average of 1,300 rescues per year for over a decade.

To achieve this success, LOCK has, from its inception, worked tirelessly alongside local communities to build relationships that promote trust, ensuring that everyone feels included. To further leverage this trust, LOCK staff spend much of their time in the field, something Sammy excels at. His courage, tireless energy, and commitment are exceptional, given the many challenges he faces, especially in leading sea turtle anti-poaching efforts. We are incredibly proud of Sammy for his lifelong commitment to conservation and his work as a team member of LOCK.

We remain grateful to the Whitley Fund for Nature for the acknowledgement and recognition of the work of all members of our team and for giving us an opportunity to highlight all those working so hard in marine conservation, especially on the East African coast. The Whitley Award will help further enhance LOCK’s successful holistic approach to marine conservation. In Sammy’s own words, ***“It is essential to show local people the benefit of sustainable practices and how this in turn will help improve their livelihoods.”***

Photo: LOCK



A Case of Chelonitoxism in Memba, Northern Mozambique

Marcos A. M. Pereira, Carlos Litulo, Raquel S. Fernandes & Cristina M.M. Louro

Centro Terra Viva – Estudos e Advocacia Ambiental, Maputo, Mozambique
(email: marcospereira@gmx.net)

Chelonitoxism is defined as poisoning caused by the consumption of turtles, particularly marine turtles, including their meat, adipose tissue, blood, eggs and/or organs. Globally, this phenomenon has been widely reported. A quick search in the literature resulted in several publications on mass intoxications and deaths following the consumption of turtles by local communities in the Pacific, Atlantic, and Indian Oceans, indicating that it is a widespread phenomenon (Silas and Fernando 1984). Examples include India (Singh *et al.* 2016), Costa Rica (Campos *et al.* 1996), Mexico (Senko *et al.* 2009), Australia (O'Grady and Krause 1999), the Philippines (Ventura *et al.* 2015), Micronesia (Pavlin *et al.* 2015), and French Polynesia (Fussy *et al.* 2007). At least four species of marine turtles – loggerheads (*Caretta caretta*), green turtles (*Chelonia mydas*), leatherbacks (*Dermochelys coriacea*), and hawksbills (*Eretmochelys imbricata*) – and a riverine/estuarine species, the New Guinea giant softshell turtle (*Pelochelys bibroni*) have been reported as poisonous to humans (Deshpande 2002). Within the Western Indian Ocean region, while fatalities have been reported in Madagascar (Ranaivoson *et al.* 1994; Rasamimanana *et al.* 2017), Comoros (Mbaé *et al.* 2016), and Tanzania (Aguirre *et al.* 2006), cases of chelonitoxism seem to be rare or go unreported, either due to misdiagnosis or due to the illegal nature of turtle consumption, as marine turtles are protected within the region.

Here we report on a highly publicised case of chelonitoxism in two villages: Mejuve and Mutepo in Memba District (Nampula Province, northern Mozambique) during the first week of July 2020.

This event resulted in at least 20 reported fatalities, 12 of them belonging to the same household. According to reports in the media (major national newspapers, social media, TV, and radio stations, both independent and government), patients developed a variety of symptoms including sore throats, mouth, and tongue sores, as well as sores on the genitals. Other symptoms included nausea, vomiting, and fainting. These symptoms were generally consistent with previous reports (cf. Silas and Fernando 1984 and references therein), although sores on the genitals seem to be a coincidence, as this symptom could not be corroborated with previously published studies. Several patients were admitted to local health centres and hospitals and/or received treatment at home. The event lasted at least one week to ten days, from consumption to fatalities.

Extensive contacts with local authorities and other relevant sources based in Memba District failed to gather further and detailed information including confirmation of the turtle species consumed, as well as the circumstances under which the event unfolded. Government officials and civil society groups as well as health authorities refused to disclose any relevant information in addition to what was initially published by the media. However, the leader of the local community fishing council stated that a member of a group of youngsters known to poach marine turtles at night was the first fatal victim. While no positive identification of the species was produced, the leader indicated that it could potentially be a mature green turtle, as these are very common in the area and often landed.

According to media reports, the police were gathering evidence and preparing to press charges against the perpetrators. At the time of writing (almost ten months later), a case number or conviction could not be confirmed in order to clarify the mysterious deaths and illnesses associated with marine turtle meat consumption.

Acknowledgments: We thank the President of the Memba Community Fisheries Council for providing information.

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Update from the Western Indian Ocean Marine Turtle Task Force

Lindsey West^{1, 2}

¹Sea Sense, Tanzania & ²Task Force Member for Tanzania
(email: lindsey@seasense.org)

The Western Indian Ocean Marine Turtle Task Force (WIO MTTF) was established in 2007 as a joint initiative between 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) and the UNEP Nairobi Convention, which is concerned with the management and conservation of marine and coastal resources of the WIO region. The Task Force is a technical committee made up of nominated country representatives, whose main objective is to facilitate implementation of the IOSEA Marine Turtle MoU (including its Conservation and Management Plan). It also serves as a vital forum for information exchange in the region.

In March 2021, the WIO MTTF held its 9th meeting. Due to the COVID-19 pandemic, the Task Force met online for the first time in its history. Seven of the 10 member states participated (Comoros, Mozambique, France (Reunion), Seychelles, South Africa, Tanzania and United Kingdom) together with the Secretariat of the IOSEA Marine Turtle MoU, the Chair of the IOSEA Advisory Committee, National Focal Points from Mozambique, Seychelles, South Africa and the United Kingdom, and the Nairobi Convention Secretariat.

The meeting started with country updates from each member, which highlighted new research and conservation initiatives; national infrastructure projects impacting marine turtle habitats; changes in national policies, laws, and management frameworks affecting marine turtles and/or their habitats; and emerging threats and challenges. Threats to marine turtles from poaching, plastic pollution, and climate change were common across several countries, and the increasing number of large infrastructure projects in the region was noted as a major cause for concern. Members also shared recent achievements and success stories. Notable achievements in the region include the establishment of a multi-partner anti-poaching programme and a stranding network in Mayotte; expansion of protected areas in the EEZs of Seychelles and South Africa; the formulation of a draft National Plan of Action for Marine Turtles in Tanzania; and strengthened linkages between NGOs and the government in Mozambique.

Following the country updates, the Task Force members undertook a review of the Terms of Reference (ToR) for the WIO MTTF, in order to clarify issues around Task Force leadership and membership, and to clearly define the mandate of the Task Force and its objectives going forward. All participants engaged in fruitful discussions and a new ToR was adopted. The election of a new Task Force leadership followed. Dr. Jeanne Mortimer (Seychelles) was elected as Chair and Ms. Cristina Louro (Mozambique) was elected as Vice-Chair. Both bring a wealth of experience to their positions. Dr. Jeanne Mortimer's career in turtle conservation began in 1973 at Tortuguero, Costa Rica, and she has since worked on marine turtle conservation in more than 20 countries. For the past 30 years she has been leading marine turtle research and conservation in the Seychelles and was instrumental in the establishment of the Turtle Action Group of Seychelles (TAGS). She has been an active member of the IUCN SSC Marine Turtle Specialist Group since 1979, and in 2016 she was awarded the Lifetime Achievement Award by the International Sea Turtle Society. Since 2004, Cristina Louro has been working with Centro Terra Viva (CTV), a Mozambican Non-Governmental Organization (NGO), which focuses on natural resource management, research, and advocacy. Her work includes oversight of monitoring programmes on sea turtles, coral reefs, mangroves, sea grasses and resource use, mainly artisanal fishing, in four marine protected areas in the country. She is currently a part-time PhD student at Nelson Mandela University, South Africa, researching the use of marine spatial planning for people and marine migratory species. She

has been a member of the WIO MTTF since 2008.

All Task Force members congratulated the new Chair and Vice-Chair and expressed their commitment to working closely on the implementation of regional research, conservation, and management priorities, which were identified at the 8th Meeting of Signatory States in 2019 and are set out in the IOSEA Marine Turtle MoU Work Programme 2020—2024. The WIO MTTF will meet again later this year to monitor progress on each of the identified priorities.



Publications from Africa in 2020

Compiled by Mustapha Aksissou

University of Abdelmalek Essaâdi, Faculty of Sciences, Tetouan, Morocco

Camiñas, J.A., Y. Kaska, S. Hochscheid, P. Casale, A. Panagopoulou, J. C. Báez, M. M. Otero, C. Numa, and E. Alcázar. 2020. Conservation of marine turtles in the Mediterranean Sea [brochure] IUCN, Malaga, Spain.

Crespo-Picazo, J.L., M. Parga, Y. Bernaldo de Quirós, D. Monteiro, V. Marco-Cabedo, C. Llopis-Belenguer, and D. García-Párraga. 2020. Novel insights into gas embolism in sea turtles: First description in three new species. *Frontiers in Marine Science* 7: 442.

Dalleau, M., J. Bourjea, and R. Nel (Eds.). 2020. Sea Turtles in the East Africa and the West Indian Ocean Region: MTSG Annual Regional Report 2020. Report of the IUCN-SSC Marine Turtle Specialist Group.

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Martins, S., L. Peteiro, and A. Marco. 2020. First documented record of fibropapilloma green turtles *Chelonia mydas* in the Cabo Verde Archipelago, West Africa. *Zoologia Caboverdiana* 8: 14—16.

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Nuno, A., L. Matos, K. Metcalfe, B. J. Godley, and A. C. Broderick. 2020. Perceived influence over marine conservation: Determinants and implications of empowerment. *Conservation Letters* 14:e12790.

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Remembering Henk



Henri “Henk” Reichart (center), who was a reviewer for the African Sea Turtle Newsletter, passed away in December 2020. He leaves us with many wonderful memories of good humor, laughter, and a *joie de vivre*.

Henk worked on sea turtles in Suriname, and on behalf of the WIDECAST network, Dr. Karen Eckert writes:

“We remember Henri (Henk) Reichart as a conservationist, mentor, colleague and friend. He was a unique force for positive change in his adopted country of Suriname, where, as the WIDECAST Country Coordinator and Senior Technical Advisor to the Suriname Forest Service, he co-authored the nation’s first Sea Turtle Recovery Action Plan (1993) and, a decade later, served as the lead author on a comprehensive Regional Sea Turtle Conservation Program and Action Plan for the Guianas (2003). Both documents brimmed with important recommendations for the Guianas, as well as timely insights for Wider Caribbean range States. Henk was responsible for numerous conservation milestones in Suriname, many unrelated to sea turtles, but through decades of important work he remained quintessentially down to earth. He was practical, gregarious, funny, and a tireless mentor, especially to field workers (‘those all-too-often forgotten and unsung heroes who go plodding along the beaches night after night, collecting data for us’). While we saw Henk as a giant upon whose shoulders the rest of us stood, he was busy crediting those around him, including Joop Schulz, whose pioneering work Henk credited as ‘the major force behind the development of [Suriname’s] sea turtle conservation program’. With Henk’s passing we have lost an indefatigable, irreverent conservationist (who can forget the Christmas card where Henk and Judi [his wife] wore nothing but a palm frond?) and a dear friend. A man who loved the world and fought hard to protect it. We – and the sea turtles – are much blessed for having known him, and he will be dearly missed.”

We miss you very much Henk!



INSTRUCTIONS FOR AUTHORS

The African Sea Turtle Newsletter (ASTN) is a free, bi-annual international electronic publication about the biology and conservation of sea turtles in Africa, and the stories of people who work with sea turtles on this vast and diverse continent and its offshore islands. This publication hopes to increase communication and collaborations among all those working with sea turtles in Africa –scientists, conservationists, policy-makers, project managers, community members, students, professors, everyone!—as well as share news with the international sea turtle community.

Contributions can range from original scientific papers and natural history observations to opinions, anecdotes, local myths, taboos, pharmacopeia, and legends, as well as field experiences, workshops, education and awareness activities, and announcements. We will accept and publish contributions in English, French, Spanish, and Portuguese so that everyone can express themselves in the language they most feel comfortable.

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Mustapha Aksissou and Wafae Benhardouze
aksissou@yahoo.fr and wafae.benhardouze@gmail.com

Mauritania, Senegal, Guinea, Guinea Bissau, Togo, Benin, Cameroon, Congo-Kinshasa

Jacques Fretey jfretey@imatech.fr

Cape Verde, Canary Islands, Azores & Madeira, Sierra Leone, Liberia, Angola, Namibia

Manjula Tiwari & Edward Aruna manjula.tiwari@noaa.gov; edwardaruna@yahoo.com

The Gambia, Ghana, Nigeria

Phil Allman pallman@fgcu.edu

Ivory Coast, Eq. Guinea, Gabon, STP, Congo-Brazzaville

Angela Formia aformia@wcs.org

Sudan, Eritrea, Djibouti, Somalia, Kenya, Tanzania, Mozambique, South Africa

Lindsey West lindsey@seasense.org

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