

Sea Sense



Helping coastal communities protect endangered marine life in Tanzania



ANNUAL REPORT 2014

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EXECUTIVE SUMMARY

Sea Sense made significant progress in community based marine conservation across all four programme areas: research and conservation; education and capacity development; sustainable livelihoods; and governance and leadership.

Research and conservation efforts continued to be led by a network of Conservation Officers across six coastal districts. 321 green turtle nests were recorded and 26,179 hatchlings emerged safely from their nests. 38 nests were predated by wild animals (red ants n=14; monitor lizards n=12; mongoose n=11; and domestic dog n=1). One incident of nest poaching was recorded in Temeke District. 139 marine turtle mortalities were recorded (green n=121; hawksbill n=17; and olive ridley n=1). 30 female turtles were flipper tagged while nesting to gather data on reproductive behaviour and three satellite tags were deployed on nesting green turtles to determine post nesting migratory routes and the location of foraging grounds. A pilot 'at sea' bycatch survey commenced and preliminary results indicated that bycatch rates were significantly higher than those previously reported through interview surveys with fishers.

Three live dugong sightings were reported in the Rufiji Delta. Four sites were surveyed in the Rufiji Delta to assess suitability of seagrass habitat for dugongs.

Sea Sense implemented four actions to improve the sustainability of whale shark tourism in Mafia Island. A tourist satisfaction survey was conducted and 73 questionnaires were completed. Results showed that many visitors go to Mafia Island specifically to swim with whale sharks and there were concerns over whale shark crowding. A whale shark awareness workshop for boat captain and crew was held at the start of the season to launch a 'Whale Shark Briefing Pack' and promote better compliance to the Code of Conduct. A whale shark stakeholder workshop was held to identify a way forward for management of the whale shark tourism industry.

Environmental education programmes were held in 10 secondary schools and community events were held on World Environment Day, World Sea Turtle Day, World Fisheries Day and International Coastal Clean-up Day. Community theatre projects reached more than 7,000

coastal citizens and Focus Group Discussions were held with 1,500 local and migrant fishers. A marine conservation awareness campaign was launched on local radio and awareness materials including booklets, posters, t-shirts and khangas were distributed in 43 coastal villages.

Capacity development programmes targeted community fisheries managers known as Beach Management Units (BMUs). Members of 36 BMUs participated in training courses on marine ecosystems, fisheries economics and good governance. 80 female fish traders also received training in fisheries economics. District Fisheries Officers in four districts participated in a mentorship programme and their District Council Management Teams were sensitized on fisheries co-management approaches to strengthen their capacity to support fisheries sector development. Three marine legislation seminars were held to sensitize law enforcement personnel and the judiciary on the specific national fisheries legislation protecting endangered marine species and their habitats.

A marine turtle ecotourism initiative continued to attract visitors in Mafia, Pangani and Temeke. USD 6,748 was raised through visitor fees, half of which was distributed to coastal communities living close to nesting beaches. A flip-flop recycling project generated USD 1,415 for the artisans involved in flip-flop bracelet production.

Governance and leadership training was provided to 880 village and ward councillors across five coastal districts and focused on the concepts of accountability, transparency, democracy, participation and communication.

Research results and project achievements were shared at two international meetings and conferences and three manuscripts were published in a peer reviewed journal. Sea Sense facilitated a national level climate change workshop and lectures were given to students at the University of Dar es Salaam and the Fisheries Education and Training Agency.

Direct take of marine turtles, dynamite fishing, illegal resource exploitation, poor waste management and limited law enforcement efforts were major challenges to the success of Sea Sense marine conservation programmes.

ABOUT SEA SENSE

Sea Sense promotes the sustainable use of coastal and marine resources in Tanzania for the preservation of marine biodiversity and the health and prosperity of coastal communities.

Tanzania is home to an outstanding array of marine habitats including coral reefs and seagrass beds which provide important feeding grounds for several threatened marine species including five species of turtle (green, hawksbill, loggerhead, olive ridley and leatherback), together with dugongs, whale sharks and several species of whale and dolphin. Green and hawksbill turtles also nest on many of Tanzania's beaches.

In Tanzania, these habitats and the biodiversity they support are under increasing pressure. Marine turtles and dugongs are frequently entangled in fishing nets and deliberately slaughtered for their meat. Unregulated coastal development is causing the loss of important turtle nesting beaches, and foraging habitats are being degraded by illegal and destructive fishing practices.

Sea Sense is working closely with coastal communities to reverse the trend of environmental degradation in the coastal zone and has established itself as a leader in community based marine conservation in Tanzania. Sea Sense targets the conservation and protection of these flagship species to deliver broader conservation benefits to marine ecosystems and to improve the lives of coastal fishing communities who rely on the natural productivity associated with coral reefs and seagrass beds.

In view of the fundamental link between humans and their environment, Sea Sense uses a 'grassroots' approach to marine conservation. Coastal communities are directly engaged in a range of marine conservation and education initiatives that address the root causes of behaviour that lead to the degradation of marine and coastal ecosystems. Sea Sense currently operates in six coastal districts in Tanzania: Mafia, Kilwa, Rufiji, Temeke, Mkuranga and Pangani.

SEA SENSE GOALS

Sea Sense is working towards four long term goals that relate to Sea Sense's four priority programme areas.

Programme Area	Goal
Endangered marine species research and conservation	Populations of marine turtles and dugongs in Tanzania are increasing.
Education and capacity development	Citizens are actively involved in the development and maintenance of healthy and productive marine and coastal ecosystems.
Sustainable livelihoods	Coastal livelihoods provide conservation benefits for threatened or vulnerable marine species and their habitats.
Governance and leadership	Local and national governments are accountable to citizens on matters related to the use and management of marine and coastal resources.

SEA SENSE ACHIEVEMENTS IN 2014

This report summarizes the work carried out by Sea Sense during 2014 across all four programme areas.



MARINE TURTLE RESEARCH AND CONSERVATION

A marine turtle **nest monitoring and protection** programme has been in operation since 2001 and is managed by a network of 33 community Conservation Officers who conduct early morning foot patrols on nesting beaches in six coastal districts. Nesting is monitored through daily track counts. Conservation Officers also collect data on **marine turtle strandings**.



In 2014, 321 green turtle nests were recorded. There were no records of hawksbill nests at Sea Sense monitored sites. Almost half (47%) of nests were laid in Mafia Island. The remaining nests were laid in Pangani District (27%) and Temeke District (26%). 26,179 hatchlings emerged safely from their nests. 38 nests were predated by wild animals (red ants n=14; monitor lizards n=12; mongoose n=11; and domestic dog n=1). One incident of nest poaching was recorded in Temeke District.



Conservation Officers collected data on marine turtle strandings. 139 strandings were recorded in 2014 (green n=121; hawksbill n=17; and olive ridley n=1). 88% of green turtle strandings belonged to juvenile and sub-adult age classes indicating that Tanzanian coastal waters pose a considerable threat to immature turtles during their foraging phase. Stranded turtles had injuries consistent with fisheries interactions e.g. head wounds and flipper amputations, while others had been deliberately slaughtered.

In 2012, Sea Sense expanded community based marine turtle conservation efforts to include a **research programme** in order to address large data gaps in relation to marine turtle reproductive behaviour, population sizes and threats to their survival.



In 2014, Conservation Officers conducted an annual green turtle **flipper tagging** programme during the peak nesting months of April and May. 7km of nesting beach in Juani Island were monitored and 68 emergences were recorded. 58 were nesting events and 20 individual females nested. 14km of nesting beach were monitored in Temeke District and 25 emergences were recorded. 24 were nesting events and 14 individual females nested.



Conservation Officers assisted with the deployment of three **satellite tags**. Tags were deployed on nesting green turtles in Mafia, Temeke and Mnemba (Zanzibar). Post-nesting migratory routes were monitored and all three turtles were tracked to their foraging grounds. Film crews from UNEP and National Geographic joined Sea Sense during tag deployment and produced short documentaries about Sea Sense's use of satellite technology in marine turtle research and conservation.



In 2014 Sea Sense piloted a **bycatch survey** in the artisanal gill net fishery using on board observers. Data were collected from two gill net boats fishing in inshore waters in Temeke District. Turtles were captured in a third of all gill net sets over a six month period (152 sets). Ten sets captured multiple turtles, including one set which captured five individuals. All but one of the captured turtles were juveniles and a third were dead by the time they were found.

Table 1 provides a summary of data collected by Conservation Officers over the past five years.

	2010	2011	2012	2013	2014
Number of nests recorded	501	381	386	443	321
Number of emerging hatchlings	41,427	31,673	31,185	36,089	26,179
Number of nests poached (at monitored sites)	6	3	2	0	1
Number of nests predated (at monitored sites)	12	15	39	32	38
Number of turtles flipper tagged	6	8	29	36	30
Number of satellite tags deployed	0	0	7	1	3
Number of sea turtle mortalities	64	167	252	271	139

Table 1: Summary of marine turtle data and conservation efforts by Sea Sense, 2010 – 2014.

Since 2001, 4,200 nests have been recorded and monitored by Sea Sense and 318,516 hatchlings have safely reached the sea.

INTERPRETING THE DATA

There is considerable inter-annual variation in numbers of turtle nests recorded. The flipper tagging programme has demonstrated that there is also considerable variation in the annual number of nesting females. This simply reflects individuals returning with variable remigration intervals and is therefore a natural fluctuation. Even in stable populations, there may be years in which almost no turtles nest or alternatively there may be years in which nesting numbers are much higher than average. Therefore, care must be taken when making assumptions about a population based on unusually high or low nesting years.

Prior to the implementation of the saturation flipper tagging programme in 2012, estimates of the number of green turtles nesting in Tanzania had been calculated using track counts from daily patrols and breeding frequencies quoted in published literature (average of three clutches per season). While track counts are a useful index of abundance, detailed observations of nesting behaviour were essential to begin to build a more accurate and nuanced picture. The flipper tagging programme has confirmed that green turtles in Tanzania frequently lay more than three clutches per season with some females laying as many as six clutches. This finding correlates with other studies of green turtle reproductive behaviour from around the world and indicates that the nesting populations at rookeries in Juani and Temeke are much smaller than previously thought.

Due to high levels of natural inter-annual variability in green turtle nesting numbers, long term annual monitoring programmes are critical to detect trends in populations. Sea Sense has secured funding to continue the flipper tagging programme in Juani Island in 2015. Funds are currently being sought to repeat the programme in Temeke District.

Analyses of nesting data show that an average of 7% (SD±3) of nests are lost per year to predation by wild animals, most commonly monitor lizards, mongoose and fire ants. In 2010 and 2011, the rate of nest predation was much lower as a result of better protection of nests from predation by mongoose in Temeke District. However, success was temporary and mongoose predation became an issue again in 2012 when the mongoose learned how to penetrate barriers at nest incubation sites. Preventing mongoose predation continues to be a challenge for Sea Sense.

Sea Sense has now deployed a total of 11 satellite tags on nesting green turtles since 2012 and data are contributing to a much greater understanding of green turtle spatial dynamics both within Tanzania waters and the wider western Indian Ocean region. Tracking data demonstrates that green turtles with natal origins in Tanzania are coastal migrators (Figure 1), staying in inshore waters rather than crossing open seas.

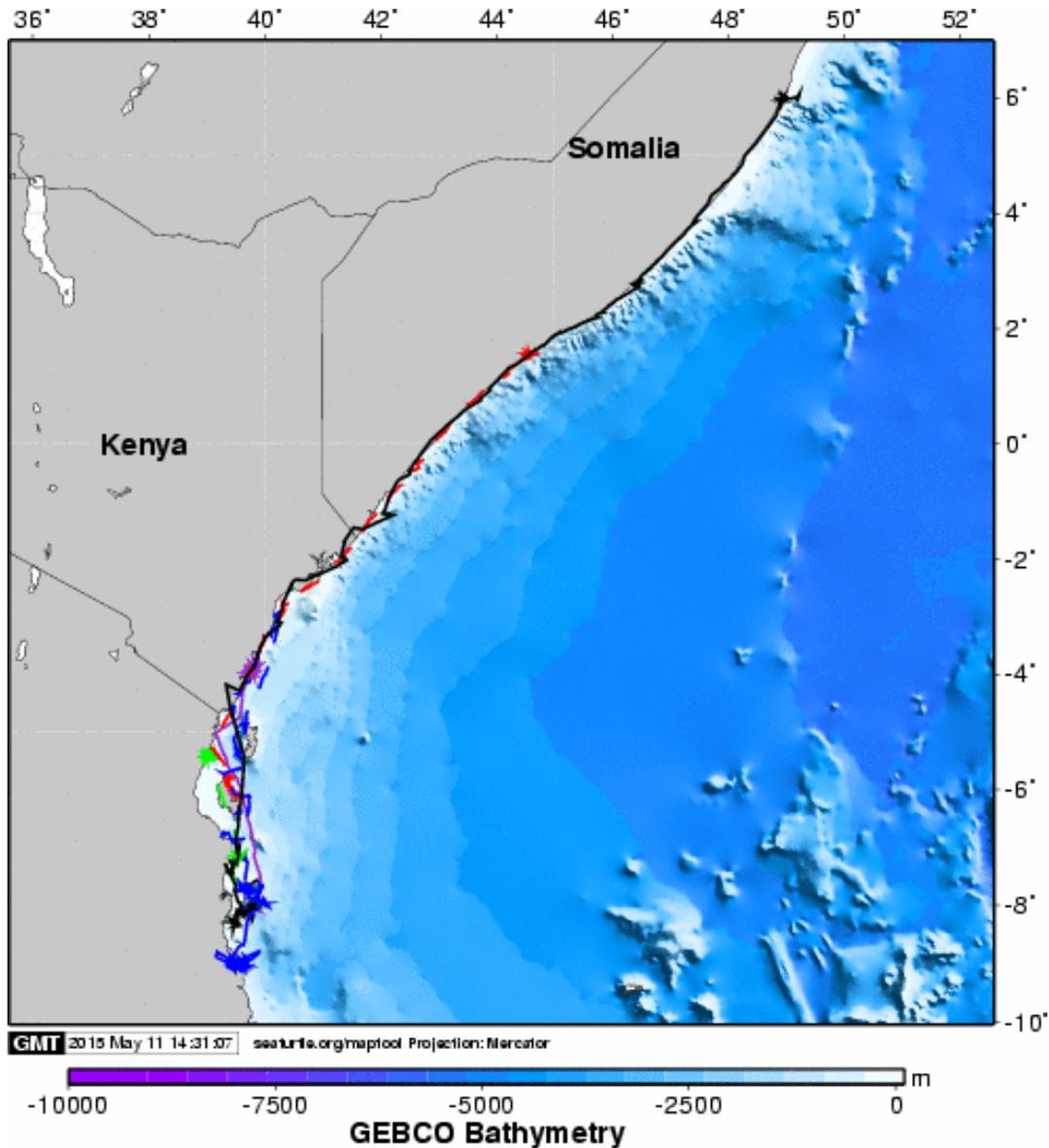


Figure 1: Migratory routes of satellite tagged turtles in Tanzania, 2012 - 2014



Two distinct post-nesting migratory strategies have been observed: northern movement along the continental shelf of east Africa to Kenya and Somalia (n=3) and residency within Tanzania waters (n=5). Two tags failed before post nesting migrations commenced so it was not possible to determine the migratory strategy of those two individuals.

One turtle did not fit into either strategy and instead migrated into Kenyan waters after finishing her nesting cycle but then returned to Tanzania to settle onto a foraging ground.

It is unclear as to why the turtle travelled more than 1,000km before returning to a foraging ground close to her nesting beach. It is possible that she was a first time nester (neophyte) and so her navigational performance was based on limited experience.

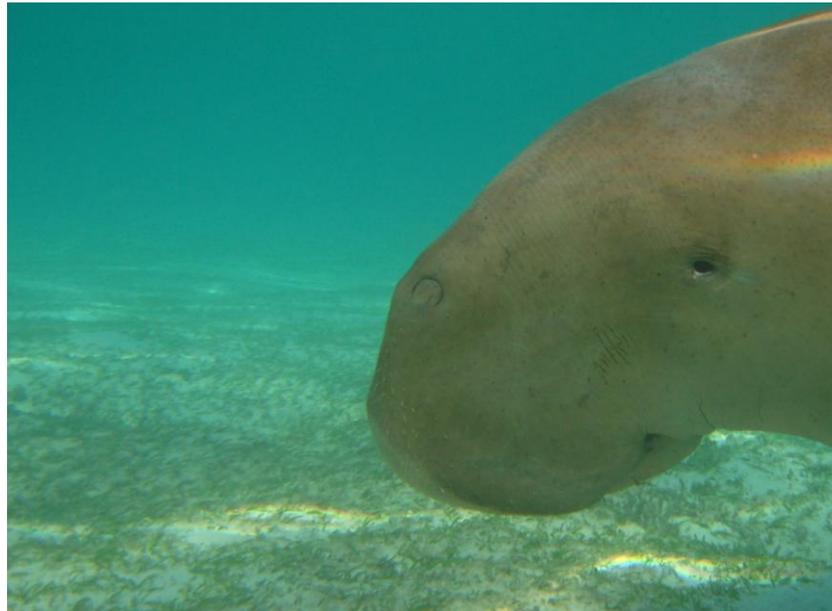
The satellite telemetry project enabled the identification of green turtle foraging habitats along the east Africa coast. Foraging grounds identified in Tanzania (e.g. Buyuni, Kilwa, Pemba Island) support productive fishing grounds and are subject to high fishing pressure. The inshore migratory pattern of Tanzanian green turtles suggests that fisheries interactions both inside and outside of Tanzanian waters, pose a serious threat to this population and underscores the need for multi-national conservation efforts to combat these threats.

The bycatch survey using on board observers indicates that bycatch data produced by interview surveys may underestimate the rate of marine turtle bycatch. Interview surveys conducted in Tanzania in 2007, 2010 and 2012 concluded that gill net fishers caught an average of 1-10 turtles per year. In contrast, 10 of the gill net sets in this study captured multiple turtles over a period of just six months, including one set which captured five individuals. The inconsistency in bycatch rates may be caused by fishers having a poor memory for bycatch rates or untruthful answers may have been provided. The pilot study needs to be expanded to other areas to gather a clearer picture of the true extent of marine turtle bycatch in Tanzania.

DUGONG RESEARCH AND CONSERVATION

In 2004, Sea Sense established a **community based dugong monitoring network** in the Rufiji Delta to provide data on the distribution and abundance of dugongs. Since 2004 the network has reported 43 live dugong sightings to Sea Sense including two mother/calf pairs and a group of four individuals. 14 dugong mortalities have been reported, including one mother/calf pair. Three live dugong sightings were reported in 2014.

The confirmed presence of a small, breeding population in the Rufiji Delta has raised awareness of the plight of the dugong in Tanzanian waters and helped to secure funds for a western Indian Ocean dugong research and conservation programme. The programme commenced in early 2014 and is funded by the Western Indian Ocean Marine Science Association (WIOMSA). It is a regional collaboration between Tanzania, Kenya, Mozambique and Seychelles and Sea Sense is the lead investigator in mainland Tanzania.



Since the programme began, efforts in Tanzania have focused on compiling data on seagrass distribution through the use of satellite imagery and gathering the latest information on dugong sightings. Community meetings and Focus Group Discussions were held and as a result, Sea Sense was able to identify nine sites that warranted detailed surveys of seagrass habitat.

Towards the end of 2014, the Sea Sense team visited four of the sites and conducted preliminary snorkel surveys to assess the suitability of the habitat for dugongs. Although no dugongs or feeding trails were observed during the preliminary surveys, all four sites supported lush seagrass habitat and will be prioritized for fine-scale habitat surveys in 2015.

WHALE SHARK CONSERVATION

In 2014 Sea Sense implemented a series of actions to improve the **sustainability of whale shark tourism** in Mafia Island, an industry which has grown at a considerable rate over the past five years. Four key activities were completed: a tourist satisfaction survey to assess views and experiences of whale shark viewing; a whale shark stakeholder workshop to identify a way forward for management of the whale shark tourism industry; launching of a 'Whale Shark Briefing Pack' for tourists and tour operators; and an awareness workshop for boat captains and crew involved in whale shark excursions.



73 questionnaires were completed by tourists participating in whale shark excursions. Results confirmed that many visitors go to Mafia Island specifically to swim with whale sharks. 61% of respondents expressed concerns about the high numbers of swimmers crowding individual whale sharks (an average of 15 swimmers per whale shark) and half of the respondents felt that there were too many boats with an individual shark at any one time. These responses highlight limited compliance to the Code of Conduct by tour operators.

Results of the tourism survey were shared at a stakeholder meeting in Mafia Island. Many of the participants from Mafia District Council who play a large part in decision making about management of the whale shark tourism industry, had very little knowledge about whale sharks which increases the risk of poor regulation of a growing industry. It was agreed that a management strategy for whale shark tourism was needed. Sea Sense will be working with stakeholders in 2015 to initiate development of the strategy.

A whale shark awareness workshop for boat captains and crew was held at the start of the season in November to launch the 'Whale Shark Briefing Pack' and promote better compliance to the Code of Conduct.

COMMUNITY EDUCATION AND OUTREACH PROGRAMMES

Sea Sense's education and outreach programmes focus on bringing about attitude and behavioural changes amongst citizens and decision makers so that the threats to endangered marine species and their habitats are reduced and citizens themselves can benefit from sustainable resource management solutions.





Students receive their prizes during a World Oceans Day event

"At the beginning I didn't know that discarded plastic can reach the ocean and harm marine animals but now I have that knowledge".

Quote from a pupil at Kilwa Secondary School during a school education programme.

"We need to unify in order to protect our own marine resources from depleting and yes, we can fight dynamite fishing if we are willing to".

Quote from a citizen of Singino village in Kilwa District during a community theatre project.

During 2014 Sea Sense has:

- Delivered environmental education programmes in 10 secondary schools.
- Held community events on World Environment Day, World Sea Turtle Day, World Oceans Day, World Fisheries Day and International Coastal Clean-up Day.
- Reached more than 7,000 coastal citizens through community theatre projects.
- Held Focus Group Discussions with more than 1,500 local and migrant fishers to sensitise them on endangered marine species conservation and waste management.
- Launched a marine conservation awareness campaign on Pangani FM.
- Produced and distributed awareness materials including an illustrated marine conservation booklet, t-shirts, khangas and posters in 43 villages across six coastal districts.
- Participated in a national 'Nane Nane' event

TRAINING AND CAPACITY DEVELOPMENT IN THE FISHERIES SECTOR

Poor management and limited investment in the fisheries sector over many years have led to declining fish stocks. Most species groups are fully or overexploited, especially near shore. Furthermore, persistent dynamite fishing is devastating coral reef habitat and associated reef fish communities.



Over the past year Sea Sense has organized and delivered training programmes for 36 **community-based fisher organizations** (Beach Management Units) which have legally mandated roles and responsibilities for fisheries conservation, management and development in their locality. Sea Sense training programmes consisted of modules in marine ecosystems, basic fisheries economics, and governance and leadership.

Follow-up meetings were held to **evaluate improvements** in BMU performance following the training. BMU members had a greater understanding of their roles and responsibilities and most had demonstrated repeated examples of positive engagement in fisheries conservation and management. There was recognition that support from citizens was critical to enable them to elicit broader support for improved fisheries management and demand greater responsiveness from government authorities. There were notable changes in the level of willingness amongst BMUs to take action against illegal fishers, regardless of kinship structures which have traditionally been an obstacle to effective enforcement.





There is minimal capacity at district level to manage the fisheries sector. Council Management Teams (CMTs) have little knowledge or understanding of fisheries management and District Fisheries Officers have limited capacity to support Beach Management Units, present fisheries information at district meetings, or influence budget allocation to the fisheries sector.

In view of these challenges, Sea Sense has implemented a series of sensitization and capacity development initiatives targeting district authorities. Over the past year Sea Sense has **engaged with Council Management Teams** in four districts to sensitize them on the importance of sustainable fisheries management. CMTs in Kilwa, Pangani and Rufiji Districts have since increased their budget allocation to the fisheries sector and made the Fisheries Department a permanent member of the CMT.

Sea Sense has continued to **mentor District Fisheries Officers** to develop their capacity to support a co-management approach to fisheries. District Fisheries Officers took an active role in delivering training for Beach Management Units and district councillors, assisted with the organisation of community education and outreach programmes and delivered presentations at Council Management Team meetings.

District level engagement also targeted law enforcement authorities. Three **marine legislation seminars** were held to sensitize law enforcement personnel and the judiciary on the specific national fisheries legislation protecting endangered marine species and their habitats and to lobby for greater support for its application.



SUSTAINABLE LIVELIHOODS

Sea Sense has established a **marine turtle ecotourism** initiative at three green turtle nesting sites (Mafia, Temeke and Pangani Districts). Members of the local community have been employed as 'Turtle Tour Guides' and work hand in hand with Sea Sense Conservation Officers. Visitors are guided to nesting beaches to watch hatchlings emerge from their nest and meet the Sea Sense team to learn about community based marine turtle conservation efforts in Tanzania.



Visitors make a small donation to Sea Sense to participate in a hatching event. Half of the revenue generated by the initiative is retained by Sea Sense to help support marine turtle conservation programmes and the remaining half is donated to local communities living close to nesting beaches. USD 6,748 was raised in 2014, half of which was distributed amongst eight villages. The

donations ensure that local communities see a clear connection between marine turtle conservation and economic benefits to their communities.

A **flip-flop recycling project** established in 2013 has continued to grow. Flip-flops that are washed up on nesting beaches in Mafia and Pangani Districts are being recycled by local artisans into 'Beach life Bracelets' and sold in several outlets across Tanzania. The project has made a considerable difference to the lives of the artisans who earned a total of USD 1,415 from the project in 2014.



GOVERNANCE AND LEADERSHIP

Strong leadership is essential for the sustainable management of marine and coastal resources but leaders often lack access to information on the principles of good governance. In many villages, political differences are an obstacle to proper participation and inclusion in community based fisheries management activities. As a result, elected leaders are rarely accountable to the citizens they serve.

During 2014, Sea Sense provided governance training to 880 village and ward councillors in five coastal districts. The governance training focused on educating the councilors on the pillars of good governance including accountability, transparency, democracy, participation and communication.



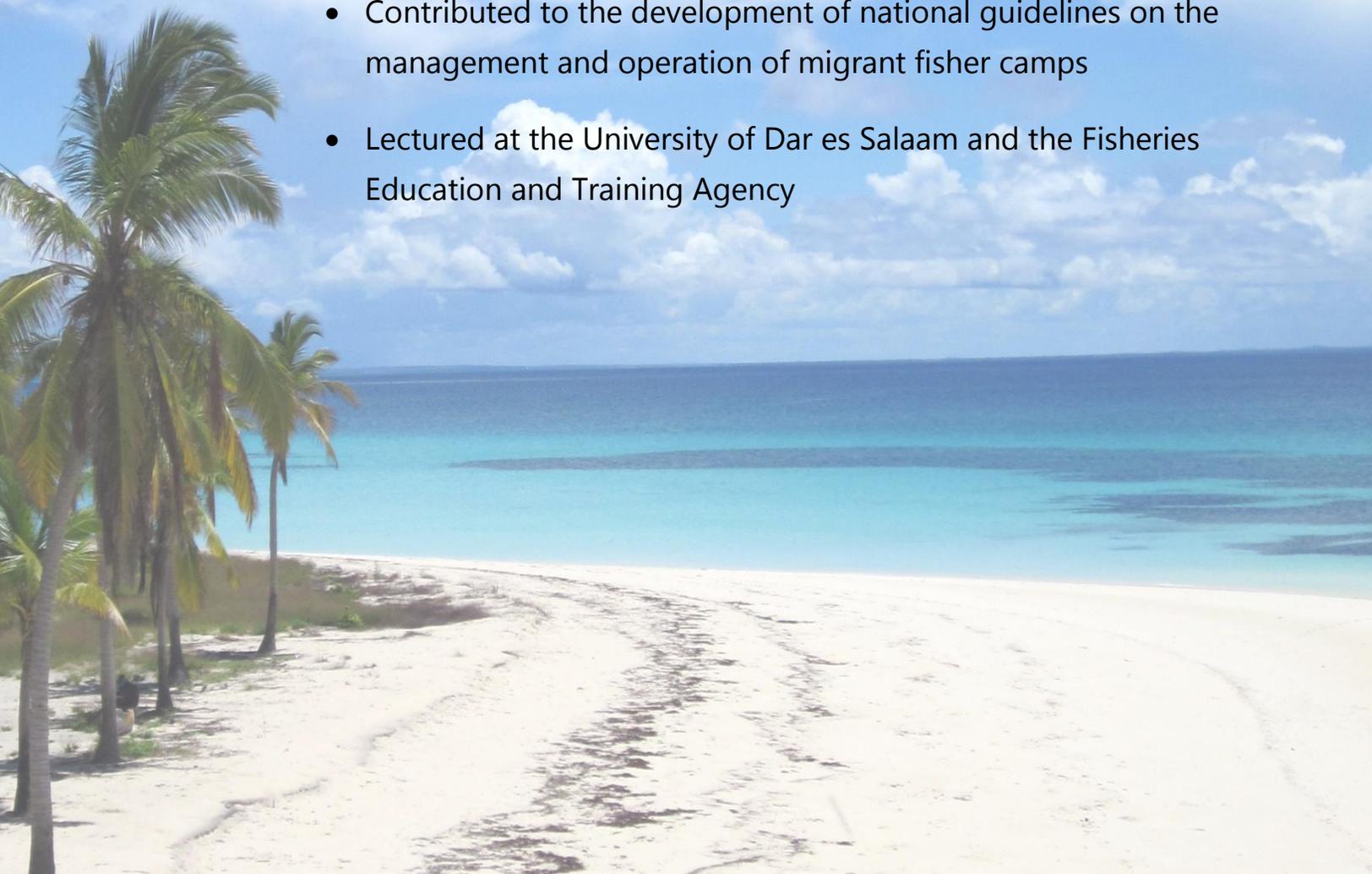
"I thought the protection of marine resources was the responsibility of Fisheries Officers but after attending the Sea Sense governance workshop I have realized that marine resources belong to all of us and therefore all of us have a responsibility to protect them for our own benefit".

*Chumbi Ward Councillor,
Rufiji District.*

PROMOTING COLLABORATION AND INFORMATION EXCHANGE

In 2014 Sea Sense:

- Presented two papers at the 34th International Sea Turtle Symposium in New Orleans, USA
- Represented the Western Indian Ocean Marine Turtle Task Force at the 7th Signatory States meeting of the *Indian Ocean South East Asian Marine Turtle Memorandum of Understanding* in Bonn, Germany
- Participated in the Social Good Summit in Nairobi, Kenya as part of UN week
- Published three manuscripts in the African Sea Turtle Newsletter
- Facilitated a WWF climate change workshop
- Contributed to the development of national guidelines on the management and operation of migrant fisher camps
- Lectured at the University of Dar es Salaam and the Fisheries Education and Training Agency



CONTRIBUTING TO CHANGE

Marine turtle and dugong research and conservation programmes implemented by Sea Sense are making a significant contribution to the advancement of our knowledge of these species in Tanzania and the wider western Indian Ocean region. Data on the distribution, abundance, behaviour and threats to these species are being used to guide the design and implementation of new species conservation programmes and are an important resource for the development of updated species status reports and national conservation strategies.

In September 2014, the efforts of Sea Sense Conservation Officers were rewarded when the central Tanzanian coast was declared a 'Site of Regional Importance to Marine Turtles'. The declaration was made at a meeting of the Signatory States of the *Indian Ocean South East Asian Marine Turtle Memorandum of Understanding* which comes under the umbrella of the Convention on Migratory Species. Much of the evidence for the declaration was based on data collected by Conservation Officers. Recognition of Tanzania's importance is a major step forward for marine turtle conservation in Tanzania and will provide leverage for organisations like Sea Sense to elicit greater support for marine turtle conservation and protection from higher level decision makers.

Sea Sense's education and outreach programmes provide opportunities for coastal citizens to further their own understanding of the important role of marine turtles, dugongs and whale sharks in healthy marine ecosystems and are a much needed forum for information exchange and peer to peer learning. Sea Sense has observed a strong desire for environmental information amongst citizens of coastal communities and Sea Sense has responded to this need by disseminating environmental messages through a variety of creative and innovative media. Access to information is a critical step in the process of driving attitude and behavioural changes and Sea Sense continues to provide a supportive environment for those changes to take place.

Improved governance of the fisheries sector is key to the long term protection of marine wildlife. Capacity development for BMUs and governance and leadership programmes for local level decision makers have contributed to a greater understanding of the concept of accountability but protection of personal interests amongst local leaders remains a significant challenge.

CHALLENGES TO SUCCESS



Direct take of marine turtles is common in many Tanzanian coastal communities. Sea Sense has encountered a number of 'butchery' sites along the coast, many of them close to villages and fish landing sites, indicating that village and district authorities do not consider it to be an issue of concern. Sea Sense estimates that between 6,000 – 8,000 turtles are slaughtered for their meat each year in Tanzania, many of them nesting females. A targeted turtle fishery exists in Lindi and Mtwara Regions.

Although illegal and highly dangerous, **dynamite fishing** continues unabated along much of the Tanzanian coast. Daily blasts continue to destroy sea turtle breeding and foraging grounds. Dynamite is readily available and dynamite fishers operate with little fear of apprehension due to weak law enforcement. Citizens fear revenge attacks for reporting dynamite fishers to authorities and feel disempowered from taking action.



Poor waste management represents a significant threat to the marine environment and to the health of coastal communities. Of particular concern is the amount of marine debris washing up onto nesting beaches, posing a threat to nesting turtles and emerging hatchlings. Most districts lack an effective system for waste collection and disposal, and beaches are commonly used as a dumping ground for household waste and as a public latrine. The same beaches are used for fish processing.

Coral mining for lime production occurs extensively, with much of the lime transported and sold to the construction industry elsewhere in Tanzania, amid a lack of regulation by District Authorities.

Mangrove harvesting for construction and for access to fishing bait is common. Mangroves in Kilwa and Rufiji Districts are subject to significant and unregulated harvesting with much of the mangrove wood transported illegally to Zanzibar.

Limited enforcement of laws protecting endangered marine species and their habitats poses a major challenge. Poor governance of the fisheries sector has resulted in continued illegal exploitation of marine resources with limited accountability amongst leaders and decision makers.



SEA SENSE FINANCES

In 2014, Sea Sense received funds from four main sources: international aid agencies; small charities and foundations; corporate sponsors; and through the sale of Sea Sense merchandise. The income for the year was USD 355,000.

Figure 1 shows Sea Sense expenditure for 2014.

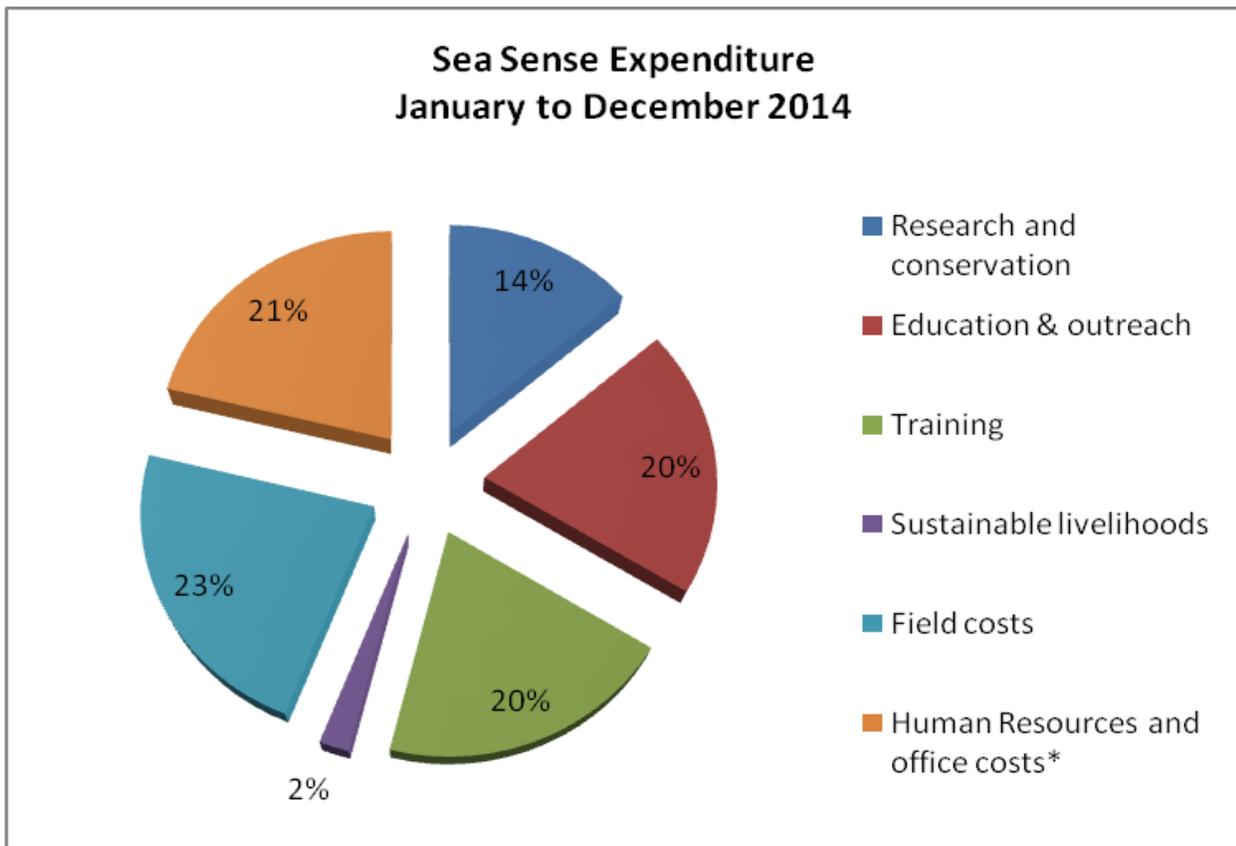


Figure 1: Sea Sense expenditure, January – December 2014

* Includes staff time (Director and Finance Officer), office rent, insurance, utilities, audit fees, internet and communications, stationery and office supplies, bank charges and statutory payments (Skills and Development Levy and staff pension fund contributions).

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