THE NATIONAL PLAN OF ACTION FOR THE CONSERVATION AND MANAGEMENT OF SHARKS AND RAYS

2026–2035

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PREFACE

The United Republic of Tanzania (URT) boasts a distinctive marine environment, encompassing the Indian Ocean and the waters surrounding the islands of Mafia and the Zanzibar Archipelago. These ecosystems, which include coral reefs, seagrasses, and mangrove forests, support a variety of globally endangered species. Current records confirm the presence of 98 chondrichthyan species (57 sharks, 40 rays, and one chimaera) in URT's marine waters. To safeguard this rich biodiversity, URT has established several Marine Protected Areas (MPAs)—totalling 6 in Zanzibar and 15 in Mainland Tanzania—which serve as crucial sanctuaries for threatened species.

In alignment with its commitment to marine conservation and sustainable resource management, the URT has enacted comprehensive legislation to govern the use of living aquatic resources. Notably, the Deep Sea Fisheries Management and Development Act of 2020 governs resource exploitation in the Exclusive Economic Zone (EEZ). In territorial waters, the Fisheries Act of 2003 (Mainland Tanzania) and the Fisheries Act No. 7 of 2010 (Zanzibar) regulate the sustainable use of marine resources. The URT is a signatory to several international agreements aimed at marine conservation, including the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Moreover, the URT actively participates in regional initiatives such as the Indian Ocean Tuna Commission (IOTC), the Southwest Indian Ocean Fisheries Commission (SWIOFC), and the Nairobi Convention to collaborate on conservation strategies.

In addition to these legislative measures, the URT has implemented strategies to conserve at-risk marine life, particularly through its National Biodiversity Strategy and by investing in capacity building, education, and public awareness.The formulation of this National Plan of Action for the Conservation and Management of Sharks and Rays represents a culmination of these steadfast efforts. The URT expresses its gratitude to the government agencies, coastal communities, civil society organisations, private sector, and development partners for their invaluable contributions to developing and reviewing this plan. The URT remains committed to working with all stakeholders to implement this plan, ensuring the preservation of its marine heritage for future generations.

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The Government of the United Republic of Tanzania expresses its sincere gratitude to the FAO and all stakeholders for their support and dedication. Special appreciation is extended to the Ministry of Livestock and Fisheries (Mainland Tanzania), the Ministry of Blue Economy and Fisheries (Zanzibar), and the Tanzania-European Union Blue Economy Programme (Technical Assistance) for their invaluable contributions and guidance.

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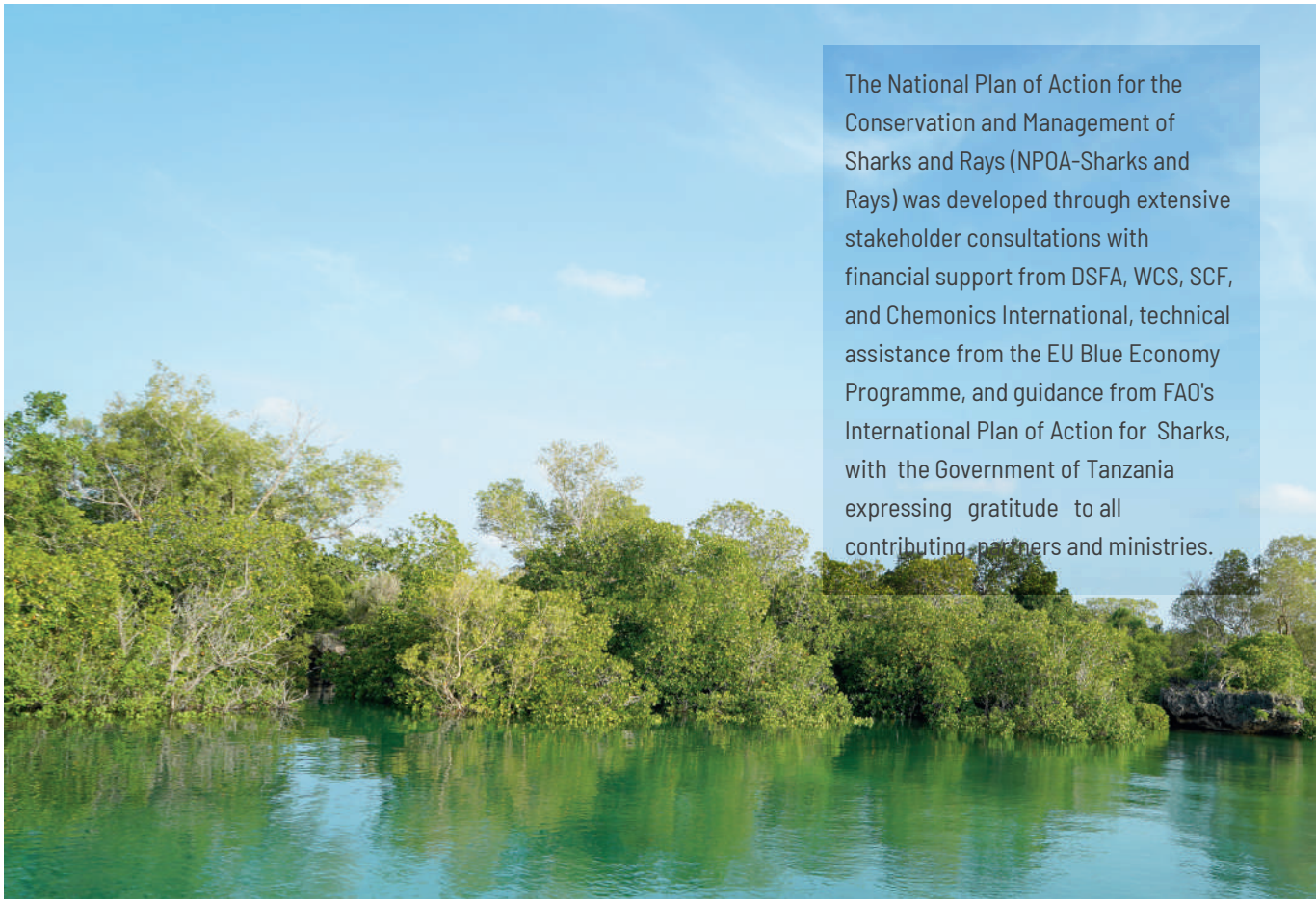


The National Plan of Action for the Conservation and Management of Sharks and Rays (NPOA-Sharks and Rays) was developed through extensive stakeholder consultations with financial support from DSFA, WCS, SCF, and Chemonics International, technical assistance from the EU Blue Economy Programme, and guidance from FAO's International Plan of Action for Sharks, with the Government of Tanzania expressing gratitude to all contributing partners and ministries.

EXECUTIVE SUMMARY

Sharks and rays are ecologically vital and provide valuable food and income for Tanzania's coastal communities. However, fishing pressure has become unsustainable, and the populations of these vulnerable species are declining. Of the 98 confirmed species in the United Republic of Tanzania (URT), 55 (56%) are now at risk of extinction, with 10 species listed as Critically Endangered on the IUCN Red List. This crisis threatens not only marine biodiversity but also the livelihoods and food security of the communities that depend on these resources.

The key drivers of this decline include weak fisheries management, insufficient species-specific data for decision-making, the degradation of critical habitats, and the pervasive threat of Illegal, Unreported, and Unregulated (IUU) fishing. These challenges are compounded by limited stakeholder engagement, low public awareness, and gaps in aligning national policies with regional and international conservation commitments.

In response to these challenges and in fulfilment of its obligations under international frameworks like the FAO's International Plan of Action for Sharks (IPOA-Sharks) and the Indian Ocean Tuna Commission (IOTC), the URT has developed this inaugural National Plan of Action for the Conservation and Management of Sharks and Rays (NPOA-Sharks) for 2026–2031.

This NPOA provides a comprehensive, science-based framework to guide all stakeholders. Its primary goal is to ensure the long-term conservation and sustainable use of shark and ray populations in Tanzanian waters. This will be achieved through six strategic objectives: 1. Strengthen sustainable fisheries management to prevent overfishing. 2. Enhance data collection and research to support evidence-based decisions. 3. Protect threatened species and critical habitats like nursery grounds. 4. Minimise bycatch and combat IUU fishing through better technology and enforcement. 5. Strengthen stakeholder engagement, compliance, and public awareness. 6. Align national management with regional and global conservation frameworks.

The plan outlines specific actions, defines institutional responsibilities, and establishes a monitoring and evaluation framework to track progress. Key performance indicators to be achieved by 2031 include:

1. Sustainable Fisheries Management—Conduct stock assessments for 5+ priority species and establish science-based size limits for at least 10 species.
2. Data and Research—Establish a centralised national database for shark and ray data and achieve 100% observer coverage (human or electronic) on the industrial fleet.
3. Habitats and Species Protection—Designate at least 50,000 ha of new protected areas for sharks and update 5+ MPA management plans with specific shark conservation measures.
4. IUU and Bycatch Reduction—Achieve over 90% compliance with the 'fins-naturally-attached' policy and increase fisheries inspection efforts by 50%.
5. Stakeholder Engagement—Train at least 500 key stakeholders (fishers, officers) and support 10+ communities in developing and gazetting local conservation bylaws.
6. International Alignment—Achieve 100% timely submission of international reports (e.g., CITES) and harmonise at least 2 key national laws with global standards.

LIST OF ABBREVIATION

AIS	Automatic Identification System
BMU	Beach Management Unit
BRUV	Baited Remote Underwater Video
CAS	Catch Assessment Survey
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMMs	Conservation and Management Measures
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COFI	Committee on Fisheries (Food and Agriculture Organization)
CPUE	Catch Per Unit Effort DMC Department of Marine Conservation
DSFA	Deep Sea Fishing Authority EEZ Exclusive Economic Zone
EIA	Environmental Impact Assessment
EM	Electronic Monitoring
FAO	Food and Agricultural Organization of the United Nations
GDP	Gross Domestic Product IOC Indian Ocean Commission
IOTC	Indian Ocean Tuna Commission
IPOA	International Plan of Action
IPOA-Sharks	International Plan of Action for the Conservation and Management of Sharks
IORA	Indian Ocean Rim Association
IUCN	International Union for the a of Nature
IUU	Illegal, Unreported, and Unregulated
KAP	Knowledge, Attitudes, and Practices
LGA	Local Government Authority
MATT	Multi-Agency Task Team

MBEF	Ministry of Blue Economy and Fisheries
MCA	Marine Conservation Area
MCU	Marine Conservation Unit
MLF	Ministry of Livestock and Fisheries
MPA	Marine Protected Area
MPRU	Marine Parks and Reserves Unit
NDF	Non-Detriment Finding
NFP	National Focal Point
NGO	Non-Governmental Organisation
NPOA-Sharks	National Plan of Action for the Conservation and Management of Sharks and Rays
OECM	Other Effective Area-based Conservation Measure
RFMO	Regional Fisheries Management Organization
RPOA-Sharks	Regional Plan of Action for Sharks
SADC	Southern African Development Community
SAR	Shark Assessment Report
SCF	Shark Conservation Fund SDGs Sustainable Development Goals
SFC	Shehia Fishery Committee
Sharks-MOU	Memorandum of Understanding on the Conservation of Migratory Species of Sharks
SUZA	State University of Zanzibar
SWIOFC	South West Indian Ocean Fisheries Commission
TAFICO	Tanzania Fisheries Corporation TAFIRI Tanzania Fisheries Research Institute
TRA	Tanzania Revenue Authority
UDSM	University of Dar es Salaam
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
URT	United Republic of Tanzania
VMS	Vessel Monitoring System
VPO	Vice President's Office
WCS	Wildlife Conservation Society
WIO	Western Indian Ocean
WWF	World Wide Fund for Nature

GLOSSARY

Abundance—The total number of individuals in a stock or population.

Adaptive Management—A structured, iterative process of decision-making that aims to reduce uncertainty over time by learning from the outcomes of management actions.

Artisanal Fishery—A small-scale fishery, often using traditional fishing techniques and vessels, typically for local consumption or sale. Also referred to as small-scale fishery.

Baseline—The initial state or condition against which future changes are measured. It serves as a reference point for monitoring and evaluating the impact of an intervention.

Batoid—A group of cartilaginous fishes, commonly known as rays and skates, characterised by flattened bodies and enlarged pectoral fins that are fused to the head.

Biodiversity—The variability among living organisms and includes a measure of the number of species and diversity within species.

Biomass—The total weight of a group or standing stock of a species.

Bycatch—Part of a catch of a fishing unit taken incidentally.

Catch—Total number or weight of fish caught by the fishing operations. Catch includes retained catch and discards.

Chondrichthyan—Any member of a diversity group of cartilaginous fishes that include the sharks, skates, rays and chimaeras.

Co-management—A partnership arrangement in which responsibility for the management of resources is shared between the government and resource users (e.g., local communities).

Collapse—The reduction of stock to levels at which production is negative compared to historical levels.

Conservation—Act of maintaining, enhancing and protecting natural resources and ecosystems.

Demersal—Living in proximity to the bottom and depending on it.

Directed Fishery—Fishing that is directed at a certain species or a group of species.

Discard—To release dead or alive species to the sea.

Ecosystem Approach to Fisheries (EAF)—A management approach that strives to balance diverse societal objectives by taking into account the knowledge and uncertainties about biotic, abiotic, and human components of ecosystems and their interactions.

Ecotourism—Travel that is undertaken to witness and experience the unique natural or ecological quality of particular sites or regions.

Elasmobranchs—A group of cartilaginous fishes that comprises sharks, rays and skates but excludes chimaeras.

Endemic—A species that is native to and restricted to a particular geographic region.

Exclusive Economic Zone (EEZ)—A sea zone prescribed by the United Nations Convention on the Law of the Sea over which a state has special rights regarding the exploration and use of marine resources. It stretches from the baseline

out to 200 nautical miles from its coast.

Finning—The practice of removing fins and discarding the carcasses, usually related to sharks and shark-like rays.

Fishing Effort—The measure of fishing intensity.

Habitat—An array of resources, physical and biotic factors present in an area.

Highly Migratory Species or Stocks—Marine organisms whose life cycles include large-scale systematic movement patterns.

Indicator—A quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.

Landing—The part of the catch that is brought ashore.

Logical Framework (Logframe)—A management tool used to improve the design of interventions. It involves identifying strategic elements (inputs, outputs, outcomes, impact) and their causal relationships, indicators, and the assumptions or risks that may influence success and failure.

Longline—Fishing gear where short lines with hooks are attached to longer main lines at regular intervals.

Management—The act of taking measures affecting a resource and its exploitation with a view to achieving certain objectives, such as the maximization of the production of that resource.

Migration—Systematic movement of animals from one place to another, often related to season, usually involving a return movement.

Migratory Species—Organisms that move over national boundaries and hence require international cooperation.

Non-consumptive—Activities that do not involve the harvesting or removal of fish or other aquatic organisms from the environment.

Non-Detriment Finding (NDF)—A scientific assessment required under CITES to ensure that the international trade of a particular species will not be detrimental to its survival in the wild.

Observer Programme—A programme that places trained, independent specialists (observers) on board fishing vessels to collect scientific data, monitor compliance with regulations, and report on fishing activities.

Optimal—Most favorable.

Other Effective Area-based Conservation Measure (OECM)—A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in-situ conservation of biodiversity.

Pelagic—Species associated with being away from the coast and either close to the surface or in the water column.

Precautionary Approach—Ability to exercise prudent foresight to avoid unacceptable or undesirable situations. This principle, therefore, promotes that measures be implemented to prevent the degradation of the ecosystem where there are threats of serious or irreversible damage, even in the absence of scientific certainty.

Rational Use—Decisions on resource utilization are consistently derived from conclusions given the available information.

Sharks—For this document, the term sharks will

be applied to all Chondrichthyes (i.e., sharks, rays, Guitar fishes, Wedge Fishes and chimaeras).

Stakeholder—An entity (individual or organization) having a stake or interest in a physical resource, ecosystem service, institution, or social system or someone who may be affected by public policy.

Stock—A sub-population of a particular species of fish for which intrinsic parameters (growth, recruitment, mortality, fishing mortality) are the only significant factors in determining population dynamics.

Stock Assessment—The process of collecting, analysing, and reporting demographic information to determine changes in the abundance of fishery stocks in response to fishing, and, to the extent possible, to predict future trends of stock abundance.

Sustainable Use—Actions that maintain the long-term production of a renewable resource.

Target—A specific, measurable level of performance or achievement that is expected to be reached within a given timeframe.

Traceability—The ability to track a product through all stages of production, processing, and distribution, from catch to the final consumer.

Transshipment—The act of transferring catch from one fishing vessel to another, either at sea or in port.

1. INTRODUCTION

1.1. THE STATE OF SHARKS AND RAYS IN TANZANIA

Sharks and rays, collectively known as chondrichthyans, play a vital role in maintaining the ecological balance of marine ecosystems both globally and in Tanzania. In Tanzania, their fisheries are predominantly artisanal. However, these species are increasingly threatened by unsustainable practices such as bycatch, habitat degradation, and Illegal, Unreported, and Unregulated (IUU) fishing. The growing international demand for shark products particularly fins, meat, and cartilage has further intensified exploitation, putting many species at risk of extinction.

Recent research has identified significant knowledge gaps related to species diversity, population trends, nursery grounds, and trade flows, especially in Zanzibar and along the mainland coast. These gaps are compounded by limited species-specific data collection, low observer coverage, and weak monitoring systems, resulting in a lack of reliable scientific data to guide effective management. Consequently, many species remain unprotected, leaving marine ecosystems increasingly vulnerable to collapse.

1.2. RATIONALE AND GENESIS OF THE PLAN

1.2.1. International and Regional Context

The global decline of shark and ray populations has raised widespread conservation concerns. In response, the United Nations Convention on the Law of the Sea (UNCLOS, 1982) established foundational principles for the sustainable governance of marine resources. Building on this, the Food and Agriculture Organisation (FAO) developed the International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks) in 1999. This voluntary framework calls on states whose fisheries impact shark populations to develop national plans (NPOAs) to ensure their conservation and sustainable use.

As a contracting party to regional platforms like the Indian Ocean Tuna Commission (IOTC) and the South West Indian Ocean Fisheries Commission (SWIOFC), and a signatory to the Convention on the Conservation of Migratory Species of Wild Animals (CMS), Tanzania is obliged to implement conservation measures. These include reporting shark catches, enforcing finning bans (requiring fins to be naturally attached), and protecting vulnerable species. These regional bodies promote harmonised approaches to shark conservation in the Western Indian Ocean, requiring member states to align their efforts with regional strategies.

1.3. NATIONAL CONTEXT AND DEVELOPMENT PROCESS

At the national level, the Fisheries Act No. 22 of 2003 (Mainland) and the Fisheries Act No. 7 of 2010 (Zanzibar), along with the Deep-Sea Fisheries Management and Development Act, Cap 388 of 2020, mandate the conservation and sustainable use of all aquatic resources, including vulnerable species like sharks and rays. However, despite these legal mandates and the fact that several species in Tanzanian waters are classified as threatened or endangered on the IUCN Red List, a specific and comprehensive national framework for shark and ray management has been absent. This gap has hindered effective policy implementation, resulting in fragmented enforcement, weak data systems, and limited stakeholder participation.

In fulfilment of these international, regional, and national obligations, Tanzania has developed this inaugural National Plan of Action for Sharks and Rays (NPOA–Sharks and Rays). The plan was formulated through a comprehensive and consultative process spearheaded by the Deep Sea Fishing Authority (DSFA), the Ministry of Livestock and Fisheries (Mainland Tanzania), and the Ministry of Blue Economy and Fisheries (Zanzibar). Information was sourced from scientific research, national legislation, and stakeholder consultations involving government agencies, research institutions, fishers, the private sector, and conservation partners. This inclusive approach ensures the plan reflects broad perspectives and addresses the on-the-ground realities of shark and ray management.

1.4. PURPOSE AND OBJECTIVES

The purpose of this NPOA–Sharks is to provide a clear roadmap for the period 2026–2031 to promote the long-term conservation, management, and sustainable use of sharks and rays in the United Republic of Tanzania (URT). It serves as the government's formal commitment to meeting its international obligations and establishes a framework to guide conservation efforts at all levels. The plan also emphasizes the socio-economic benefits of sustainable shark and ray fisheries, which support the livelihoods of coastal communities, and fosters collaboration among all stakeholders to ensure the long-term survival of these species while supporting the nation's blue economy and biodiversity conservation goals.

The main objective of this plan is to ensure the long-term conservation and sustainable management of sharks and rays in Tanzania's waters by implementing science-based policies, reducing overexploitation, and safeguarding critical habitats, in line with national priorities and international commitments. Specifically, the objectives are to:

- Strengthen sustainable fisheries management by implementing science-based catch limits, size regulations, and seasonal closures to prevent overfishing of sharks and rays in both targeted and incidental fisheries.
- Enhance data collection and research to improve species-specific catch reporting, biological studies, and stock assessments to inform evidence-based decision-making and monitor population trends.
- Protect threatened species and critical habitats by identifying and designating marine protected areas (MPAs) and nursery grounds for endangered sharks and rays.
- Minimise bycatch and Illegal, Unreported, and Unregulated (IUU) Fishing by

promoting bycatch reduction technologies and enforcing anti-finning regulations (fins-attached policies).

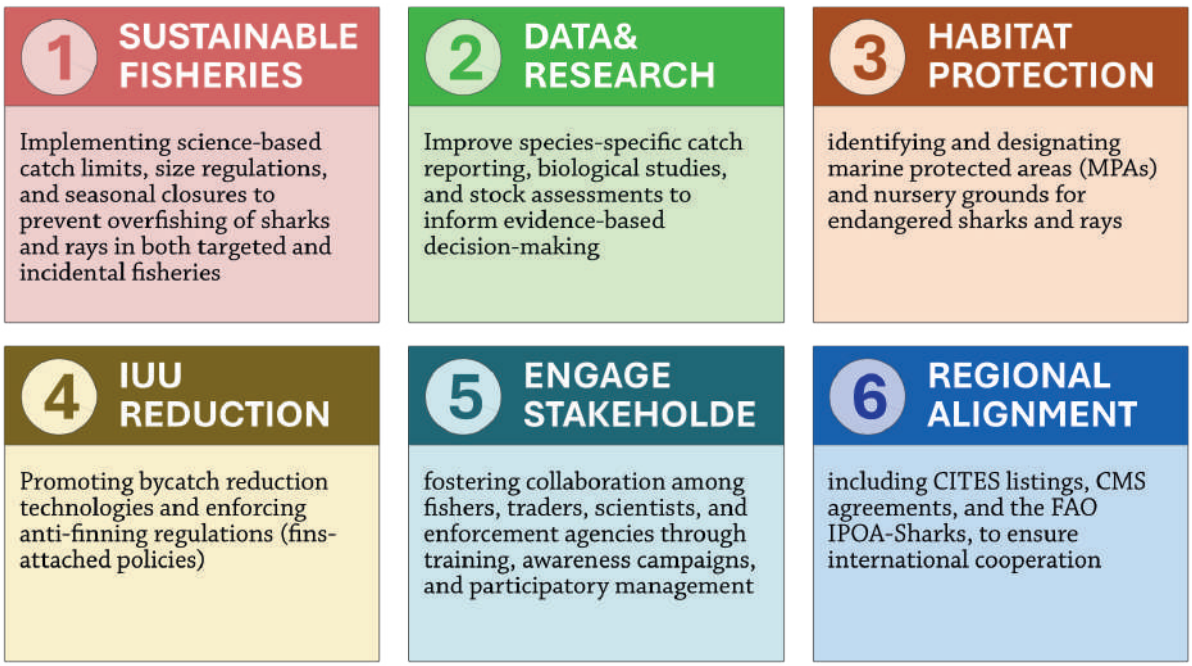
- Strengthen stakeholder engagement and compliance by fostering collaboration among fishers, traders, scientists, and enforcement agencies .
- Align Tanzania's shark and ray management with regional and global conservation frameworks, including CITES listings, CMS agreements, and the FAO IPOA-Sharks, to ensure international cooperation.

1.5. SCOPE OF THE NPOA–SHARKS

This NPOA–Sharks (2026–2031) applies to all marine waters of the United Republic of Tanzania (URT), including the coastal waters of mainland Tanzania and Zanzibar, the Exclusive Economic Zone (EEZ), and areas where URT-flagged vessels operate. The plan covers all chondrichthyan species (sharks, rays, and chimaeras), particularly those subject to regulations on retention, trade, and handling. It addresses all relevant fishing activities, gear types, and the entire value chain, from domestic use to transboundary and international trade.

1.6. STRUCTURE OF THE PLAN

This National Plan of Action is structured into six chapters—Chapter One introduces the plan's background, rationale, purpose, objectives, scope, and development process. Chapter Two describes the state of shark and ray fisheries in Tanzania, including fishing methods, species composition, and catch levels. Chapter Three outlines the policy, legal, and institutional frameworks governing shark and ray management. Chapter Four identifies the key conservation issues, their causes, and their effects. Chapter Five presents the strategic interventions and prioritised actions to address the identified issues. Chapter Six details the institutional arrangements for implementation and the framework for monitoring, evaluation, and review of the plan.



2. DESCRIPTION OF SHARK FISHERIES IN TANZANIA

2.1. CHONDRICHTHYAN FISHERIES OF TANZANIA

The fisheries sector in the URT is substantially artisanal and small-scale fisheries, primarily supporting the livelihoods of coastal communities (Silas, 2020). In parallel, commercial and industrial operations also exist, including international trade. However, the sector is plagued by illegal fishing practices. Across all these scales of operation, a wide array of shark and ray species (collectively referred to as chondrichthyans) are regularly harvested.

Sharks, in particular, represent a historically and economically significant resource within URT. Their oil is traditionally used in boat maintenance, meat serves as an affordable protein staple, and sharks and rays generate income through fin trade (Bultel et al., 2015) . Between 1950 and 2010, sharks and rays were estimated to constitute approximately 7% of the total marine fish catch in URT waters (Bultel et al., 2015). Artisanal targeting of sharks has deep cultural roots, especially in Zanzibar, yet in recent decades, the sustainability of these fisheries has markedly declined (Shehe & Jiddawi, 1997) . Recent data highlights significant shifts in catch composition and fishing strategies.

From July 2017 to March 2019, monitoring by WCS across three fish markets on Unguja Island revealed declining landings of reef-associated sharks. Simultaneously, ray landings increased substantially. These trends suggest a strategic shift by local fishers toward rays in response to dwindling shark populations (pers. comm.). At present, rays constitute 85% of the recorded chondrichthyan catch at these sites, while sharks make up only 15%.

Further north, in Pemba Island, WCS data from February to May 2019 indicates that artisanal fishers target large migratory shark species. These species, typically captured by offshore pelagic (tuna) fishing vessels, include 25 of the 40 elasmobranch species listed on CITES Appendix II known to occur in URT waters. Notably, these catches remain unreported in National Catch Assessments and to the Indian Ocean Tuna Commission (IOTC), largely due to the dispersed nature of small landing sites. Such underreporting has serious implications. Many of the captured elasmobranchs face extinction threats as per IUCN Red List criteria and are not adequately managed under national, regional, or international conservation frameworks. As a result, the current fishing practices risk undermining obligations under CITES, IOTC resolutions, and the FAO Code of Conduct for Responsible Fisheries.

Between 2003 and 2012, URT reported the second-largest shark catch among the ten Western Indian Ocean (WIO) states under the Nairobi Convention—contributing 26.5% of the reported catch to the FAO (FAO, 2015). URT's mean annual shark catch exceeded 5,500 metric tons during this period. However, total removals are likely significantly underestimated, with actual catches estimated to be up to 77% higher than those officially reported (Jacquet et al., 2010; Bultel et al., 2015) . Moreover, the lack of

data on shark and ray bycatch, and the absence of reporting on discarded or unutilised incidental catches, further hinders sustainable management (Everett et al., 2015). While URT exerts a notable regional impact on chondrichthyan populations, particularly in the WIO, this influence is poorly documented and governed by weak legislative and regulatory frameworks.

2.1.1. Artisanal fisheries

Artisanal fishers in the United Republic of Tanzania (URT) operate traditional vessels ranging from non-motorised dugout canoes (approx. 3 m) to 11 m boats with inboard engines (Silas, 2022). Fishing activities are typically conducted within 8 km of the anchorage point, primarily around reef areas. Commonly used gears include manually operated drift nets, anchored gillnets, ring nets, hand lines, and bottom-set longlines (MLF, 2018). These methods are broadly non-selective for sharks, though catch composition varies with depth and location.

The most recent frame survey identified 9,242 vessels and 53,035 artisanal fishers (MLF, 2018) . Targeted chondrichthyan fishing employs bottom-set gillnets—locally called Jarife—up to 450 m in length with mesh sizes between 20–40 cm, alongside longlines and handlines. Incidental catches also occur via drift and bottom-set gillnets.

In 2024, the artisanal tuna fishery reported 23.68 mt of shark landed to the IOTC, compared with 5,407 mt of tuna and 702.91 mt of swordfish (URT, 2024 National Report to IOTC-SC). Historical records from Zanzibar document evolving catch profiles. Interviews in the 1990s identified 26 shark species (Shehe & Jiddawi, 1997), while surveys in 2004 recorded 16 species, including Carcharhinus amblyrhynchos, C. macloti, C. obscurus, Rhizoprionodon acutus, and Squatina africana (Schaeffer, 2004) . However, catch surveys from 2019–2023 across Mainland Tanzania and Zanzibar revealed 72 chondrichthyan species—67% of confirmed URT species (van Beuningen et al., 2023). Notably, S. africana, once dominant in the 1990s, was not observed in recent records (WCS, unpublished).

Regional catch composition varied: in Mainland Tanzania and Unguja Island, whiprays (Maculabatis ambigua, Himantura uarnak) and scalloped hammerhead sharks (Sphyrna lewini) were most prevalent. On Pemba Island, bluespotted maskray (Neotrygon caeruleopunctata) and silky sharks (Carcharhinus falciformis) dominate. Threatened species comprised 44% of catches in Mainland sites, 47% in Unguja, and 53% in Pemba (WCS, unpublished). Many CMS, CITES-listed, and IOTC-prohibited species are also present in catches across URT, highlighting the need for continued species-level monitoring and reinforced conservation and management measures.

2.1.2. Industrial fisheries

The industrial fishing sector in URT's Exclusive Economic Zone (EEZ) is predominantly

dominated by Distant Water Fishing Nations, employing large-scale longline and purse-seine vessels with a primary focus on tuna extraction from the subsurface and surface levels, respectively—these methods of fishing result in the unintended capture of Chondrichthyes species as bycatch. The industrial fishery reported 4.11mt (Unpublished data DSFA, 2024) of incidental catches of sharks in 2023. Despite regulatory provisions mandating the reduction of bycatch, inadequate comprehensive monitoring poses challenges to enforcement. The effective tracking of industrial fishing operations within URT's EEZ is hindered by insufficient infrastructure and monitoring resources, making it difficult to ascertain the extent of foreign vessel activities in deep offshore waters.

Consequently, ensuring comprehensive control over fishing activities becomes improbable, leading to instances of non-compliance with regulations. Documented evidence reveals occurrences of illegal fishing by foreign fleets operating within URT's EEZ. These activities include unauthorised exploitation of marine resources, contravening national regulations, and undermining sustainable fishing practices (Chimungeni-Brassington et al. 2016) . To address these challenges, the URT is striving to strengthen monitoring and enforcement mechanisms within its maritime jurisdiction by upgrading its monitoring tools and equipment including Vessel Monitoring System (VMS), Automatic Identification System (AIS), Installation of Electronic Monitoring cameras in flag vessels and deployment of qualified Fisheries Observers on board fishing vessels, and enhancing collaboration with international partners to combat illegal fishing activities effectively. Additionally, capacity-building initiatives are enhanced for local fisheries management authorities to improve their ability to monitor and regulate fishing operations even within the territorial waters where sharks are caught.

2.2. MONITORING AND REPORTING

URT fisheries are monitored for catch and effort using catch returns, creel surveys, voluntary monitoring, interviews, observers, or frame surveys; also, some biological monitoring for species compositions, lengths and weights, size composition, reproductive states, and otolith collection is carried out (Silas 2022). The collection of fisheries statistics in URT began in the 1960s, recording the catch of every vessel in several villages and extrapolating monthly catches using a frame survey of vessels and gear to obtain annual estimates (Nhwani 1980) . Despite improvements in data collection in the late 1980s, data remained underreported and/or unreported, due to separate systems of reporting between agencies involved in data collection. As a result, the reconstructed total marine catch in URT from 1950 to 2010 was 77% higher than that reported to the FAO (Jacquet et al. 2010) .

Artisanal fishery catch data collection is mandatory under the Fisheries Regulations Act of 2009. Data is collected via a Catch Assessment Survey (CAS), which is designed to function across a large area with scattered landing sites and limited personnel. However, this system has faced significant challenges. Historically, data has been underreported; a reconstruction of total marine catch from 1950 to 2010 was 77% higher than the official figures reported to the FAO (Jacquet et al. 2010).

A major weakness has been the lack of species-specific data. Before 2015, the CAS grouped all chondrichthyans as a single category of “sharks and rays,” preventing any meaningful species-level analysis. Since 2017, a collaborative project involving WCS, TAFIRI, and CORDIO-East Africa has led to improvements, with some common species now recorded at the species level.

Despite this progress, the reliance on Swahili common names, which can apply to multiple species within the same genus, continues to pose challenges for accurate reporting and meeting regional data requirements.

2.3. STATUS OF BIOLOGICAL AND ECOLOGICAL KNOWLEDGE

Research on chondrichthyans (sharks, rays, and chimaeras) in Tanzania has historically been limited and remains sparse in comparison to neighbouring countries in East Africa. Most of the published studies to date have focused on shark fisheries, trade dynamics, and large charismatic species, while basic biological and ecological information on many species remains incomplete or absent.

One of the earliest efforts to document marine species in Tanzania was Bianchi's (1985) field guide, which listed at least 26 shark species and 18 ray species in Tanzanian waters. However, more recent assessments estimate the presence of at least 62 shark species and 42 ray species within the country's exclusive economic zone, although the actual number is likely higher (WCS unpublished data; SMARTCAS database). The limited taxonomic studies available suggest that current species inventories are incomplete, particularly for deep-sea and less conspicuous species.

There have been no formal stock assessments or population studies conducted for most chondrichthyans in Tanzania. Research efforts have largely focused on species of high economic or conservation concern. Notably, the endangered whale shark (Rhincodon typus) is known to aggregate off Mafia Island and Zanzibar, with studies documenting their seasonal presence and movement patterns (Rowat, 2007; Potenski, 2008; Cagua et al., 2015; Rohner et al., 2015; Rohner et al., 2020). Another key area of research has been the assessment of sawfish (Pristis pristis) populations. Using local ecological knowledge, Braulik et al. (2020) documented a significant decline in sawfish populations and identified the Rufiji Delta as a potential nursery area for the largetooth sawfish, although further validation is required.

In a global comparative study, MacNeil et al. (2020) used baited remote underwater video (BRUV) to assess reef shark populations and found Tanzania to have among the lowest reef shark abundances recorded globally. Other unique records from Tanzania include the observation of the scalloped hammerhead (Sphyrna lewini) at a depth of 1,042 meters during a hydrocarbon exploration survey in the Ruvuma Basin—the deepest recorded observation of this species to date (Moore & Gates, 2015). Genetic studies have also contributed valuable insights into the population structure and connectivity of key species. Pirog et al. (2019a; 2019b) used genetic samples from specimens collected in Zanzibar to demonstrate high population connectivity of bull sharks (Carcharhinus leucas) across the Western Indian Ocean and tiger sharks (Galeocerdo cuvier) across the Indian Ocean basin. More recently, Groeneveld et al. (2024) conducted regional genetic assessments of wedgefishes (Rhynchobatus australiae and R. djiddensis) using samples from Zanzibar, contributing to a growing understanding of their population structures.

Despite these efforts, Tanzania still lacks comprehensive data on reproductive areas, critical habitats, seasonal movements, and species-specific catch composition for most chondrichthyan species. The absence of such information continues to hinder the development of effective, science-based conservation and management measures.

2.4. BIODIVERSITY AND CONSERVATION STATUS

2.4.1. Biodiversity

In Tanzania, current records identify 98 confirmed chondrichthyan species (Bennett et al. 2022), comprising 57 shark species from 23 families, 40 batoid species from 12 families, and one species of chimaera. An additional seven shark species and five batoid species are suspected to occur in Tanzanian waters, although these have yet to be officially verified (Bennett et al. 2022). Among WIO nations, Tanzania ranks fourth in chondrichthyan species richness, following South Africa, Mozambique, and Madagascar. The most prevalent shark family in Tanzania is Carcharhinidae (requiem sharks), with 19 species reported. Other shark families are represented by three or fewer species. Among batoids, Dasyatidae (whiptail stingrays) and Mobulidae (manta and devil rays) dominate, with 13 and seven species respectively.

Tanzania is home to at least one confirmed endemic chondrichthyan species, the Zanzibar guitarfish (Acroteriobatus zanzibarensis), although further taxonomic research is necessary to determine the full extent of its distribution. The recently described Anna's sixgill sawshark (Pliotrema annae) has so far only been observed around Zanzibar, though related specimens from Kenya and Somalia suggest it may have a broader range (Weigmann et al. 2020). Additionally, the Andaman legskate (Cruriraja andamanica), typically found in the Andaman Sea, has been recorded from a single specimen collected off Tanzania's coast (McEachran and Fechhelm 1982), but this occurrence still requires formal confirmation (Last et al. 2016c). Furthermore, 12 other species found in Tanzania are considered endemic to the WIO (Bennett et al. 2022).

Surveys of artisanal fisheries have also led to the identification of at least 17 previously unrecorded chondrichthyan species in Tanzanian waters (Temple et al. 2019; WCS unpublished data), although these findings await verification. Since 2011, 26 new chondrichthyan species have been formally described from the WIO, with seven of these confirmed to occur in Tanzania. These include Bythaelurus tenuicephalus (Narrowhead catshark), Carcharhinus humani (Human's whaler shark), Maculabatis ambigua (Baraka's whipray), Neotrygon caeruleopunctata (bluespotted maskray), Pliotrema annae, Pristiophorus nancyae (African dwarf sawshark), and Rhinobatos austini (Austin's guitarfish). Given the limited taxonomic studies conducted in the region, it is highly probable that additional, yet-undocumented chondrichthyan species occur within Tanzania's marine ecosystems.

2.4.2. Conservation Status of Chondrichthyans

Chondrichthyan populations in Tanzania have been under increasing pressure for several decades. Signs of overexploitation were already evident by the 1990s, with early reports documenting declining catch rates (Shehe and Jiddawi 1997). This trend has continued, and local fishers in Zanzibar have repeatedly attributed the noticeable reduction in shark catches to excessive fishing pressure—both legal and illegal (Schaeffer 2004; Barrowclift et al. 2017). These observations are supported by growing evidence that various fisheries, along with the ongoing demand from the shark fin trade, are negatively affecting chondrichthyan populations in Tanzanian waters. Combined with the inherently slow biological productivity of many sharks and rays—characterised by late maturity, slow growth, and low reproductive output—these pressures have led to the depletion of several species across the country's marine ecosystems. As a result of this sustained exploitation, Tanzania is now home to a significant number of threatened chondrichthyan species. According to the IUCN Red List (2021), 55 out of the 98 confirmed

species found in the country—approximately 56%—are currently at risk of extinction. This includes 25 species assessed as Vulnerable, 20 as Endangered, and 10 as Critically Endangered. Such high levels of threat underscore the urgent need for targeted conservation actions and stronger fisheries management.

While the majority of threatened species are not unique to Tanzania, a few are of particular conservation concern due to their limited distribution. Among the 14 chondrichthyan species found in Tanzania that are endemic to the Western Indian Ocean (WIO), two are listed as threatened: Acroteriobatus leucospilus (Endangered) and Pseudoginglymostoma brevicaudatum (Critically Endangered). In addition, Acroteriobatus zanzibarensis, believed to be the only species endemic to Tanzania, is currently classified as Near Threatened, while Pliotrema annae, another species that may be locally endemic, remains Data Deficient due to insufficient information.

One of the most alarming cases is that of the largetooth sawfish (Pristis pristis), a species that was once widespread in Tanzanian waters but has since undergone dramatic population declines. It is now listed as Critically Endangered. A nationwide assessment conducted by Braulik et al. (2020) found no evidence of the species in landings or field observations since 2014. This absence raises the possibility that P. pristis may now be locally extinct in Tanzania, echoing its disappearance from South African waters (Everett et al. 2015). Together, these findings reflect a worrying conservation outlook for Tanzania's chondrichthyans. Continued overexploitation, limited species-specific protections, and data deficiencies present significant barriers to effective conservation. Targeted research, enhanced monitoring, and strengthened enforcement of fishing regulations are urgently needed to halt further population declines and secure the future of these ecologically important species.

2.5. INTERNATIONAL TRADE

Authorities in both Mainland Tanzania and Zanzibar collect some level of data on shark and ray trade at the national level. However, the full extent of the trade chain—particularly for shark fins, meat, and other chondrichthyan products

					Threatened			
Country	NE	DD	LC	NT	VU	EN	CR	Total
ABNJ	3	8	20	6	7	11	1	19
Comoros	0	4	2	6	14	9	3	26
La Reunion	0	4	5	10	15	8	6	29
Mayotte	0	2	5	7	18	14	4	36
Kenya	0	9	12	11	21	16	10	47
Madagascar	3	15	17	17	28	21	7	56
Mauritius	1	4	8	11	15	11	6	32
Mozambique	3	15	31	17	29	24	12	65
Seychelles	0	14	9	10	24	17	5	46
Somalia	0	7	10	13	21	18	8	47
South Africa	2	14	40	22	37	29	11	77
Tanzania	0	14	15	14	25	20	10	55
WIO Total	6	37	64	28	44	32	13	89
Grand Total	18	155	529	124	180	121	90	391

By country, including Tanzania, in the Western Indian Ocean and globally (IUCN 2021).

ANBJ: areas beyond national jurisdiction; **CR**: Critically Endangered; **EN**: Endangered; **VU**: Vulnerable; **NT**: Near Threatened; **LC**: Least Concern; **DD**: Data Deficient. **Total Threatened** = sum of CR, EN and VU. Categories presented are for global IUCN assessments.

Figure 1. Numbers of chondrichthyan species classified in each IUCN Red List Category, by country, including Tanzania, in the Western Indian Ocean and globally (IUCN 2021).

—remains inadequately documented (Jiddawi 2015). While there has been a noticeable decline in the shark fin trade in Zanzibar in recent decades, attributed partly to the declining availability of targeted species, evidence suggests that illegal trade persists across borders, particularly with Kenya and Mozambique (Bennett et al. 2022). In such instances, shark and ray products are often smuggled across borders concealed among other fishery products to evade detection.

Historically, the most highly valued products have included the 'white' fins of species such as wedgefishes (Rhynchobatus spp.) and the Zanzibar guitarfish (Acroteriobatus zanzibarensis), which continue to be among the most exploited chondrichthyan species in Tanzania. Recent DNA barcoding studies conducted in Tanzanian markets have confirmed that a significant portion of the shark fin trade comprises species that are either threatened or listed under CITES. These findings underscore the need for enhanced monitoring of species composition within the domestic and export trade (Bennett et al. 2022).

Although Tanzania does not officially import shark and ray products, and there are no official records of CITES-listed chondrichthyan species being exported, the absence of a regulated import system means there is limited oversight. Existing trade monitoring mechanisms are hampered by a lack of standardised reporting, institutional coordination, and technical capacity for species identification and traceability.

Recent initiatives, including training in DNA barcoding and development of traceability tools, are beginning to address these gaps. However, more investment is needed to build national capacity in trade regulation and enforcement. Strengthening data collection, increasing awareness among customs and border officials, and aligning domestic trade measures with international obligations—particularly under CITES and the IOTC—will be essential steps in ensuring the sustainable and legal trade of shark and ray products from Tanzania.

2.6. SOCIO-ECONOMIC AND CULTURAL ENVIRONMENTS

Sharks and rays are integral to the socio-economic and cultural fabric of Tanzania's coastal communities. They are a vital source of protein and income, with meat, fins, and oil being highly valued products in both artisanal and commercial fisheries. The oil, for instance, is traditionally used as an anti-fouling agent for wooden fishing vessels.

Culturally, sharks hold significant spiritual meaning in some communities, where they are revered as sacred or connected to ancestral spirits, leading to taboos against killing them. However, this reverence coexists with economic exploitation driven by high demand, which threatens both the species and the marine ecosystems they support.

This creates a complex dynamic for conservation. While policies to regulate fishing (e.g., finning bans) and protect habitats (e.g., MPAs) are in place, they often conflict with the immediate livelihood needs of local fishers. Balancing conservation with economic realities is a central challenge. The growth of marine ecotourism, particularly shark and ray diving trips in areas like Mafia and Zanzibar, offers a promising, non-extractive economic alternative, but requires community support and robust infrastructure to be a viable substitute for fishing.

3. LEGAL, AND INSTITUTIONAL FRAMEWORKS

The NPOA - Sharks and Rays aligns with national, regional, and global development frameworks and is guided by legal and institutional frameworks at these three levels. These frameworks ensure the NPOA - Sharks and Rays meets international standards while addressing local and regional needs. However, Successful implementation of the NPOA - Sharks and Rays relies on strong partnerships and collaboration among all stakeholders, including government agencies, private sector actors, fishing communities, and international organisations. These linkages are critical for coordinating key intervention measures by leveraging inter-sectoral linkages which aim to create a sustainable and competitive fisheries sector that contributes to food security, economic growth, and environmental conservation. The plan's success ultimately depends on the collective efforts of all stakeholders, guided by a shared vision and commitment to sustainable fisheries conservation and management.

3.1. NATIONAL LEGISLATIONS

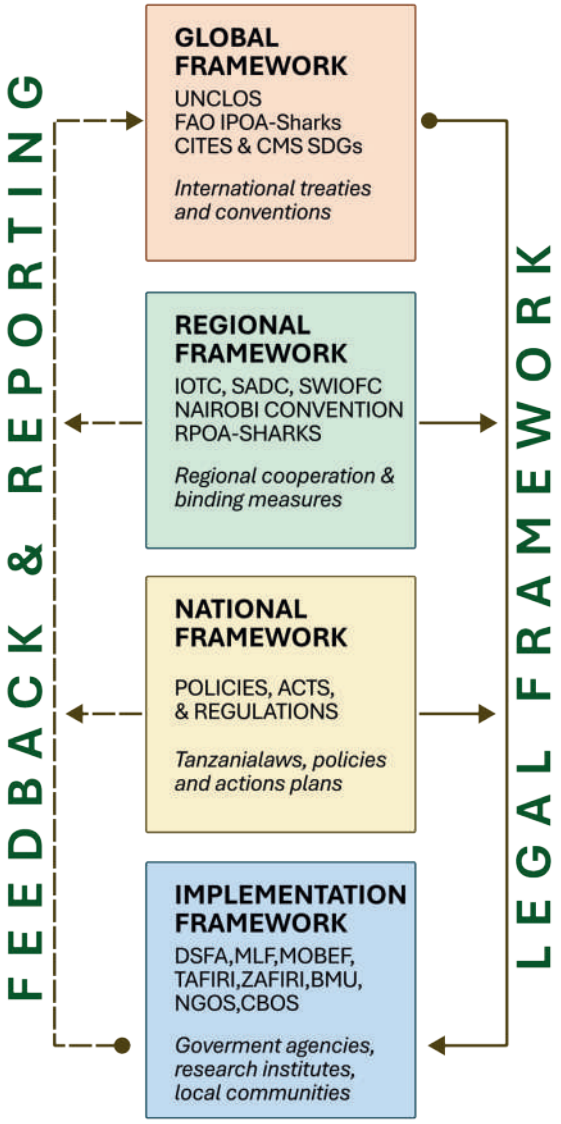
In the URT, the management of shark populations across both the Mainland Tanzania and Zanzibar is governed by a comprehensive array of national legislation and other legal frameworks. These frameworks serve as the backbone for regulating fishing activities and ensuring the conservation of marine resources, including sharks. They govern fishing practices in their respective territorial waters, ensuring that shark conservation measures are implemented across all maritime zones of URT. They promote responsible and sustainable fishing through provisions such as the prohibition of shark finning, mandatory landing of sharks with fins naturally attached, restrictions on discarding dead sharks at sea, and requirements for the safe release of live sharks when possible.

The Fisheries Act (No. 22 of 2003) (Mainland Tanzania): This Act regulates the exploitation of fishery resources, including licensing, gear control, and catch limits. It provides the legal basis for management plans and conservation measures for specific species, including sharks and rays, setting standards to ensure the long-term viability of their populations.

The Fisheries Act (No. 7 of 2010) (Zanzibar): This Act governs marine and inland fisheries in Zanzibar, with provisions for managing threatened and vulnerable species, including sharks. It encourages ecosystem-based and precautionary approaches and outlines measures for the conservation and sustainable use of marine resources within Zanzibar's jurisdiction.

The Marine Parks and Reserves Act (1994): This Act establishes the legal framework for creating and managing marine parks and reserves. While not specific to sharks, it is critical for their conservation by enabling the designation of protected areas where activities like fishing are restricted. These sanctuaries help reduce threats from overfishing and habitat degradation, supporting the long-term survival of sharks.

The Marine Conservation Unit Regulations of 2014: play an important role in shark and ray management by establishing guidelines for the creation and governance of Marine Conservation Areas (MCAs) in Zanzibar. These regulations prohibit destructive fishing practices such as the use of explosives, poison, and harmful gears that often result in high bycatch, including sharks and rays, or lead to habitat degradation. By protecting essential marine habitats—such as coral reefs, seagrass beds, and mangroves—that serve as critical breeding and nursery grounds for many shark species, the regulations help maintain healthy ecosystems that support shark populations. The regulations also promote habitat restoration through coral planting and mangrove reforestation, enhancing ecological resilience. Enforcement is supported through community-led patrols and the deployment of rangers, while public awareness and education initiatives help reduce both targeted and accidental shark catches. Collectively, these measures contribute to the holistic conservation of sharks and rays by minimizing threats, preserving habitats, and promoting sustainable community-based management practices within Zanzibar's coastal and marine zones.



The Deep-Sea Fisheries Management and Development Act (2020): This Act and its 2021 regulations provide the legal foundation for managing fisheries resources in the Exclusive Economic Zone (EEZ). Administered by the Deep-Sea Fishing Authority (DSFA), it applies to all fishing activities beyond territorial waters. The regulations directly support shark conservation by prohibiting finning (requiring fins to be naturally attached), banning the discard of dead sharks at sea, and mandating the safe release of live sharks caught unintentionally.

The Territorial Sea and Exclusive Economic Zone Act (1989): This Act defines the maritime boundaries of the URT and establishes legal authority over activities within these zones, including the regulation of shark fishing.

The Wildlife Conservation Act (No. 5 of 2009): This Act contributes to shark conservation by extending legal protection to all wildlife, including marine fauna within protected areas. It grants the government authority to declare species as protected, regulate their capture and trade, and establish marine reserves, indirectly supporting shark conservation by safeguarding habitats.

The Zanzibar Forest Resources Management and Conservation Act (No. 10 of 1996): This Act provides the legal basis for managing Zanzibar's biodiversity. It empowers authorities to regulate the exploitation and trade of wildlife resources, which supports the protection of shark habitats, particularly coastal and mangrove areas that serve as nurseries.

The CITES Regulations (2019) (Zanzibar): These regulations operationalize the Convention on International Trade in Endangered Species (CITES) in Zanzibar. They detail procedures for issuing permits, enforcing trade restrictions, and monitoring CITES-listed species, including many sharks and rays, ensuring that any trade is legal, traceable, and non-detrimental to wild populations.

The Environmental Management Act (No. 20 of 2004): This Act provides a comprehensive framework for environmental protection. While not specific to sharks, it contributes to their conservation by mandating the protection of biodiversity and ecosystems, requiring Environmental Impact Assessments (EIAs) for projects affecting marine environments, and promoting integrated coastal zone management.

The Zanzibar Environmental Management Act (2015): This Act provides a broad legal framework for environmental protection in Zanzibar, including the conservation of marine ecosystems. It supports the overall health of marine environments by addressing pollution, ecosystem protection, and sustainable resource use, thereby indirectly contributing to the protection of shark populations.

3.2. NATIONAL POLICIES

Recognizing increasing threats to shark populations from overfishing, bycatch, and illegal trade, these National Policy Framework brings together efforts from Mainland Tanzania, Zanzibar, and the Deep-Sea Fishing Authority (DSFA) to guide the sustainable conservation and management of sharks. It aligns with national, regional, and global commitments to ensure the protection of shark species for present and future generations.

The Wildlife Policy of Tanzania (1998): This policy aims to sustainably manage and conserve the nation's wildlife resources, while ensuring that wildlife conservation competes with other land uses and contributes to economic development and poverty alleviation. It promotes stakeholder participation, fair benefit sharing, and the exchange of information and expertise.

The National Fisheries Policy (2015): This policy recognizes the importance of conserving vulnerable and endangered species, including sharks. It promotes the sustainable management of shark populations through measures such as regulation of fishing practices, protection of critical habitats, and alignment with international agreements.

The Zanzibar Fisheries Policy (2022): This policy addresses shark management through its broader goals of marine biodiversity conservation and sustainable fisheries. It promotes the protection of critical shark habitats, supports the expansion of no-fishing zones, and strengthens monitoring systems to combat illegal fishing and reduce bycatch.

The National Blue Economy Policy (2024): This policy includes shark conservation within its broader emphasis on

sustainable fisheries and marine ecosystem protection. It highlights the establishment and enforcement of Marine Protected Areas (MPAs), coral reef restoration, and improved fisheries management as key tools to conserve marine biodiversity.

The Zanzibar Blue Economy Policy (2022): This policy explicitly calls for the sustainable use of marine biodiversity and the strengthening of scientific research and stock assessments. While it does not reference sharks by name, its provisions for ecosystem-based management and habitat protection inherently support shark conservation.

The National Fisheries Sector Master Plan (2021/22–2036/37): This long-term strategy for Mainland Tanzania incorporates shark conservation through its adoption of the Ecosystem Approach to Fisheries and Aquaculture. It calls for improved research, data collection, and monitoring systems and prioritizes strengthening Monitoring, Control, and Surveillance (MCS) to combat IUU fishing.

The Zanzibar Fisheries Master Plan (2023–2038): This plan promotes sustainable fisheries governance and the conservation of marine biodiversity. It supports shark conservation through ecosystem-based management, improved stock assessments, the expansion of MPAs, and the restoration of critical habitats.

The Tanzania Development Vision 2050: This vision emphasizes sustainable development, including the expansion of MPAs and the conservation of marine biodiversity to support fisheries and ecosystem health. These measures indirectly contribute to shark protection by preserving essential habitats and reducing unsustainable fishing impacts.

The Zanzibar Development Vision 2050: This long-term plan highlights the "blue development" pillar, aiming for sustainable and responsible management of marine and coastal resources. The call for intensified research and ecosystem-based planning inherently supports shark conservation through habitat protection and sustainable harvest policies.

3.3. REGIONAL LEGAL FRAMEWORK.

In the Western Indian Ocean, Shark species face mounting pressures from overexploitation, habitat degradation, and unregulated trade. As highly migratory and ecologically important species, their conservation requires coordinated regional action. These Regional legal frameworks provide a unified approach for countries in the Western Indian Ocean to sustainably manage and protect shark populations. They draw on shared commitments under regional instruments and global conventions, promoting collaboration, science-based management, and strengthened monitoring to ensure the long-term survival of sharks and the health of marine ecosystems.

The Regional Plan of Action for Sharks (RPOA-Sharks): This collaborative framework, adopted by countries in the Southwest Indian Ocean, implements the FAO's IPOA-Sharks at a regional level. It guides member states in assessing populations, identifying critical habitats, and adopting management measures to reduce shark mortality. By fostering regional cooperation, the RPOA-Sharks strengthens the ability of countries to manage shared shark populations sustainably.

The Indian Ocean Tuna Commission (IOTC): The IOTC plays a pivotal role through its binding resolutions, which are legally enforceable. Notable examples include prohibitions on finning (requiring fins to be naturally attached) and protection measures for vulnerable species like oceanic whitetip, silky, and thresher sharks. These resolutions reduce wasteful

practices and limit the exploitation of threatened species.

The Nairobi Convention: Administered by UNEP, this convention provides an overarching framework for marine and coastal environmental protection. While not focused exclusively on sharks, it supports ecosystem-based management and the conservation of essential shark habitats like coral reefs, mangroves, and seagrass beds.

The Southern African Development Community (SADC) Protocol on Fisheries (2001): This protocol promotes the conservation and sustainable use of shared fish stocks, explicitly including sharks and rays. It requires member states to apply precautionary and ecosystem-based approaches, harmonise policies, and cooperate on enforcement to combat IUU fishing.

The Southwest Indian Ocean Fisheries Commission (SWIOFC): Established by the FAO, SWIOFC facilitates regional coordination in fisheries governance. It provides technical guidance, promotes ecosystem-based management, and assists with data collection and stock assessments, helping countries implement the RPOA-Sharks and comply with international agreements.

3.4. GLOBAL LEGAL FRAMEWORK

The conservation and management of sharks and rays extend beyond national and regional efforts, relying heavily on global legal instruments that establish international standards and obligations. These include binding multilateral treaties and influential soft-law frameworks that regulate international trade, safeguard migratory species, and promote sustainable fishing practices worldwide. As a signatory to several of these global agreements, Tanzania is committed to implementing measures that fulfill its international responsibilities, actively contributing to the global mission of biodiversity conservation and responsible stewardship of marine resources, Key among these frameworks are;

The FAO International Plan of Action for Sharks (IPOA-Sharks, 1999): This voluntary instrument, developed by the Food and Agriculture Organization (FAO), is the principal global framework for shark conservation. It calls on all states whose fisheries catch sharks to develop and implement a National Plan of Action (NPOA) to ensure the conservation and sustainable management of these species. It provides the foundational rationale for this entire document.

The Convention on International Trade in Endangered Species (CITES, 1973): CITES is a legally binding treaty that regulates international trade in endangered species to prevent it from threatening their survival. Many shark and ray species are listed under Appendix II, meaning their trade is strictly controlled. As a party to CITES, Tanzania is obligated to ensure that any trade in these species is legal, sustainable, and traceable, primarily through the issuance of permits based on scientific Non-Detriment Findings (NDFs).

The Convention on the Conservation of Migratory Species (CMS, 1979): Also known as the Bonn Convention, the CMS provides a legal framework for protecting migratory species, including many sharks and rays that cross international borders. Species are listed under Appendix I (requiring strict protection) or Appendix II (requiring international cooperation). The CMS Sharks Memorandum of Understanding (Sharks-MOU) is a key non-binding instrument under this convention that aims to enhance the conservation of migratory sharks.

The United Nations Convention on the Law of the Sea (UNCLOS, 1982): overarch "constitution for the oceans," governing the rights and responsibilities of states in all uses of marine resources. It obliges states to conserve and manage living marine resources, including highly migratory species like sharks, and to cooperate through regional and global organizations to ensure their sustainability.

The Sustainable Development Goals (SDGs): Adopted by the United Nations in 2015, the SDGs provide a global policy framework for sustainable development. Goal 14 (Life Below Water) specifically calls for the conservation and sustainable use of marine resources. Target 14.4 aims to end overfishing and restore fish stocks, including sharks, through science-based management, reinforcing the objectives of this NPOA.

3.5. INSTITUTIONAL MANAGEMENT AND DEVELOPMENT FRAMEWORK

Successful implementation of this NPOA relies on strong partnerships among government agencies, research institutions, the private sector, civil society, and local communities. The key institutions and their primary roles are outlined below.

3.5.1. National Institutional Framework

A coordinated network of national institutions across Mainland Tanzania and Zanzibar will lead the implementation of this plan:

Policy and Management:

Ministry of Livestock and Fisheries (MLF) (Mainland) & Ministry of Blue Economy and Fisheries (MBEF) (Zanzibar): Provide overall policy direction, legal oversight, and management for fisheries in territorial waters.

Deep Sea Fishing Authority (DSFA): Manages and regulates all fisheries resources in the Exclusive Economic Zone (EEZ), enforces IOTC resolutions, and spearheads the coordination of this NPOA.

Vice President's Office (VPO) - Division of Environment: Oversees national environmental policy and compliance, including the implementation of the Environmental Management Act.

Research and Academia:

Tanzania Fisheries Research Institute (TAFIRI) & Zanzibar Fisheries and Marine Resources Institute (ZAFIRI): Provide the primary scientific advice for management through stock assessments, biological and ecological studies, and monitoring.

University of Dar es Salaam (UDSM) & State University of Zanzibar (SUZA): Contribute through specialised research, academic training, and building national technical capacity.

Conservation and Protected Areas:

Marine Parks and Reserves Unit (MPRU) (Mainland) & Department of Marine Conservation (DMC) (Zanzibar): Manage Marine Protected Areas (MPAs) that serve as critical habitats and refuges for sharks and rays.

Enforcement and Legal:

CITES Management and Scientific Authorities: Regulate and monitor international trade in CITES-listed species, issue permits, and conduct Non-Detriment Findings (NDFs).

Tanzania Revenue Authority (TRA): Monitors and controls the import and export of products at border points, playing a key role in enforcing CITES trade regulations.

Attorney General's Office: Provides legal counsel and guidance on the review and harmonisation

of national legislation with international obligations.

Judiciary and Law Enforcement Agencies: Responsible for the prosecution of fisheries-related offenses and enforcing legal sanctions.

Community and Local Governance:

Local Government Authorities (LGAs): Implement and enforce fisheries regulations at the district and local levels.

Beach Management Units (BMUs) (Mainland) & Shehia Fishery Committees (SFCs) (Zanzibar): Serve as the primary community-level institutions for co-management, monitoring, and stakeholder engagement.

3.5.2. Regional and Global Institutional Framework

Tanzania's efforts are integrated with regional and global bodies that provide legal mandates, technical guidance, and platforms for cooperation:

Regional Fisheries Management and Cooperation:

Indian Ocean Tuna Commission (IOTC): A Regional Fisheries Management Organisation (RFMO) that sets binding conservation and management measures for tuna and associated species, including many sharks.

Southwest Indian Ocean Fisheries Commission (SWIOFC): An advisory body that facilitates regional collaboration on fisheries governance and science.

Southern African Development Community (SADC): Promotes regional integration and cooperation on the conservation of shared fish stocks through its Protocol on Fisheries.

Nairobi Convention: A regional platform for cooperation on the protection and sustainable development of the marine and coastal environment.

Global Conservation and Trade:

Food and Agriculture Organization (FAO): Provides global standards and voluntary instruments, including the Code of Conduct for Responsible Fisheries and the IPOA-Sharks.

Convention on International Trade in Endangered Species (CITES): A legally binding treaty that regulates international trade in threatened species.

Convention on the Conservation of Migratory Species (CMS): An environmental treaty that provides a global platform for the conservation of migratory animals and their habitats.

4. KEY CONSERVATION AND MANAGEMENT ISSUES

Six key issues were identified during the development of this National Plan of Action for the Conservation and Management of Sharks and Rays (NPOA-Sharks). These issues were refined and consolidated following an extensive consultation process and a thorough review of relevant national and regional documents. The following sections detail these key issues, their underlying causes, and their resulting impacts on shark and ray populations and the broader marine ecosystem

4.1. UNSUSTAINABLE EXPLOITATION & INADEQUATE MANAGEMENT

Causes

- Open-access nature of artisanal fisheries leading to high fishing pressure.
- High international demand for shark and ray products (fins, meat, etc.).
- Outdated or ineffective policy, legal, and institutional frameworks.
- Degradation of critical habitats from coastal development and pollution.
- Limited awareness of shark biology and ecological importance

Effects

- Overfishing leading to the decline of shark and ray populations.
- Increased number of species classified as threatened on the IUCN Red List.
- Loss of biodiversity and degradation of marine ecosystem health.
- Negative impacts on food security, income, and livelihoods for coastal communities.
- Weakened national contribution to regional and global biodiversity targets.

4.2. INSUFFICIENT DATA & SCIENTIFIC KNOWLEDGE

Causes

- Inadequate and inconsistent funding for fisheries research and monitoring.
- Weak data collection systems lacking standardized, species-specific protocols.
- Fragmented data management systems hindering access and collaboration.
- Limited technical capacity and training for species identification.
- Poor integration of local and traditional ecological knowledge (LEK/TEK).

Effects

- Poor understanding of population status, life history, and ecological trends.
- Inability to develop and implement effective, science-based management measures.
- Management decisions based on incomplete or inaccurate information.
- Failure to meet data reporting requirements for regional and international bodies.

4.3. DEGRADATION OF CRITICAL HABITATS & THREATS TO VULNERABLE SPECIES

Cause

- Widespread use of non-selective and destructive fishing gear.
- High levels of bycatch of non-target, juvenile, and threatened species.
- Weak enforcement of regulations on bycatch mitigation and finning.
- Physical destruction and pollution of essential habitats (e.g., nurseries).
- Lack of legally protected areas specifically for shark and ray conservation.

Effects

- Accelerated decline of threatened, endangered, and protected species.
- High mortality of juveniles, compromising future population recruitment.
- Permanent loss of critical habitats, reducing ecosystem carrying capacity.
- Reduced long-term productivity and resilience of coastal fisheries.

4.4. PERVASIVE ILLEGAL, UNREPORTED, & UNREGULATED (IUU) FISHING

Causes

- Insufficient Monitoring, Control, and Surveillance (MCS) capacity.
- Limited at-sea and port-side enforcement of fisheries laws.
- High economic incentives for unregulated fishing driven by market demand.
- Lack of viable alternative livelihoods for coastal communities.
- Poor coordination and intelligence sharing among enforcement agencies.

Effects

- Significant loss of government revenue and economic benefits.
- Rapid and unmanaged depletion of shark and ray stocks.
- Undermining of legal fishing operations and conservation efforts.
- Distortion of scientific data, making accurate stock assessments impossible.
- Damage to marine habitats from destructive and illegal fishing practices.

4.5. INADEQUATE STAKEHOLDER ENGAGEMENT & PUBLIC AWARENESS

Causes

- Low public awareness of the ecological roles and conservation status of sharks.
- Limited involvement of local communities in decision-making and management.
- Insufficient communication and outreach programs for fishers and traders.
- Lack of incentives for adopting sustainable practices and complying with regulations.
- Economic factors that prioritize short-term extractive use over long-term conservation.

Effects

- Weak compliance with fisheries regulations and conservation measures.
- Low stakeholder buy-in and support for the NPOA-Sharks.
- Continued unsustainable fishing practices due to a lack of understanding.
- Missed opportunities for non-extractive

economic activities (e.g., ecotourism).

- Difficulty in establishing transparent and traceable seafood supply chains.

4.6. INSUFFICIENT ALIGNMENT WITH INTERNATIONAL & REGIONAL OBLIGATIONS

Causes

- Gaps between national legislation and international agreements (IOTC, CITES, etc.).
- Limited technical and financial capacity to implement international commitments.
- Poor institutional coordination for managing and reporting on treaty obligations.
- Lack of awareness among key stakeholders of Tanzania's global responsibilities.

Effects

- Risk of non-compliance, potentially leading to trade restrictions or sanctions.
- Weakened negotiating position and credibility in regional fisheries bodies.
- Inability to access international funding and technical support.
- Failure to contribute effectively to the management of shared and migratory stocks.

5. ISSUES, STRATEGIC INTERVENTIONS AND ACTIONS

To effectively address the complex challenges surrounding shark conservation and management in Tanzania, this section outlines the key issues identified through national consultations, scientific assessments, and stakeholder inputs. It presents targeted strategic interventions and prioritized actions aligned with international frameworks such as the FAO IPOA-Sharks, UNCLOS, and IOTC resolutions. The goal is to ensure sustainable utilization, strengthen compliance, and enhance national capacity to safeguard shark populations and their habitats.

5.1. STRENGTHENING SUSTAINABLE FISHERIES MANAGEMENT OF SHARKS AND RAYS

Issue 1: Declining shark and ray populations due to overfishing in both targeted and incidental fisheries.

Over the past five decades, shark and ray populations have collapsed due to unsustainable fishing practices in both targeted and bycatch fisheries. Today, more than one-third of all chondrichthyan species face extinction risk, with overfishing cited as the single most ubiquitous threat. Industrial fleet, especially longline vessels, accidentally catch an endangered species such as hammerhead sharks and manta rays at alarming rates, exacerbating ecosystem destabilisation. Critical habitats like coastal nurseries remain inadequately protected, with inconsistent enforcement of science-based measures (e.g., catch limits, size rules, seasonal closures) across jurisdictions. The present practice has led to ongoing declines, loss of apex predators, decreased ocean resilience, and threats to food security and livelihoods that depend on healthy marine ecosystems.

Objective 1: Strengthen Sustainable Fisheries Management by implementing science-based catch limits, size regulations, and seasonal closures to prevent overfishing of sharks and rays in both targeted and incidental fisheries.

Strategic Interventions and Actions

- Establish Science-Based Catch and Size Limits
- Conduct stock assessments for key shark and ray species to determine sustainable yield levels.
- Apply precautionary catch limits for data-deficient species.
- Set and enforce science-based minimum and maximum size limits to protect juvenile and breeding-age sharks and rays.
- Create adaptive management triggers to revise catch and size limits based on new data.

- Reduce Bycatch and Protect Vulnerable Species
- Mandate the use of selective fishing gear (e.g., circle hooks, deep-set longlines) and bycatch reduction technologies.
- Prohibit the retention of all CITES Appendix I listed species and other nationally protected species, mandating safe release protocols.
- Ban destructive fishing methods (e.g., bottom trawling) in sensitive habitats.
- Strengthen gear compliance monitoring through at-sea inspections and port sampling.
- Protect Critical Habitats and Life Stages
- Identify, map, and legally designate critical habitats such as nursery grounds and aggregation sites as protected areas.
- Promote community co-management of seasonal or permanent closures to ensure local compliance and support.
- Monitor ecosystem health and recovery within protected areas using scientific and community-based methods.
- Foster Stewardship and Alternative Livelihoods Provide training and incentives for fishers to adopt sustainable practices.
- Promote and support the development of alternative livelihoods (e.g., ecotourism, aquaculture) in shark-dependent communities.
- Establish and strengthen co-management arrangements that empower local communities in decision-making.
- Build Public Support for Sustainable Shark Fisheries Launch targeted awareness campaigns to reduce consumer demand for unsustainable shark products.
- Educate consumers and retailers about sustainable seafood choices and traceability.
- Promote and celebrate conservation success stories through national media and community events.

5.2. IMPROVE THE INFORMATION AVAILABLE TO INFORM MANAGEMENT OF SHARKS AND RAYS

Issue 2: Insufficient species-specific data quality and availability.

Tanzania, like many other coastal states in the Western Indian Ocean, faces significant challenges related to the collection, availability, and use of comprehensive data and scientific research on sharks and rays. Critical information—such as species-specific catch volumes, biological characteristics, habitat use, and stock assessments—is often incomplete, fragmented, or absent. Existing monitoring systems are limited in scope and are implemented independently by various agencies, resulting in data inconsistency, duplication, and limited accessibility.

In many cases, shark and ray landings are not recorded at the species level, and observer coverage remains low in both artisanal and industrial fisheries. The country also lacks a centralised database and formalised protocols to track shark trade and utilisation, making compliance with CITES and regional measures (such as those from IOTC) difficult. This paucity

of species-specific data hinders the implementation of science-based conservation and management strategies, including the setting of catch limits, identification of critical habitats, and development of bycatch reduction plans.

Without improved data collection, research coordination, and information sharing, Tanzania risks unsustainable exploitation and long-term population declines of sharks and rays, undermining both biodiversity conservation and the resilience of marine ecosystems.

Objective 2: Enhance data collection and research to improve species-specific catch reporting, biological studies, and stock assessments for evidence-based decision-making.

Strategic Interventions and Actions

- Enhance Species-Specific Data Collection Systems
- Assess existing data collection systems to identify gaps and opportunities for harmonisation.
- Develop and implement standardised, species-specific data collection protocols for catch, effort, and bycatch across all fisheries.
- Train enumerators, fisheries officers, and observers in shark and ray identification, biological sampling, and the use of digital data tools.
- Strengthen Monitoring and Observer Programs Expand observer coverage (human and electronic) on industrial and semi-industrial vessels to ensure robust data collection.
- Establish a comprehensive landing site monitoring program for the artisanal sector.
- Implement fishery-independent surveys (e.g., Baited Remote Underwater Video Systems) to supplement catch data.
- Promote Targeted Biological and Ecological Research
- Conduct targeted research on the life history, habitat use, movement patterns, and population structure of priority species.
- Support socioeconomic surveys to assess the role of sharks and rays in local livelihoods and trade networks.
- Encourage and support citizen science initiatives to gather data on sightings, landings, and habitat use.
- Establish a Centralised National Database
- Develop and maintain a centralised national database to integrate all fisheries, trade, research, and enforcement data on sharks and rays.
- Ensure the database is harmonised with other national fisheries information systems and is accessible to relevant stakeholders.
- Strengthen National and International Collaboration
- Align national research priorities and data standards with regional (IOTC, SWIOFC) and global (CITES, CMS) requirements.
- Foster formal partnerships with national and international research institutions, academia, and NGOs for joint studies and data sharing.

5.3. PROTECT THREATENED SPECIES & CRITICAL HABITATS

Issue 3. Increasing threat to shark and ray stocks and their habitats

Sharks and rays in URT marine waters are facing increasing threats from overfishing, habitat degradation, and weak spatial protection, posing a serious risk to their long-term survival and the ecological balance of marine ecosystems.

These species are particularly vulnerable due to their biological traits (such as slow growth, late maturity, and low reproductive rates), which make them highly susceptible to population decline. Despite their critical ecological roles as top predators and ecosystem regulators, sharks and rays are often targeted for their meat, fins, cartilage, and liver oil, or caught incidentally as bycatch in unregulated fisheries.

This exploitation is further exacerbated by the absence of legally designated sanctuary zones or nursery grounds that offer year-round protection during critical life stages. In addition, many of the key habitats essential for the survival of sharks and rays—such as coral reefs, seagrass beds, estuarine systems, and mangrove areas—remain under increasing pressure from coastal development, pollution, destructive fishing practices, and climate change.

The lack of scientific data and spatial mapping of shark and ray habitats further hinders evidence-based decision-making and prioritization for conservation. While URT has made progress in establishing Marine Conservation Areas (MCAs), Marine Protected and Reserve Areas (MPRAs), most do not explicitly focus on shark and ray protection or critical life-stage habitats. The fragmented approach to marine spatial planning, combined with limited enforcement and community engagement, undermines the effectiveness of existing protected areas. Addressing this issue requires urgent, coordinated action to identify and legally establish marine protected areas and nursery habitats that specifically target the conservation needs of endangered sharks and rays, while integrating them into broader marine biodiversity strategies and co-management systems.

Objective 3: Protect threatened species and critical habitats by identifying and designating marine protected areas (MPAs) and nursery grounds for endangered sharks and rays.

Strategic Interventions and Actions

- Identify and Map Critical Habitats
- Undertake ecological surveys to identify and map key breeding, nursery, and feeding habitats for priority shark and ray species.
- Integrate local ecological knowledge from fishers and communities to validate and refine habitat maps.
- Incorporate identified shark and ray hotspots into national and regional marine spatial planning frameworks.
- Strengthen and Expand Marine Protected Areas (MPAs)
- Review and upgrade existing MPA management plans and boundaries to explicitly include protections for sharks and their habitats.
- Establish new MPAs or other effective area-based conservation measures (OECMs) to protect newly identified critical habitats.
- Ensure the MPA network aligns with national biodiversity targets and international commitments (e.g., CBD, SDGs).
- Enhance Community Participation and Co-management
- Develop and support site-based co-management initiatives with Beach Management Units (BMUs) and Shehia Fishery Committees (SFCs).
- Provide training and tools to empower community members to participate in monitoring and surveillance activities.
- Facilitate regular community forums to ensure transparent and inclusive

decision-making in MPA governance.

- Strengthen Enforcement within Protected Areas
- Enhance surveillance within MPAs using a combination of technology (e.g., drones, remote sensing) and regular joint patrols.
- Provide targeted training for enforcement personnel on MPA regulations, species identification, and conflict resolution.
- Collaborate with law enforcement and the judiciary to ensure effective prosecution of violations within MPAs.
- Secure Sustainable Financing for MPA Management
- Establish MPA trust funds or other conservation finance mechanisms in collaboration with development partners and the private sector.
- Develop and promote sustainable ecotourism enterprises (e.g., shark diving) that generate revenue for conservation and local communities.

5.4. ILLEGAL, UNREPORTED AND UNREGULATED (IUU) FISHING

Issue 4: The Threat of IUU Fishing

Illegal, Unreported, and Unregulated (IUU) fishing poses a severe threat to shark and ray populations in Tanzania. It undermines management efforts, leads to significant revenue loss, and contributes to the rapid depletion of stocks. IUU activities are driven by weak Monitoring, Control, and Surveillance (MCS) systems, high demand for shark products, and limited livelihood alternatives in coastal communities. This is compounded by weak enforcement of existing laws, insufficient inter-agency coordination, and inadequate resources for patrols and monitoring. Without robust interventions to combat IUU fishing, all other conservation efforts are at risk of being ineffective.

Objective 4: Minimise bycatch and Illegal, Unreported, and Unregulated (IUU) Fishing by promoting bycatch reduction technologies and enforcing anti-finning regulations.

Strategic Interventions and Actions

- Strengthen Monitoring, Control, and Surveillance (MCS)
- Enhance at-sea and port-side inspections for both industrial and artisanal fisheries.
- Strengthen the capacity of the Multi-Agency Task Team (MATT) to coordinate anti-IUU operations.
- Mandate the use of Vessel Monitoring Systems (VMS) and Automatic Identification Systems (AIS) on all industrial and semi-industrial vessels.
- Conduct regular joint surveillance patrols involving national and local enforcement agencies.
- Implement and Enforce Bycatch Reduction Measures
- Develop and implement regulations mandating the use of bycatch reduction technologies (e.g., circle hooks, LED lights, excluder devices).
- Conduct research and pilot studies on the effectiveness of new and innovative bycatch mitigation gear.
- Provide training and incentives for fishers to adopt bycatch reduction practices and technologies.
- Enhance the Legal and Enforcement Framework to Combat IUU Review and strengthen national legislation to ensure penalties for IUU fishing are a sufficient deterrent.
- Strictly enforce the "fins-naturally-attached" policy for all landings and transshipments. Improve prosecution rates for fisheries offenses through targeted training for legal and judicial

officers. Maintain and share a national list of vessels confirmed to be involved in IUU fishing.

- Improve Information Sharing and Traceability
- Develop and implement a national traceability system for all shark and ray products to track them from catch to market.
- Strengthen inter-agency data and intelligence sharing protocols to better target IUU activities.
- Enhance regional cooperation on MCS and information sharing to combat cross-border IUU fishing.

5.5. STAKEHOLDER ENGAGEMENT, COMPLIANCE, AND PUBLIC AWARENESS

Issue 5: Limited stakeholder engagement, weak compliance, and low public awareness on sharks and rays in Tanzania

Despite the existence of regulatory frameworks and conservation measures, implementation on the ground is undermined by insufficient coordination among stakeholders, low enforcement capacity, and a general lack of awareness and understanding of the ecological and economic importance of sharks and rays. Fishers, traders, and even local enforcement officers often lack the training and tools necessary to identify species, understand legal protections (such as CITES listings), and apply best practices in handling and reporting catches.

Community-based surveillance and participatory management efforts remain underdeveloped, and compliance is often informal or inconsistent. This weakens national efforts to reduce illegal fishing, bycatch, and trade in protected species, hindering Tanzania's ability to meet regional and international conservation obligations. Without stronger stakeholder collaboration, training, and behaviour change, sustainable shark and ray management remains unachievable.

Objective 5: Strengthen stakeholder engagement and compliance by fostering collaboration among fishers, traders, scientists, and enforcement agencies through training, awareness campaigns, and participatory management.

Strategic Interventions and Actions

- Build Capacity Among All Stakeholders Conduct regular training workshops for fishers, traders, BMUs, SFCs, and local officers on species identification, legal frameworks, and best practices.
- Develop and disseminate training materials, including field guides and regulatory manuals, tailored for local use.
- Organise specialised capacity-building for customs, port, and judicial officers on enforcing trade regulations, including CITES provisions.
- Improve communication, coordination, and collaboration
- Establish a multi-stakeholder National Shark Working Group to guide and monitor the implementation of this NPOA.
- Convene regular stakeholder forums at national and local levels to align objectives and share knowledge.
- Raise Awareness and Promote Behavioural Change Develop and run multi-platform public awareness campaigns (radio, social media, community events) on the importance of sharks and rays.
- Integrate shark and ray conservation into school curricula and community education initiatives. Engage local communities in participatory data

collection and surveillance to foster ownership.

- Promote Community-Led Compliance and Co-management
- Support the development and gazettement of community bylaws that include specific protection measures for sharks and rays.
- Establish and train community surveillance teams to enable joint patrols with enforcement agencies.
- Introduce recognition and incentive programs (e.g., eco-labelling, grant support) for communities demonstrating effective conservation.
- Monitor and Evaluate Engagement Efforts Establish baseline data on stakeholder knowledge, attitudes, and practices.
- Use surveys and feedback tools to assess the effectiveness of campaigns and training.
- Develop clear indicators to track participation and compliance trends over time.

5.6. GLOBAL AND REGIONAL CONSERVATION AND MANAGEMENT FRAMEWORKS

ISSUE 6. Inadequate compliance with global and regional conservation and management frameworks.

Effective conservation of sharks and rays requires coordinated efforts that go beyond national boundaries. To ensure the long-term sustainability of these vulnerable species, Tanzania must align its management and conservation strategies with key regional and international frameworks. This includes compliance with CITES listings, adherence to CMS agreements, and implementation of the FAO International Plan of Action for Sharks (IPOA-Sharks) by developing a National Plan of Action for Sharks and Rays (NPOA-Sharks).

Addressing these issues requires a stronger integration of global standards into national policy and legislation, improved reporting and data collection systems, and institutional coordination to fulfil obligations under CITES, CMS, and IPOA-Sharks. Aligning with these frameworks will strengthen Tanzania's legal and institutional capacity, promote data sharing and enforcement cooperation, and position the country as an active participant in global efforts to protect migratory and endangered elasmobranch species.

Objective 6: Align Tanzania's shark and ray management with regional and global conservation frameworks, including CITES listings, CMS agreements, and the FAO IPOA-Sharks, to ensure international cooperation.

Strategic Interventions and Actions

- Review and Harmonise National Legislation
- Conduct a comprehensive review of all fisheries and environmental legislation to identify and address gaps in alignment with IOTC, CITES, and CMS requirements.
- Develop and gazette updated national guidelines and regulations to fully domesticate international obligations.
- Ensure legal recognition and protection for all CITES and CMS-listed species found in Tanzanian waters.
- Strengthen CITES Implementation and Trade Monitoring
- Provide targeted training for customs, fisheries, and port authorities on identifying CITES-listed species and enforcing trade controls.
- Establish a robust digital permitting and data management system for all trade in

CITES-listed species.

- Ensure timely and accurate submission of all required trade data to the CITES Secretariat.
- Conduct the necessary research to produce Non-Detriment Findings (NDFs) to support legal and sustainable trade.
- Enhance Participation in Regional and International Platforms
- Ensure active and prepared participation in all relevant meetings of the IOTC, SWIOFC, CITES, and CMS.
- Strengthen collaboration with neighbouring countries on the management of shared stocks and transboundary enforcement.
- Actively participate in the CMS Sharks MoU and other relevant international instruments.
- Improve National Capacity to Meet Global Standards
- Build the technical capacity of national research institutions in taxonomy, genetics, and population assessment to meet international reporting standards.
- Establish formal partnerships with regional and international research bodies for joint studies and knowledge exchange.
- Develop a national database for shark and ray data that is structured to facilitate reporting to regional and global bodies.

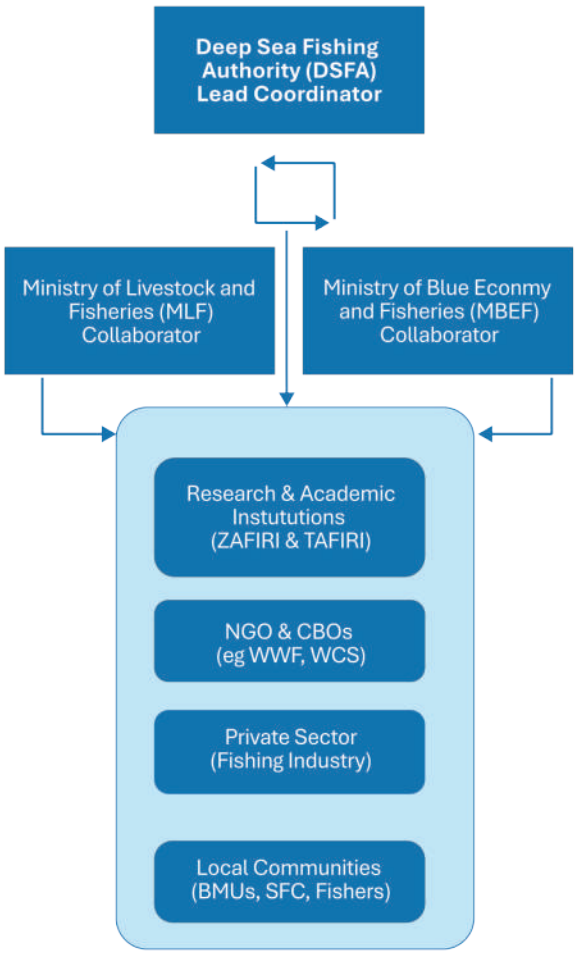
6. IMPLEMENTATION AND MONITORING FRAMEWORK

6.1. IMPLEMENTATION AND COORDINATION

The Deep Sea Fishing Authority (DSFA) will serve as the lead coordinating body for the implementation of this NPOA-Sharks, working in close collaboration with the Ministry of Livestock and Fisheries (MLF) and the Ministry of Blue Economy and Fisheries (MBEF). As mandated by the Deep Sea Fisheries Management and Development Act (2020), the DSFA is responsible for administering and conserving fisheries resources within the Exclusive Economic Zone (EEZ), ensuring that all fishing practices are sustainable and compliant with national and international obligations.

A core component of implementation is ensuring compliance with Tanzania's regional commitments. The DSFA is responsible for enforcing binding Conservation and Management Measures (CMMs) from the Indian Ocean Tuna Commission (IOTC), which include: Shark Finning Ban: Requiring that all sharks are landed with their fins naturally attached (Res. 17/05). Data Collection: Mandating the collection and reporting of species-specific shark catch data (Res. 05/05). Species Protection: Prohibiting the retention, landing, and sale of vulnerable species, including thresher sharks (Res. 12/09), oceanic whitetip sharks (Res. 13/06), and mobulid rays (Res. 19/03). Safe Handling: Requiring vessels to avoid setting nets on whale sharks and to ensure their safe release (Res. 13/05).

The DSFA will ensure that all licensed vessels comply with these requirements by incorporating them into licensing conditions, observer programs, and reporting systems. Implementation will also adapt to evolving regional standards, such as new consolidated management measures for multiple shark species. Furthermore, the DSFA will continue to collaborate with the Indian Ocean Commission (IOC) and the Southwest Indian Ocean Fisheries



Commission (SWIOFC) to support regional coordination, capacity building, and policy harmonization.

6.2. MONITORING, EVALUATION, AND LEARNING (MEL)

An integral component of the successful implementation of the National Plan of Action for Sharks (NPOA-Sharks) is the establishment of a robust Monitoring, Evaluation, and Learning (MEL) framework. This framework will support evidence-based management by tracking progress toward strategic objectives, measuring the effectiveness of implemented measures, and facilitating adaptive management.

Monitoring will be conducted through existing national fisheries data systems, observer programmes, port inspection records, and periodic stakeholder consultations. Evaluation will occur at defined intervals—ideally every two years—focusing on key indicators such as species-specific catch and bycatch trends, compliance levels with conservation measures, and improvements in data quality and reporting rates.

Learning will be facilitated through regular reflection workshops, knowledge-sharing platforms, and participation in regional fora. Lessons learned from implementation experiences will be used to refine strategies, address emerging threats, and strengthen institutional capacities.

The NPOA-Sharks will undergo a formal review every five years, or earlier if significant ecological, policy, or institutional shifts occur. This review process will be inclusive, participatory, and evidence-driven, involving stakeholders from government, research institutions, industry, and civil society. The outcome of each review will inform necessary revisions, ensuring that the NPOA remains relevant, responsive, and aligned with Tanzania's national priorities and international obligations.

6.3. LOGICAL FRAMEWORK

The following logical framework outlines the specific indicators, targets, and means of verification that will be used to monitor the implementation of this NPOA.

Objective 1: Strengthen Sustainable Fisheries Management by implementing science-based catch limits, size regulations, and seasonal closures to prevent overfishing of sharks and rays in both targeted and incidental fisheries.

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
1. Establish Science-Based Catch and Size Limits	Conduct stock assessments for key shark and ray species.	Every 3–5 years	No. of priority species with updated stock assessments	At least 5 priority species assessed by 2028	Limited or outdated stock data	Published assessments, technical reports	TAFIRI, ZAFIRI, MBEF, MLF, DSFA, Academia
	Set and enforce science-based minimum and maximum size limits.	2026–2027	No. of species with gazetted size limits	Size limits for at least 10 priority species established by 2028	No species-specific limits	Legal notices, enforcement reports	TAFIRI, ZAFIRI, Academia, MLF, MBEF, DSFA
	Create adaptive management triggers to revise catch limits.	Annual	Annual review and update cycle established	Cycle established for priority species by 2027	Static or no limits	Management plans, gazettes	DSFA, MLF, MBEF
2. Reduce Bycatch and Protect Vulnerable Species	Mandate the use of selective fishing gear and bycatch reduction technologies.	Phased (2026–2028)	% of fisheries with mandated selective gear	Mandates for >50% of relevant fisheries by 2029	Industrial: 100% Artisanal: 0%	Regulations, gear inspections	DSFA, MLF, MBEF
	Prohibit the retention of all CITES Appendix I and other nationally protected species.	Ongoing	% of CITES App. I species with full protection	100% of CITES App. I listed species protected from retention by 2026	Partial implementation	Landing records, enforcement actions	DSFA, MLF, MBEF, LGA
	Strengthen gear compliance monitoring.	Quarterly	Gear compliance rate	≥60% gear compliance rate achieved by 2028	<40% inspection coverage	Observer reports, inspection checklists	DSFA, MLF, MBEF
3. Foster Stewardship and Alternative Livelihoods	Provide training and incentives for fishers to adopt sustainable practices.	Annual	No. of fishers trained in sustainable practices	1,000 fishers trained by 2028	Few formal training programs	Attendance lists, training logs	MLF, MBEF, NGOs, LGAs
	Promote and support the development of alternative livelihoods.	2026–2028	No. of viable alternative livelihood projects supported	At least 5 viable alternative initiatives supported by 2029	Few initiatives	Project reports, impact assessments	MLF, MBEF, NGOs, Private Sector
	Establish and strengthen co-management arrangements.	2026–2027	No. of formal co-management agreements signed	10 formal BMU/SFC co-management agreements signed by 2028	Informal cooperation only	Signed agreements, meeting minutes	MLF, MBEF, BMUs, SFCs

Objective 2: Enhance data collection and research to improve species-specific catch reporting, biological studies, and stock assessments for evidence-based decision-making and monitor population trends.

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
1. Enhance Species-Specific Data Collection Systems	Assess existing data collection systems to identify gaps and opportunities.	Once (2026)	Comprehensive assessment report produced and validated.	One assessment completed by end of 2026.	No consolidated assessment exists.	Assessment report, stakeholder validation workshop report.	MLF, MBEF, DSFA, TAFIRI, ZAFIRI, NGOs
	Develop and implement standardised, species-specific data collection protocols.	Ongoing	% of landing sites and industrial vessels using the standardised protocol.	Protocol adopted by 2026; Implemented in 50% of priority landing sites and 100% of industrial vessels by 2028.	Fragmented protocols, limited species-level data.	Protocol documents, training reports, field audit reports.	MLF, MBEF, DSFA, TAFIRI, ZAFIRI
	Train enumerators, fisheries officers, and observers in species ID and data collection.	Annual	No. of personnel trained and certified in shark/ray species identification.	At least 100 personnel trained and certified by 2029.	Ad hoc training, no certification.	Training reports, certification records.	TAFIRI, ZAFIRI, MLF, MBEF, NGOs
2. Strengthen Monitoring and Observer Programs	Expand observer coverage (human and electronic) on industrial and semi-industrial vessels.	Ongoing	% observer coverage on active industrial and semi-industrial fleets.	100% coverage (human or EM) on industrial fleet by 2027; 50% on semi-industrial by 2029.	<10% coverage.	Observer deployment records, VMS/ EM data, annual reports.	DSFA, MLF, MBEF
	Establish a comprehensive landing site monitoring program for the artisanal sector.	Ongoing	No. of priority artisanal landing sites with active monitoring.	20 priority sites have active, species-specific monitoring by 2028.	<5 sites with partial monitoring.	CAS reports, enumerator logs.	MLF, MBEF, TAFIRI, ZAFIRI, LGAs
3. Promote Targeted Biological and Ecological Research	Conduct targeted research on the life history and population structure of priority species.	Ongoing	No. of targeted research projects completed on priority species.	At least 5 targeted research projects completed by 2030.	Limited species-specific research.	Scientific publications, technical reports.	TAFIRI, ZAFIRI, Academia, NGOs
	Support socioeconomic surveys to assess reliance on shark and ray fisheries.	2026-2028	Socioeconomic assessment report for key regions.	Assessment completed for at least 3 key coastal regions by 2028.	No formal assessment exists.	Survey reports, publications.	TAFIRI, ZAFIRI, Academia, NGOs

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
4. Establish a Centralised National Database	Develop and maintain a centralised national database for all shark and ray data.	Ongoing	Status of the national shark and ray database.	Database operational by 2027, integrating data from at least 3 key sources (CAS, observers, trade).	No dedicated database.	Database system documentation, data-sharing MoUs, user reports.	DSFA, MLF, MBEF, TAFIRI, ZAFIRI
5. Strengthen National and International Collaboration	Align national data collection protocols with regional/global requirements (IOTC, CITES).	Biennial	% of IOTC/CITES data reporting requirements met on time.	100% of mandatory reports submitted on time annually from 2027.	Inconsistent reporting.	Submission receipts, IOTC/ CITES compliance reports.	DSFA, CITES Authority, MLF, MBEF
	Foster formal partnerships for joint research and data sharing.	Annual	No. of active data-sharing MoUs with national and international partners.	At least 3 new MoUs signed and operational by 2028.	Limited formal collaboration.	Signed MoU documents, joint project reports.	DSFA, TAFIRI, ZAFIRI, MLF, MBEF

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
1. Identify and Map Critical Habitats	Undertake ecological surveys to identify key breeding, nursery, and feeding habitats.	2026-2028	No. of priority regions surveyed for critical habitats.	At least 3 priority regions (e.g., Rufiji Delta, Pemba, Mafia) surveyed by 2028.	No systematic surveys for shark habitats.	Survey reports, scientific publications.	TAFIRI, ZAFIRI, Academia, NGOs
	Integrate local ecological knowledge (LEK) to validate hotspots.	Ongoing	No. of community validation workshops held.	At least 10 LEK workshops held in key regions by 2029.	Ad hoc consultations.	Workshop reports, participatory maps.	MLF, MBEF, TAFIRI, ZAFIRI, NGOs
	Incorporate mapped habitats into national Marine Spatial Planning (MSP) frameworks.	2028-2030	% of identified critical habitats integrated into official MSP.	100% of validated critical habitats integrated into MSP frameworks by 2030.	0% integration.	Official MSP documents, gazettes.	VPO, DSFA, MLF, MBEF
2. Strengthen and Expand MPAs	Review and upgrade existing MPA management plans to include specific shark protections.	2026-2027	No. of MPA management plans updated with specific shark conservation measures.	At least 5 key MPA management plans updated by 2028.	No specific shark measures in current plans.	Updated management plans, gazettes.	MPRU, DMC, VPO
	Establish new MPAs or Other Effective Area-based Conservation Measures (OECMs).	2028-2031	Hectares (ha) of new protected areas designated for shark conservation.	At least 50,000 ha of new protected areas designated by 2031.	0 ha.	Gazettes, designation documents.	VPO, MLF, MBEF, MPRU, DMC
3. Enhance Community Participation	Develop and support site-based co-management initiatives with BMUs/SFCs.	Ongoing	No. of formal co-management agreements for MPAs/ shark hotspots.	At least 5 new co-management agreements signed and active by 2029.	No formal agreements for sharks.	Signed agreements, meeting minutes.	MLF, MBEF, MPRU, DMC, LGAs
	Provide training and tools for community-based monitoring of habitats and species.	Annual	No. of community members trained in monitoring protocols.	At least 200 community members from 10 communities trained by 2030.	No formal training exists.	Training reports, attendance lists.	TAFIRI, ZAFIRI, NGOs

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
4. Strengthen Enforcement in Protected Areas	Enhance surveillance within MPAs through regular joint patrols.	Quarterly	No. of joint patrols conducted annually in priority MPAs.	At least 12 joint patrols per year conducted in 3 priority MPAs from 2027.	Ad hoc patrols.	Patrol logs, incident reports.	MPRU, DMC, MLF, MBEF, Navy
	Increase the prosecution rate for MPA-related offenses.	Ongoing	Prosecution rate for MPA infringements.	Increase prosecution rate for MPA violations by 50% over the 2025 baseline by 2030.	Low prosecution rate.	Court records, enforcement reports.	Judiciary, MPRU, DMC
5. Secure Sustainable Financing	Establish MPA trust funds or other conservation finance mechanisms.	2026-2028	Status of a national conservation trust fund or similar mechanism.	At least one trust fund legally established and operational by 2028.	No dedicated fund.	Legal documents, fund financial reports.	VPO, DSFA, MLF, MBEF, NGOs
	Develop and promote sustainable ecotourism enterprises.	Ongoing	No. of new shark-focused ecotourism ventures supported.	At least 3 new ventures supported with viable business plans by 2029.	Limited/ad hoc support.	Business plans, project reports.	Ministry of Tourism, Private Sector, NGOs

Objective 4: Minimise bycatch and Illegal, Unreported, and Unregulated (IUU) Fishing by promoting bycatch reduction technologies and enforcing anti-finning regulations.

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
1. Strengthen Monitoring, Control, and Surveillance (MCS)	Enhance at-sea and port-side inspections for all fisheries.	Quarterly	% increase in annual inspection days at sea and at port.	50% increase in inspection days by 2029 over a 2025 baseline.	Limited and ad hoc inspections.	Patrol logs, port inspection reports.	DSFA, MLF, MBEF, MATT
	Strengthen the capacity of the Multi-Agency Task Team (MATT) to coordinate anti-IUU operations.	Annual	No. of successful joint anti-IUU operations conducted.	At least 4 successful joint operations conducted annually from 2027.	<1 per year.	Operation reports, MATT meeting minutes.	MATT, DSFA, MLF, MBEF, Navy
	Mandate and enforce the use of VMS and AIS on all industrial and semi-industrial vessels.	Ongoing	% of the industrial/ semi-industrial fleet with active and compliant VMS/AIS.	100% compliance by 2027.	~90% VMS, <50% AIS.	VMS/AIS data, vessel registries, patrol reports.	DSFA, MLF, MBEF
2. Implement and Enforce Bycatch Reduction Measures	Develop and implement regulations mandating the use of bycatch reduction technologies (BRTs).	2026-2028	No. of key fisheries with gazetted regulations for BRTs.	Regulations for at least 2 key fisheries (e.g., longline, gillnet) gazetted by 2028.	No specific BRT regulations.	Gazettes, legal review reports.	MLF, MBEF, DSFA
	Conduct research and pilot studies on the effectiveness of new BRTs.	Ongoing	No. of pilot studies on new BRTs completed.	At least 3 pilot studies completed by 2029.	No recent studies.	Technical reports, scientific publications.	TAFIRI, ZAFIRI, Academia, NGOs
	Provide training and incentives for fishers to adopt BRTs.	Annual	No. of fishers trained in BRT use and best handling practices.	At least 500 fishers trained by 2030.	No formal training.	Training reports, attendance lists.	MLF, MBEF, NGOs
3. Enhance the Legal and Enforcement Framework	Review and strengthen national legislation to ensure penalties for IUU fishing are a sufficient deterrent.	2026-2027	Status of legal review and amendment.	Legal review completed by 2026; amendments gazetted by 2027.	Penalties are not a strong deterrent.	Legal review report, gazetted amendments.	Attorney General's Office, MLF, MBEF, DSFA
	Strictly enforce the "fins-naturally-attached" policy.	Ongoing	Compliance rate with fins-attached policy in inspected landings.	Achieve >90% compliance rate in inspected landings by 2028.	Estimated <60% compliance.	Port inspection records, observer reports.	DSFA, MLF, MBEF

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
3. Enhance the Legal and Enforcement Framework	Maintain and share a national list of vessels confirmed to be involved in IUU fishing.	Quarterly	National IUU vessel list established and updated.	List established by 2026 and updated quarterly.	No official public list.	Published IUU vessel list, website.	DSFA, MLF, MBEF
4. Improve Information Sharing and Traceability	Develop and implement a national traceability system for shark and ray products.	2027-2030	Status of national traceability system.	Pilot traceability system for at least one key value chain designed and tested by 2030.	No system exists.	System design documents, pilot project report.	DSFA, MLF, MBEF, TRA, Private Sector
	Strengthen inter-agency data and intelligence sharing protocols.	Annual	Formal inter-agency data-sharing protocol established and in use.	Protocol signed and operational by 2027.	Ad hoc sharing.	Signed protocol, meeting minutes.	MATT, DSFA, MLF, MBEF, TRA

Objective 5: Strengthen stakeholder engagement and compliance by fostering collaboration among fishers, traders, scientists, and enforcement agencies through training, awareness campaigns, and participatory management.

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
1. Build Capacity Among All Stakeholders	Conduct regular training workshops for fishers, traders, BMUs, SFCs, and local officers.	Annual	No. of training sessions held and participants trained.	At least 10 sessions/year, reaching a total of 500 stakeholders by 2029.	Limited or ad hoc training activities.	Training reports, attendance lists.	MLF, MBEF, DSFA, TAFIRI, ZAFIRI, NGOs
	Develop and disseminate training materials (e.g., field guides, manuals).	Ongoing	No. and types of materials produced and distributed.	At least 3 types of materials developed and distributed to 50 priority BMUs/SFCs by 2027.	Few relevant materials available.	Material copies, distribution records.	MLF, MBEF, DSFA, TAFIRI, ZAFIRI, NGOs
2. Improve Communication and Collaboration	Establish a multi-stakeholder National Shark Working Group.	Once; then quarterly meetings	National Shark Working Group established and active.	Group established with ToR by end of 2026; holds at least 3 meetings per year thereafter.	No national coordination platform for sharks.	Meeting minutes, ToR, member list.	MLF, MBEF, DSFA, TAFIRI, ZAFIRI, NGOs
3. Raise Awareness and Promote Behavioural Change	Develop and run multi-platform public awareness campaigns.	Biannual	No. of campaigns conducted and estimated audience reach.	At least 2 major campaigns conducted annually, reaching an estimated 100,000 people per year from 2027.	Limited awareness outreach.	Media reports, social media analytics, survey data.	MLF, MBEF, DSFA, NGOs
	Engage communities in participatory data collection and surveillance.	Ongoing	No. of communities actively participating in monitoring.	At least 15 communities actively contributing data by 2030.	No formal participation.	BMU/SFC reports, data submission logs.	TAFIRI, ZAFIRI, MLF, MBEF, NGOs

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
4. Promote Community-Led Compliance	Support the development and gazettement of community bylaws for shark protection.	Biannual	No. of communities with gazetted bylaws including shark measures.	Bylaws adopted and gazetted in at least 10 coastal communities by 2028.	Few or no specific bylaws.	Approved bylaws, gazettement records.	MLF, MBEF, LGAs
	Introduce recognition and incentive programs for compliance.	Annual	No. of communities/ individuals formally recognised for conservation efforts.	At least 5 model communities or fishers recognised annually from 2027.	No formal recognition system.	Award records, program guidelines, media coverage.	DSFA, MLF, MBEF, NGOs
5. Monitor and Evaluate Engagement Efforts	Use surveys to assess the effectiveness of campaigns and training.	Annual	Pre- and post-intervention survey results on knowledge, attitudes, and practices (KAP).	KAP surveys conducted for all major campaigns/training programs; show a 30% improvement in knowledge by 2030.	No formal M&E of outreach.	Survey reports, KAP analysis.	DSFA, MLF, MBEF, TAFIRI, ZAFIRI, NGOs

Objective 6: Align Tanzania's shark and ray management with regional and global conservation frameworks, including CITES listings, CMS agreements, and the FAO IPOA-Sharks, to ensure international cooperation.

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
1. Review and Harmonise National Legislation	Review fisheries legislation and develop/update national guidelines to align with IOTC, CITES, and CMS requirements.	2026-2027	No. of key legal instruments reviewed and updated.	At least 2 key regulations/acts reviewed and harmonised by 2027.	Partial alignment, outdated legislation.	Legal review reports, gazetted amendments.	MLF, MBEF, DSFA, Attorney General's Office
2. Strengthen CITES Implementation	Train customs, fisheries inspectors, and port authorities on identifying CITES-listed species.	Annual	No. of personnel trained in CITES enforcement.	At least 50 officials trained by 2028.	Limited CITES-specific training.	Training reports, attendance lists.	CITES Authority, MLF, MBEF, DSFA, TRA
	Establish a robust e-permitting and data management system for CITES trade.	2026-2027	Status of CITES e-permitting system.	System fully operational and integrated with national databases by 2027.	Manual or non-existent system.	System documentation, permit records.	CITES Authority, DSFA, MLF, MBEF
	Ensure timely and accurate submission of annual trade data to the CITES Secretariat.	Annual	% of CITES annual reports submitted on time.	100% of annual reports submitted on time from 2027.	Inconsistent reporting.	CITES trade database, submission receipts.	CITES Authority
	Conduct research to support Non-Detriment Findings (NDFs).	Ongoing	No. of NDFs or scientific assessments produced for priority species.	NDFs developed for at least 3 priority CITES-listed species by 2030.	No formal NDFs exist.	Scientific publications, technical reports.	TAFIRI, ZAFIRI, CITES Scientific Authority, Academia, NGOs
3. Enhance Regional and International Cooperation	Actively participate in regional bodies (IOTC, SWIOFC) and international meetings (CITES CoP, CMS CoP).	Ongoing	% of relevant regional/ global meetings attended with a prepared national position.	Representation at >80% of relevant meetings.	Ad hoc participation.	Meeting reports, national statements.	DSFA, MLF, MBEF, CITES Authority

Strategic Intervention	Action	Frequency	Indicator	Target	Baseline	Verification	Responsible Institution(s)
3. Enhance Regional and International Cooperation	Collaborate with neighbouring countries on transboundary species management and enforcement.	Biannual	No. of new bilateral/ regional cooperation initiatives established.	At least 2 new collaborative initiatives established by 2029.	Limited formal collaboration.	MoUs, joint patrol reports, data sharing agreements.	DSFA, MLF, MBEF
4. Improve National Capacity to Meet Global Standards	Build technical capacity in taxonomy, genetics, and population assessment.	Annual	No. of researchers/ technicians trained in advanced techniques.	At least 10 personnel trained in advanced techniques by 2028.	Limited specialised capacity.	Training certificates, workshop reports.	TAFIRI, ZAFIRI, UDSM, SUZA

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THE UNITED REPUBLIC OF TANZANIA

NATIONAL ACTION PLAN FOR CONSERVATION OF MARINE TURTLES 2024 – 2029

March 2024

FOREWORD

Marine turtle stocks are declining throughout the world, most of the Tanzanian areas historically used to be habited by dense populations. According to the IUCN, persistent over-exploitation, especially of adult females on the nesting beach, and the widespread collection of eggs are largely responsible for the endangered status of five sea turtle species occurring in Tanzania. In addition to direct harvest, sea turtles are accidentally captured in active or abandoned fishing gear, resulting in death to thousands of turtles annually. Coral reef and seagrass degradation, oil spills, chemical waste, persistent plastic and other marine debris, high density coastal development, and an increase in ocean-based tourism have damaged or eliminated nesting beaches and feeding grounds. Population declines are complicated by the fact that causal factors are not always entirely indigenous.

Currently, the Marine waters is seemed as of important to the development of the country as there is a substantial but un-tapped potential for blue economy activities such as coastal tourism, agriculture, mariculture development, natural gas exploitation, offshore fisheries, shipping, urban development, manufacturing, renewable energy, drilling and mining. These economic opportunities when undertaken in a manner that does not consider the life of other organisms, especially with populations that are threatened or endangered, the survival and recovery of the Marine Turtles and other critically endangered species will be at stake. To protect and conserve Marine Turtles, the Government of URT entered an MoU with IOSEA.

The National Action Plan for Conservation of Marine Turtles has been prepared for the purposes of raising awareness and assuring effective management measures and planning are instituted to allow recovery and the well-being of the already endangered and threatened Marine Turtles in Tanzania,

The National Action Plan for Conservation of Marine Turtles is a conceptual presentation of how Marine Turtles conservation and protection may be applied to contribute to the survival and well-being of Marine Turtles in Tanzania.

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ACKNOWLEDGEMENTS

The National Action Plan for Conservation of Marine Turtles has been prepared to provide mechanisms for the protection and conservation of Marine Turtles in the United Republic of Tanzania for their recovery, planning and management and all other measures necessary to raise the survival of these endangered and threatened marine species.

In particular, we would like to extend our gratitude to the hard work done by Sea Sense, an important organizer to facilitate all the necessary work to achieve the plan and the Government of the United States through their USAID Tuhifadhi Maliasili (Preserve Natural Resources) Project, for their financial support in the preparation of the National Action Plan for Conservation of Marine Turtles.

The preparation of this National Action Plan for Conservation of Marine Turtles could not be possible without the cooperation and commitment of stakeholders who consulted which include Ministries, departments, agencies, academic and research institutions, civil society organizations, private sectors, and the coastal communities through their invaluable input and technical support. In this regard, we take this opportunity to acknowledge their valuable contributions and efforts which made possible the preparation of this National Action Plan for Conservation of Marine Turtles.

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LIST OF ACRONYMS

BMU	Beach Management Unit
CFMA	Collaborative Fisheries Management Area
CITES	Convention on International Trade in Endangered Species
CMP	Conservation and Management Plan
CMS	Convention on Migratory Species
CSO	Civil Society Organization
DMC	Department of Marine Conservation
DSFA	Deep Sea Fishing Authority
FAO	Food and Agricultural Organization
IOSEA	Indian Ocean South-East Asia
IUCN	International Union for Conservation of Nature
LGA	Local Government Authority
MLF	Ministry of Livestock and Fisheries
MoBEF	Ministry of Blue Economy and Fisheries
MPRU	Marine Parks and Reserves Unit
NAPCMT	National Action Plan for Conservation of Marine Turtles
NEMC	National Environment Management Council
NGO	Non-Government Organization
NPoA	National Plan of Action
PO RALG	Regional Administration and Local Government

SFC	Shehia Fisheries Committee
SWOT	Strengths, Weaknesses, Opportunity and Threats
TAFIRI	Tanzania Fisheries Research Institute
TFS	Tanzania Forest Services Agency
TPA	Tanzania Ports Authority
USAID	United States Agency for International Development
VLC	Village Liaison Committee
VPO	The Vice President's Office
WIO	Western Indian Ocean
WIOMSA	The Western Indian Ocean Marine Science
WWF	World Wildlife Fund
ZAFIRI	Zanzibar Fisheries and Marine Resources Research Institute
ZEMA	Zanzibar Environmental Management Authority
ZPC	Zanzibar Ports Corporation

EXECUTIVE SUMMARY

The marine and coastal waters of Tanzania are endowed with rich ecosystems including coral reefs, seagrass meadows, mangroves and beaches that provide important feeding and breeding habitats for five of the world's seven marine turtle species: Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Loggerhead (*Caretta caretta*), Leatherback (*Dermochelys coriacea*), and Olive ridley (*Lepidochelys olivacea*) turtle. Two species; green and hawksbill turtles are known to nest along most of the coastline. All are categorised by IUCN as endangered or critically endangered and are listed on Appendix I of CITES. Marine turtle populations are declining as a result of harvesting for their meat, eggs, and shells, as well as accidental capture in fishing gear, increasing coastal developments, climate change, and the degradation of nesting and foraging habitats. Inadequate law enforcement and institutional coordination hamper the conservation and management efforts.

The National Action Plan for the Conservation of Marine Turtles (NAPCMT) in Tanzania has been developed in response to the government's commitment to the Indian Ocean South-East Asia (IOSEA) Marine Turtle Memorandum of Understanding (IOSEA Marine Turtle MoU). The NAPCMT considers the conservation requirements of the marine turtle species along the Tanzanian coast and identifies the measures to be taken to address the threats and challenges to ensure their long-term viability. This is the first National Action Plan for Conservation of Marine Turtles in Tanzania for the period of five years (2024 -2029).

NAPCMT is designed as a flexible tool that guides stakeholders and provides a framework for collaboration to ensure long-term conservation and management of marine turtles. It contains a set of conservation and management measures requiring the collective involvement of various stakeholders. The development of NAPCMT ensured the engagement of diverse stakeholders including government, non-government organizations, coastal communities,

private sectors, research and academic institutions as well as government seafood industries.

NAPCMT is presented in five chapters. Chapter one provides a general introduction to marine turtles and provides the purpose, scope and presents the development processes of the action plan. Chapter two provides a general overview of the biology and ecology of marine turtles including the global threats to marine turtles. It also highlights the status of marine turtles in Tanzania including the threats faced by marine turtles as well as challenges that impair their conservation and management efforts. Chapter three provides a comprehensive review of governance, institutional and legal frameworks for the conservation of marine turtles in Tanzania. It highlights the regional and international regulatory frameworks in which Tanzania is taking part. It also provides a review of the national regulatory and institutional frameworks and their adequacy in addressing marine turtle conservation and management.

The NAPCMT proposes seven strategic objectives in chapter four that aim to: Reduce direct and indirect causes of marine turtle mortality, Reduce threats to critical marine turtle habitats, promote information sharing and education programmes on marine turtles, Strengthen enforcement of existing legal frameworks that protect marine turtles and their habitats, strengthen research and monitoring programmes to address knowledge gaps and understand the impacts of threats on marine turtle population trends, strengthen national, regional and international stakeholder collaboration for conservation of marine turtles, and strengthen existing policies and legislations to ensure responsible marine turtle conservation.

Chapter five provides the review, implementation, monitoring and evaluation of the action plan. For the successful implementation of the NAPCMT collaboration amongst government and non-governmental stakeholders is crucial. The NAPCMT proposes this

through the establishment of a National Marine Turtle Committee. To ensure the sustainability of the NAPCMT, the plan also proposes resource mobilization strategies such as the establishment of a sustainable source of funds.

CHAPTER ONE

1 INTRODUCTION

1.1 Background

Marine turtles play a critical role in the marine ecosystem including the maintenance of critical marine habitats such as coral reefs and seagrass meadows. They also contribute to the productivity of marine and coastal ecosystems through nutrient recycling. Therefore, their presence is an indicator of the health of the marine environment and is inextricably linked to the well-being of coastal people who rely on the productivity of marine ecosystems for their income and food security. Thus, marine turtles are regarded as flagship species for research, conservation, and protection.

However, marine turtles face significant threats throughout the world, with the population estimated to have declined by 80% over the last 50 years (Muir, 2005). As a result, six of the seven species of marine turtle are listed in the IUCN Red List of Threatened Species as either Vulnerable, Endangered or Critically Endangered. The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. In characterizing marine turtles as threatened, IUCN draws attention to the conservation needs of marine turtle populations around the world.

Addressing threats to widely distributed marine megafauna, such as marine turtles, requires global joint collaboration. Consequently, several initiatives, legal frameworks and development arrangements have been developed to improve the conservation and management of marine turtles at the global level. These include the United Nations Convention on the Law of the Sea, UNCLOS (1982), UN-FAO Code for responsible fisheries, UN FAO Guideline to reduce sea turtle mortality in fishing operations, CBD, CMS, CITES, Ramsar Convention, Nairobi Convention, Sustainable

Development Goals (SDGs), Western Indian Ocean Marine Turtle Task Force and Indian Ocean Tuna Commission (IOTC). Tanzania is a party to the listed initiatives, frameworks and development settings. Furthermore, the government of the United Republic of Tanzania is a signatory state to the Indian Ocean South East Asia (IOSEA) Marine Turtle Memorandum of Understanding (MoU), which it ratified in 2001. As a signatory state, Tanzania is committed to implementing the activities outlined in the Conservation and Management Plan (CMP) of the IOSEA Marine Turtle MoU. The IOSEA Marine Turtle MoU calls the signatory states to prepare their national action plans for conservation of marine turtles.

The United Republic of Tanzania is a coastal state located in the Western Indian Ocean (WIO) region. It is situated in equatorial East Africa and lies just the south of the equator between 1^{o} 00' - 11^{o} 45' S and 29^{o} 21'- 40^{o} 25' E, and has a coastline of approximately 1,424 km. The territorial sea covers 64000 km^2 and EEZ of 223000 km^2, which supports a rich array of natural systems including coral reefs and seagrass meadows that provide important feeding and breeding habitats for five of the world's seven marine turtle species: Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*), Loggerhead (*Caretta caretta*), Leatherback (*Dermochelys coriacea*), and Olive ridley (*Lepidochelys olivacea*) turtle. Green turtles are the most common species and are known to nest along most of the coastline (Muir, 2005). Hawksbills are also widely distributed in Tanzania although nesting activity is restricted to the islands of Mafia, Pemba and Songo Songo (Muir, 2005). Olive ridley, loggerhead and leatherback turtles do not nest in Tanzania, but bycatch data confirm that they are present in Tanzanian waters (West & Hoza, 2014), either foraging or passing through en route to nesting sites elsewhere in the Western Indian Ocean (WIO) region.

Despite the named efforts and initiatives, marine turtles still face critical challenges and threats such as direct take of nesting females, coastal development, degradation of critical habitats, marine pollution, climate change, fisheries bycatch, egg harvesting, limited community awareness, weak law enforcement, knowledge gap and inadequate data sharing, low prioritization of marine wildlife in national policies and legislations and poor institutional coordination. Addressing these challenges is of paramount importance. Henceforth, the National Action Plan for Conservation of Marine Turtles has been developed to address the aforementioned challenges and threats and ensure sustainability of marine turtles and their habitats. The National Action Plan aligns with the IOSEA Marine Turtle MoU Conservation and Management Plan (CMP).

1.2 Purpose and Scope of the National Action Plan

The NAPCMT covers the five-year period between 2024– 2029. The NAPCMT will address the threats faced by marine turtles and their habitats. It also aims to address barriers and challenges that impede marine turtle conservation while simultaneously strengthening the enabling conditions necessary for the sustainable conservation of marine turtles and their habitats.

1.2.1 Scope

The NAPCMT provide a guide for the long-term conservation and management of marine turtles and critical marine habitats in Tanzania for the next 5 years (2024– 2029). The NAPCMT will be implemented in the coastal and marine waters of the United Republic of Tanzania.

1.2.2 Goal

The goal of the NAPCMT is to ensure the long-term Conservation and management of Marine Turtles and their habitats in Tanzania, which falls under MoU Objective 5.2(a): “Develop a set of key

management measures that could be used as a basis for action plans, through consultation with concerned Government authorities, research institutions, NGOs, local communities, and other stakeholders".

1.3 An Overview of the NAPCMT Development Process

The development process was participatory and consultative, and it was comprised of various phases, including the engagement of national level authorities, consultation with stakeholders and validation, and the approval/endorsement/launching and dissemination.

1.3.1 Engagement of the National Level Authorities

An inception meeting was held in October, 2022 to engage the Focal Point of the IOSEA MoU, Marine Parks and Reserves Unit (MPRU), the Ministry of Blue Economy and Fisheries (MoBEF) at the Department of Marine Conservation (DMC), and the Ministry of Livestock and Fisheries (MLF), Fisheries Division. The aim was to obtain an endorsement to develop and agree on the implementation framework of the action plan.

1.3.2 Stakeholders Consultations

The NAPCMT was formulated following extensive consultations with a range of national and local stakeholders including the Government of Tanzania, Local Government Authorities, NGOs, academic institutions, private sector representatives, and members of coastal communities through Focus Group Discussions, Key Informant Interviews and Workshops (Appendix B and C). During the consultation process, stakeholders were asked to identify and prioritise threats, barriers and challenges to marine turtles and their habitats, and identify actions to address those threats, barriers and challenges. Additionally, stakeholders were asked to allocate roles to stakeholders for the successful implementation of the NAPCMT. Afterwards, the action plan was drafted and

thoroughly reviewed, taking into account all the valuable input collected from these consultations and workshops.

1.3.3 Approval, Launch and Dissemination

A validation workshop was held on 3rd October 2023, with 24 stakeholders from 21 different institutions that play various roles in marine resources conservation. The attendees included the central government, Development partners, NGOs, development partners, Academia, Research institutions, and the fishing industry.

The final draft of the NAPCMT was submitted to the Marine Parks and Reserves Unit on 30th November 2023 for endorsement through the respective Ministries. Subsequently, after an official launch the action plan was disseminated to a wider range of stakeholders to promote more effective and sustainable implementation. This dissemination aimed to promote transparency, inclusiveness, collaboration, ownership, support, and accountability among stakeholders.

CHAPTER TWO

2. BIOLOGY AND ECOLOGY OF MARINE TURTLES

2.1 Ecology of Marine Turtles

Marine turtles are considered keystone species within marine ecosystems, due to their crucial role in maintaining the health of the ocean. They play important roles such as nutrient transportation, which directly benefits other marine organisms (Cáceres-Farias et al., 2022).

Adult green turtles are herbivorous and graze primarily on seagrass across their global distribution (Johnson et al., 2017). The feeding behaviour contributes to the maintenance of seagrass habitat by stimulating regrowth and increasing the standing biomass of leaves, thereby increasing productivity and nutrient content and benefiting other species in the food web (Kuiper-Linley et al., 2007; Johnson et al., 2017; Scott et al., 2020). Healthy seagrass meadows also provide food and shelter to a wide range of smaller herbivores including fish and invertebrates. The green turtle is one of the most common species of marine turtles found across a wide range of tropical and subtropical oceans globally.

The hawksbill turtle is a medium-sized species with a global distribution. Nevertheless, nesting activities have predominantly been recorded within tropical seas, and are less common along the subtropical coasts of the Atlantic, Indian, and Pacific Oceans (Chatting et al., 2018). Hawksbill turtles forage on sponges, which has a positive indirect effect on corals by grazing on coral competitors thereby preventing sponges from out competing coral for space on the reef and playing an important role in the maintenance of coral reef ecosystems (León & Bjorndal, 2002).

Leatherback turtles are the largest marine turtle species. Leatherback turtles are known as highly migratory species, covering long distances of up to 2000 km at speeds reaching 40

km/hour in search of feeding grounds (Muir, 2005). Their diet is exclusively composed of jellyfish (Muir, 2005; Mrosovsky et al., 2009). These turtles are found across a broad range of habitats, ranging from tropical, temperate to sub-arctic seas worldwide (Mrosovsky et al., 2009). The most important nesting areas are on the western coasts of Mexico, French Guyana, Malaysia and Indonesia. Mozambique and South Africa represent the most nesting coasts in the WION region (van de Geer et al., 2022). As a major predator of jellyfish, leatherback turtles provide natural control of jellyfish populations, which when in high numbers, may reduce fish populations by feeding on fish larvae.

Loggerhead turtles (*Caretta caretta*) inhabit tropical and warm temperate waters across the globe. They are recognized as opportunistic carnivores among marine turtle species, feeding on both living and dead materials. These turtles are distinguished by their thick necks and strong jaw muscles, which enable them to prey on hard-shelled animals such as molluscs and crabs (Lazar et al., 2010; Muir, 2005). Loggerheads are most frequently sighted in the coastal waters of regions including Florida and South Carolina, Greece, Turkey, Israel, Tunisia, and Libya and across south-east Asia to Australia, these coasts are hotspot nesting sites in the world (Muir, 2005). In the Western Indian Ocean region, loggerhead turtles are poorly explored, although significant nesting populations have been recorded in South Africa, Mozambique, with limited observation in Madagascar (Dalleau et al., 2014; van de Geer et al., 2022). However, there is no reported nesting activity on the coast of the East Africa region including Tanzania (van de Geer et al., 2022). Olive ridley turtles represent the smallest and most abundant among the seven marine turtle species. They have a wide distribution across more than 80 countries, spanning the tropical and subtropical waters of the Pacific, Indian, and Atlantic Oceans (Cáceres-Farias et al., 2022). The primary nesting hotspots are found along the coasts from Mexico to Costa Rica, as well as in northeastern India and Suriname (Muir, 2005). Historically, the

nesting of olive ridley turtles was thought to be widespread along the Western Indian Ocean coasts. However, current reports of these nesting events are infrequent, and some areas, such as Somalia, have not reported any nesting occurrences (van de Geer et al., 2022). For instance, in Tanzania, there were historical reports of olive ridley nesting on Maziwe Island between 1974 and 1975 (van de Geer et al., 2022). Olive ridleys exhibit both carnivorous and omnivorous feeding behaviours, consuming a variety of plants and animals (Cáceres-Farias et al., 2022).

2.2 Life Cycle of Marine Turtles

All species of marine turtles globally share a similar life cycle, as noted by Muir (2005). Characterized by a slow growth rate, these species typically take a prolonged period to reach maturity. For instance, greens, hawksbills, and loggerheads are believed to attain sexual maturity between twenty to thirty years.

On reaching sexual maturity, males and females will leave coastal areas and migrate, often thousands of miles, to breeding areas where they will mate and begin their adult, reproductive stage. Both sexes mate with several partners. Females store sperm in their bodies to fertilize the three to seven clutches of eggs laid during the season. Mating generally takes place offshore a month or two prior to the turtle's first nesting attempt for the season. Male turtles return to their foraging areas once the females commence their fortnightly trips to the beach to lay eggs.

During nesting season, female marine turtles’ claw to the beaches and upon finding a suitable site, they make a hole ranging between 30 and 60 cm in depth. They use their front flippers to dig the body pit and their hind flippers to dig out the sand, forming a vertical chamber where they deposit their eggs. Subsequently, the eggs are covered with sand. In general, it takes most marine turtles over 60 minutes to dig their nests and lay a clutch of leathery-shelled eggs.

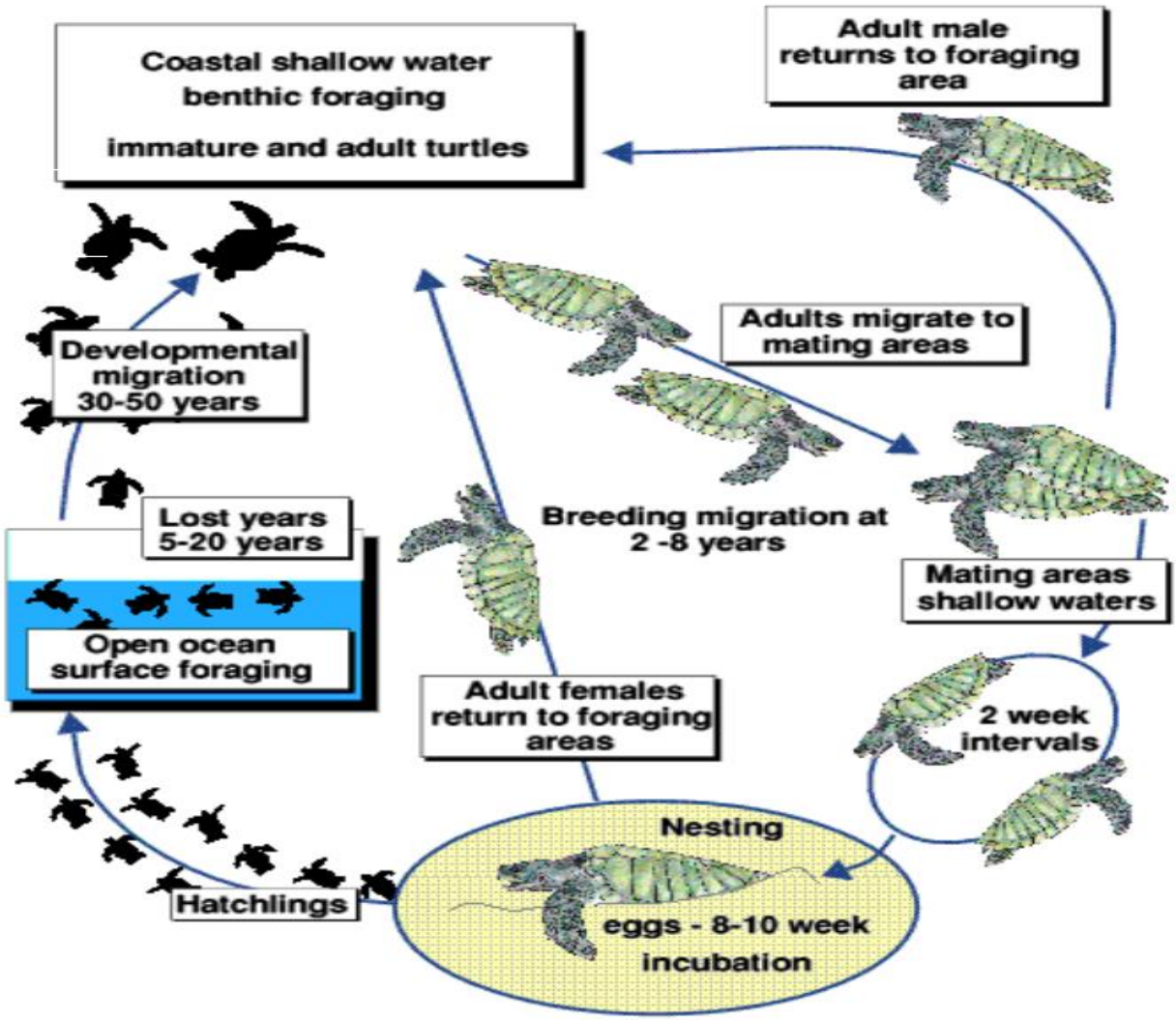
They deposit approximately 120 eggs in each nesting, with sizes varying according to different species.

The female marine turtles can spend up to 3 hours on the beaches after emerging from the water. Once they finish nesting, they crawl back into the sea. In this offshore area she begins to make the next clutch of eggs, fertilizing them from her sperm store. After the nesting season, females return to their distant foraging areas and may not nest again for 3-5 years.

The temperature of the nest during incubation determines the sex of hatchlings, which is known as temperature dependent sex determination. Warm temperatures produce mostly females whereas cooler temperatures produce mostly males. The amount of time the egg takes to hatch varies among the different species and is influenced by environmental conditions such as the temperature of the sand, but it is generally between 45 – 70 days. The hatchlings take two or more days to reach the surface of the nest where they emerge as a group, usually at night. To find the sea, hatchlings orient towards the natural light of the ocean horizon and use the natural slope of the beach to guide them. Once in the sea, hatchlings use a combination of cues (wave direction, current, and magnetic fields) to orient themselves to deeper offshore areas. Crossing the beach and swimming away is believed to imprint the hatchlings with the cues necessary to find their way back to the same area when they are ready to breed.

On reaching the ocean, hatchlings undertake what is known as a ‘swimming frenzy’, which may last for several days and varies in intensity and duration among species. This behaviour takes the hatchlings away from dangerous nearshore waters where predation is high. Once offshore, hatchlings associate with floating seaweed mats and other flotsam caught up in ocean currents and feed on tiny prey such as molluscs, crustaceans, hydrozoans, jellyfish, and fish eggs. Typically, hatchlings spend an extended period, approximately five to ten years in offshore habitats. During

this phase, their shells grow to a length ranging between 20 to 40 cm. Following this stage, they start to migrate toward nearby inshore areas to forage and spend the rest of their time to further growth and development until they reach sexual maturity and the cycle begins again.



Generalised life cycle of sea turtles

2.3 Global Threats to Marine Turtles

The IUCN Marine Turtle Specialist Group has identified five major threats to marine turtles: fisheries bycatch, coastal development, pollution and pathogens, direct take, and climate change.

Fisheries Bycatch

Incidental capture (known as bycatch) of marine turtles in the world's fisheries poses a major challenge to conservation and management efforts. It is estimated that the fishing industry contributes to the death of thousands to tens of thousands of marine turtles each year (Wallace et al., 2010). According to Wallace et al. (2010), there were at least 85,000 reports of turtles caught as bycatch worldwide between 1990 and 2008. The authors, however, argued that this figure was greatly underestimated by at least a factor of a hundred, due to the relatively limited (<1%) recorded global fishing activities and lack of bycatch data from small-scale fisheries. Surprisingly, it is estimated that over 44,000 marine turtles are killed annually as a result of bycatch in the Mediterranean region alone (Casale, 2011). Industrial longlines contain thousands of baited hooks on lines, which can be tens of miles long. These hooks entangle many species that are not intended to be caught. Marine turtles, particularly greens, loggerheads, olive ridleys, and leatherbacks, are attracted to the bait and get caught on the hooks or become entangled in the lines and drown. However, the nets and trawls are also particularly destructive and have been assessed to cause high bycatch impact and mortality rates (Wallace et al, 2013 & 2010). Turtle Excluder Devices have reduced marine turtle mortality in trawl fisheries but are not regulated worldwide. Fishing gear used in small-scale artisanal fisheries also poses a threat to marine turtles, particularly gillnets. However, data on rates of bycatch in small-scale fisheries is hard to access.

Coastal Development

Marine turtle habitats are degraded and destroyed by poorly regulated coastal development. The loss of nesting beaches to coastal development is well documented in many parts of the world and includes residential development and construction of recreational and tourism facilities, large scale infrastructure

development such as ports and jetties, as well as seafloor alterations such as seafloor dredging. Such construction and development alter the availability of nesting habitat and its topography. This may cause the turtle to relocate to alternative nesting areas or be forced to lay eggs on unsuitable beaches with a high risk of water inundation or predation and hence unsuccessful hatching (Poloczanska et al, 2009). In addition, coastal development increases artificial light intensity which may discourage adult marine turtles from nesting on the regular beaches. Coastal lighting has also been reported to have a significant impact and cause disorientation of hatchlings (Kamrowski et al, 2012).

Pollution and Pathogens

Marine pollution including plastics, discarded fishing gear, petroleum by-products, and other types of debris directly impacts marine turtles at all stages of their lifecycle through ingestion and entanglement. The entanglement of marine life in ghost fishing gear and the ingestion of plastic debris has been identified as more significant threats compared to oil pollution, climate change, and intentional exploitation (Duncan et al., 2017). The entanglements often result in severe wounds in marine turtles, greatly increasing the likelihood of mortality. Light pollution has also been recognized to pose a threat due to its disruption of nesting behaviour and hatchling orientation, leading to hatchling mortality. Chemical pollutants can weaken their immune systems, making them susceptible to disease causing pathogens. Excessive pollution in coastal areas resulting from human activities, including industrial discharges and agricultural runoff, is linked to an increase in the occurrence of pathogens that cause diseases such as Fibro papillomatosis (caused by a herpesvirus) in marine turtles. Among turtle species, green turtles are particularly susceptible to this disease (Aguirre and Lutz, 2004).

Direct Take

The cultural significance of marine turtles as a source of protein, income and cultural identity continues to be deeply rooted in many contemporary societies. A survey of legal marine turtle fisheries in 2014, found that 42 countries and territories permit direct take of turtles (Humber et al. 2014). Over the past three decades, it has been reported that the annual exploitation of marine turtles has reached approximately 38,000 individuals globally, with green turtles being the predominantly exploited species during this period (Senko et al., 2022). Furthermore, this study highlights that roughly 75% of the illicit exploitation originates from five countries: Haiti, Tanzania, Honduras, Indonesia, and Mexico. Notably, Tanzania ranked second among these, contributing to 20% of the total exploited marine turtles between 1990 and 2020 (Senko et al., 2022). However, the illegal trade of eggs, meat, and shells of turtles continues to be a major threat to their survival, despite the presence of national laws protecting marine turtles in most countries. Direct take also supplies the illegal trade in marine turtle products at an international scale. Lack of enforcement and limited public awareness enable international trade to persist.

Climate Change

Marine turtles are considered highly vulnerable to the impacts of climate change due to their reproductive behaviour which is associated with temperature. The sex of marine turtle hatchlings is temperature dependent and hence, rising global temperatures will result in warmer sand, causing more female than male hatchlings. Since marine turtles tend to gather at breeding sites a few weeks prior to nesting, the increase in water temperature can directly affect female physiology such as increasing the metabolic rates (Poloczanska et al., 2009). This implies that unfavourable fluctuations in temperature range could significantly shift sex ratios. Therefore, rapid climate change has the potential to

compromise reproduction, posing a serious threat to their populations. Climate change is also increasing the frequency of extreme weather events, which erode nesting beaches and cause coral reef and seagrass mortality. Moreover, due to the fact that climate change is threatening crucial foraging and breeding habitats, marine turtles are also indirectly affected, resulting in reduced food availability and favourable habitats for their survival. On the other hand, the rising sea levels caused by climate change pose a significant threat to marine turtles, directly eroding nesting beaches and causing water inundation on the shores. These changes interfere with their reproductive potential and lead to a decrease in hatching success (Poloczanska et al., 2009).

2.4 Status of Marine Turtles in Tanzania

The status of marine turtles in Tanzania was first assessed in the 1970s when populations of all species were reported to be declining (Frazier and Rodgers, 1974). Although afforded complete protection under national legislation, marine turtle populations in mainland Tanzania continue to face threats from subsistence harvesting for meat and eggs, and incidental capture in fisheries (West, 2010). Tourism development leading to the destruction of nesting beaches is a major concern for marine turtle populations in Zanzibar (Bourjea et al. 2008). Since the early 1990s, several conservation and management initiatives have been implemented at all known green turtle nesting sites. However, information concerning the distribution and abundance of other marine turtle species, the location of breeding, developmental and foraging habitats and population dynamics is incomplete.

2.4.1 Species Distribution, Abundance and Behaviour

Green turtles

The green turtle is the most common nesting species in Tanzania. Between 450 - 500 green turtle nests are recorded annually in Tanzania (West, 2017), which is relatively low compared to other countries in the WIO region (van de Geer et al., 2022). Green turtle nesting activity occurs all year round, but most nesting occurs between March and September with a noticeable peak in April and May. Sporadic nesting activity takes place between October and February. The most concentrated nesting occurs in Mafia Island, and approximately 60% of those nests are laid at Juani Island, a tiny island on the south-east coast of Mafia (West et al., 2013). An annual mark-recapture tagging programme is conducted during the peak nesting months of April and May and has produced an annual nesting population estimate of 41 - 72 individuals.

Kigamboni District has the second highest green turtle nesting density in Tanzania (West, 2017). There are 19 nesting beaches spanning 45km of coastline. An annual mark-recapture programme is conducted at the most utilised nesting beaches and has produced a nesting population estimate of 33 – 59 individuals.

Maziwe Island in Pangani District supports a green turtle rookery of similar size to Kigamboni. In the mid-1970s, Maziwe Island was widely considered to be one of the most important nesting sites for green turtles in Tanzania and East Africa as a whole (van de Geer et al., 2022). In the 1980s, the island was submerged due to erosion and now exists as a shifting tidal sand bank on top of Maziwe reef (van de Geer et al., 2022). Green turtles continue to nest on the sand bar even though the nests are inundated during both spring and neap tides (Muir, 2005). Eggs are relocated to beaches in Ushongo village as part of a community-based marine turtle conservation programme.

Small numbers of nests are laid on beaches in Mnazi Bay - Ruvuma Estuary Marine Park (MBREMP), located in Mtwara Region at the southern tip of Tanzania's coastline bordering Mozambique. There are four main green turtle nesting beaches that are managed by MBREMP in collaboration with local communities.

Nesting also occurs sporadically in Mkinga, Mkuranga and Kilwa Districts although nesting density is very low in these areas (less than 10 nests per year). Green turtles are also known to nest in small numbers in the Zanzibar archipelago. The most important sites are Mnemba Island in Zanzibar and Misali Island in Pemba.

Tanzania supports extensive seagrass meadows which can support considerable numbers of green turtles. Seagrass meadows are found in abundance in sheltered areas of the coast around Moa in Tanga and tidal zones fronting the deltas of the Ruvu, Wami and Rufiji rivers, although the actual area covered by seagrass and the relative species densities have not been established in Tanzania. The extensive seagrass meadows off the southern Rufiji Delta including Mohoro Bay are reported by local fishers to be important foraging grounds for green turtles. In Mafia Island, immature and adult green turtles are seen regularly by recreational divers in Chole Bay and along the east coast of Juani Island where seagrasses occur.

Stranding records for juvenile green turtles exist from many coastal districts with curved carapace length (CCL) measurements as small as 18cm, indicating that Tanzanian waters support juvenile populations. However, the exact location and extent of green turtle developmental grounds are unknown.

Hawksbill turtles

Hawksbill turtle nest in Tanzania in low numbers, whereby the overall estimation is that fewer than 10 hawksbill clutches are laid in Tanzania per year (van de Geer et al., 2022). The nests are located on small islands including Juani Island in Mafia, the Songo

Songo Islands and Misali Island in Pemba. It is possible that some hawksbill nests go unrecorded if they are laid on islands without a nest monitoring programme.

Immature and adult hawksbill turtles are seen regularly by recreational divers in Chole Bay in Mafia Island and along the east coast of Juani Island where corals occur. In Mtwara, records of hawksbill sightings from dive surveys and questionnaire surveys indicate that important foraging habitats exist in Mnazi Bay and Msimbati (Guard et al. 1998; Muir, 2003). In Zanzibar, hawksbill turtles are regularly sighted by divers at Nungwi and the coral reefs around Mnemba Island.

Olive ridley turtles

The status of olive ridley turtles in the region remains largely unknown. Olive ridley turtles were observed nesting in Maziwe Island, Pangani District in the 1970s (van de Geer et al., 2022) but since the island submerged there have been no further nesting records for this species anywhere on the Tanzanian mainland or on offshore islands.

Loggerhead turtles

Loggerhead turtles do not nest in Tanzania but there are multiple records of loggerhead strandings, indicating that they forage in Tanzanian waters or pass through on migrations to nesting and foraging grounds elsewhere in the region. Between 2004 and 2019, 27 loggerhead strandings were recorded by community monitors (Sea Sense, unpublished data). Most records (n=25) were recorded in Kigamboni District and the Rufiji Delta.

Leatherback turtles

Leatherback turtles do not nest in Tanzania but strandings have been documented in Mafia Island and in Mtwara District. Four leatherbacks were captured in gillnets and drowned on the west coast of Mafia Island between 2001 and 2004 (Hamann et al.

2006). Community monitors recorded 12 leatherback strandings between 2008 and 2019, seven of which were in the Rufiji Delta (Sea Sense, unpublished data).

In September 2014, the central Tanzanian coast (Rufiji Delta – Mafia Island Seascape) became the first site in the Indian Ocean and South-East Asia region to be declared a 'Site of Regional Importance to Marine Turtles'. The declaration was made in Germany at a meeting of the Signatory States of the Indian Ocean South East Asian (IOSEA) Marine Turtle Memorandum of Understanding which comes under the umbrella of the Convention on Migratory Species.

The Rufiji Delta – Mafia Island Seascape provides strong ecological connectivity at a regional scale, linking marine turtle nesting sites, foraging grounds and migratory corridors. A green turtle satellite telemetry project, implemented by the South West Indian Ocean Fisheries Project (SWIOFP) to better understand the distribution, movements and habitat preferences of green turtles in the South West Indian Ocean (SWIO) region, identified the Rufiji – Mafia Seascape as one of only five regionals 'hot spots' for green turtle foraging activity and as an important migratory corridor for green turtles nesting elsewhere in the SWIO region (Bourjea et al. 2013).

Marine turtle stranding data indicates species richness of marine turtles in the Rufiji – Mafia Seascape and the site may be of regional foraging and migratory importance for species which are considered rare in the WIO region. Stranding data confirms the presence of three other marine turtle species in the Rufiji – Mafia Seascape: loggerhead, leatherback, and olive ridley (West, 2010). The Rufiji– Mafia Seascape is therefore of national significance because there are no other sites in Tanzania where all five species of marine turtle present in the Western Indian Ocean region have been recorded.

2.4.2 Threats to Marine Turtles in Tanzania

The major threats to marine turtles and their habitats in Tanzania are direct take of adults and their eggs; fisheries bycatch; disturbance of nesting beaches; degradation of foraging and breeding habitat; marine pollution; and climate change.

Direct Take of nesting females

Historically, direct take of nesting females was widespread in many coastal districts. However, the implementation of nest monitoring and protection programmes at all major nesting sites has reduced the harvesting of nesting females.

Despite these successes at nesting beaches, consumption of marine turtle meat is still common in many coastal communities. Marine turtles are captured at sea, usually as bycatch, although there are reports of targeted green turtle fisheries in Lindi District (West et al. 2016). Captured turtles are typically cut up at sea then brought to fish landing sites for sale, normally early in the morning or late in the evening to avoid detection. The meat is usually sold per kilo. Marine turtle meat has traditionally provided a valuable source of local income although some coastal people claim that they do not eat turtle meat because it is prohibited in the Koran. Meat of the green turtle is most favoured, while that of hawksbill is often avoided as it is known to be poisonous and can cause human fatalities when consumed (Bustard, 2016). Marine turtle products i.e., meat, oil, eggs, shell, skin and internal organs are believed to have medicinal properties and coastal people use them to treat a wide range of diseases.

The rapid growth of tourism in Zanzibar in the early 1990s created a new souvenir market for marine products such as jewellery made of hawksbill shells (known as tortoiseshell) and may have encouraged direct take of this species. Such souvenirs were sold in Zanzibar Stone Town and on the east coast of the island. The trade ceased following the collection and burning of 657 turtle products

from curio shops in 1995 (Khatib et al. 1996). However, anecdotal reports suggest that the trade in hawksbill products may have re-emerged and requires further investigation.

Harvesting of Eggs

Harvesting of marine turtle eggs has occurred in Tanzania for generations although the presence of community patrol teams on nesting beaches has been extremely successful at reducing this threat. During the first year of community based marine turtle monitoring in Mafia Island in 2001, 47% of recorded nests were harvested by local fishers. In 2002, the incidence of harvesting fell to 5% of nests. This can most likely be attributed to the implementation of a community nest protection incentive scheme and a public awareness campaign. Community members who find and report a nest are given a small financial incentive. Further payment is given for every egg that hatches successfully (total of approx $10 per nest). However, in some locations e.g., Lindi District, persistent harvesting of eggs, together with direct take of nesting females, has eliminated the nesting population (West et al. 2016).

Fisheries Bycatch

In Tanzania, the bycatch of marine turtles occurs mostly in set gillnets with extended soak times and the catches are used for food, income generation and fishing bait. Gillnets with a mesh size of 5 - 6 inches are used to target catfish, emperor fish, grouper, parrot fish and trevally. Gillnets with a mesh size of 10+ inches target sharks and rays (Berachi, 2003). Both types of gillnets pose a threat to all species and age classes of marine turtles in Tanzania (Thiagarajan, 1991) although nets with a larger mesh size pose a more serious threat. Little is known about the volume or composition of these catches at a national level due to the challenges of data collection in small scale fisheries. Marine turtles are either released at sea and go unreported or the turtle is landed

in secret, in which case accurate data are almost impossible for researchers to access.

It is generally accepted that the most accurate method to quantify bycatch rates involves using independent observers on board fishing vessels to record information on per-vessel fishing effort, target catch and bycatch (Moore et al. 2010). However, in developing countries this methodology is often cost prohibitive. More inexpensive survey techniques such as interviews with fishers, which can be implemented rapidly and at low cost, are considered ideal in areas where there is little or no information (Aragones et al. 1997). In 2007, a marine turtle bycatch survey was conducted at eight fish landing sites in five coastal districts (Muir and Ngatunga, 2007). The study estimated that the annual incidental catch of marine turtles in the artisanal gillnet fishery could be over 6,000 individuals. However, a study of marine turtle bycatch conducted in Kigamboni District in 2015 using onboard observers demonstrated that bycatch rates were several orders of magnitude higher than those reported by fishers during interviews (West & Mchomvu, 2016). Therefore, the threat from fisheries bycatch is likely to be the single biggest cause of marine turtle mortality in Tanzania.

Disturbance to Nesting Beaches

Loss of nesting beaches caused by tourism development is a major concern for marine turtle populations in Zanzibar (Bourjea et al. 2008). Many hotels have been built on former nesting beaches as a result, there has been a marked decline in turtle nesting in those areas. Kiwengwa beach on the northeast coast of Zanzibar, an important green turtle nesting beach, has been rendered totally unsuitable for nesting turtles as a direct result of hotel development. Natural beach vegetation has been cleared in many areas and beachfront shops and restaurants have been built. Tanzanian law requiring a 60m set back limit from the high spring tide mark is seldom enforced and plans for sensitive beach lighting

are rarely incorporated into mitigation measures. Disturbance from tourism is less of an issue along the mainland coast where the industry is less developed, although there are concerning signs that light pollution is increasing in Kigamboni District, which is affecting the distribution of nesting activity.

Degradation of Foraging and Breeding Habitats

Weak governance of the fisheries sector in Tanzania has contributed to the widespread use of illegal and destructive fishing gears, which threaten marine turtles by degrading critical foraging and breeding habitats. Until very recently (2017), the use of explosives for fishing was commonplace along much of the Tanzania coast and has reduced many coral reefs to rubble, causing the loss of food and shelter for marine turtles. The use of monofilament nets, beach seines and poisons is widespread, particularly at migrant fisher camps which, due to their remote location, are beyond the reach of most law enforcement authorities.

Marine Pollution

Less than half of the solid waste generated in Tanzania's urban areas is collected and as a result, a significant proportion of the waste is dumped in rivers and waterways, eventually ending up in the ocean. Plastic debris can injure and kill marine turtles and has the capacity to transport potentially harmful chemicals and pathogens.

In rural communities, human waste is a serious environmental and public health risk. Open defecation on beaches is very common and exposes people to harmful pathogens. Over 70% of all cases attended in health facilities in Tanzania are water and sanitation related and require families to spend significant sums on medicine, transportation and health facility fees and can mean lost work, income and productivity among working household members, thus

potentially driving fishers to use ever more intensive fishing practices that harm or degrade marine turtle habitats.

Climate Change

Marine turtles are particularly susceptible to the impacts of climate change due to rising sea temperatures that cause loss of foraging and breeding habitat and erosion of nesting beaches. Among the tropical oceans, the WIO has the largest warming trend in sea surface temperatures in the tropics during the past century (Roxy et al. 2016). Warming temperatures cause coral bleaching events, which have been well documented in Tanzania.

There have been no studies of incubation temperatures on nesting beaches in Tanzania and therefore, the impact of climate change on sex ratios of marine turtle hatchlings is unknown.

Natural Predation

Natural predators such as monitor lizards (*Varanus* spp), mongoose (*Herpestes javanicus*), honey badgers (*Mellivora capensis*), termites (Isoptera) and feral dogs (*Canis* spp) pose a significant threat to incubating turtle eggs. To reduce egg predation, high risk nests are moved to enclosed hatcheries, which has proven to be reasonably effective in deterring some predators. However, predation by ants (*Solenopsis* spp) remains an ongoing problem due to the ants' ability to establish underground trails to turtle nests (Buhlmann & Coffman, 2001).

Ghost crabs (*Ocypode* spp), Indian house crows (*Corvus splendens*) and other birds' prey on hatchlings as they emerge from the nest.

2.4.3 Challenges Facing Marine Turtle Conservation in Tanzania

Limited awareness amongst coastal communities

Exploitation of marine turtles and degradation of coastal habitats continues in some parts, due to poor understanding amongst coastal communities of the important role of marine turtles in the

wider marine ecosystem, which poses significant challenges to the development of effective conservation and management measures in Tanzania. Engaging key stakeholders in awareness and sensitisation activities can facilitate an understanding of the factors that influence decisions, particularly those related to participation in illegal activities which threaten marine turtles and degrade their habitats. Understanding incentives and choices may also help to target awareness strategies more effectively.

Weak law enforcement

Marine turtles and their habitats are protected by national fisheries legislation in Tanzania. However, authorities that have the mandate to enforce such laws are often unaware of the relevant legislation and associated penalties for harming marine turtles and/or their habitats. Effective law enforcement is also hampered by the remoteness of many coastal communities and the fact that illegal take of marine turtles usually occurs at sea and is difficult to detect.

Knowledge Gaps

Marine turtle research, monitoring and conservation programmes in Tanzania have focused on nesting females. Annual tagging programmes are starting to generate information on important reproductive parameters including clutch frequency and remigration intervals, which enable estimates of nesting population size, but there are still important gaps in knowledge on recruitment and survivorship in the nesting population. There also remains a paucity of data on life history stages spent at sea including juvenile and sub-adult stages as well as the movements and behaviour of male turtles.

Collection of mortality data from stranded specimens on beaches is widespread due to ease of accessibility. If stranded specimens show signs of injury, it is possible to determine likely cause of death. Marine turtles often strand in the vicinity of migratory

corridors and foraging grounds, so it is also possible to identify areas of high risk to marine turtles. However, the extent of risk from threats such as fisheries bycatch and direct take cannot be properly understood without more detailed information on population sizes, which must be based on estimations of all segments of the population, not just nesting populations.

In addition, the location and quality of marine turtle foraging grounds is not well understood. The distribution and structure of seagrass meadows has not been systematically mapped in Tanzania, so information on important foraging grounds of green turtles, Tanzania's most common species, remains patchy.

Inadequate data sharing

Inadequate data sharing has been a critical challenge, hindering informed decision-making for the responsible conservation and management of these vulnerable species. Furthermore, the absence of standardized protocols and reliable shared platforms hinders coordinated data sharing among organizations and government agencies.

Low prioritization of marine wildlife in national policies and legislations

The limited emphasis on marine wildlife in national policies and legislations poses a significant challenge to effective conservation, protection and management of endangered marine animals including marine turtles. The low prioritization is manifested through inadequate allocation of resources, attention and regulatory measures as compared to terrestrial wildlife.

Institutional capacity and coordination

There is weak institutional capacity in Tanzania to conserve and manage marine turtles, which has resulted in reliance on non-state actors to conduct research, implement conservation actions, lead capacity building programmes and raise funds for these activities.

Furthermore, there are multiple ministries with a mandate for marine turtle conservation and management including the Ministry of Livestock and Fisheries and the Ministry of Natural Resources and Tourism. However, inter-ministerial collaboration on issues pertaining to marine turtles is not well coordinated. For example, the position of Focal Point for the IOSEA Marine Turtle MoU is housed within the Ministry of Livestock and Fisheries, whereas the Focal Points for the CMS and CITES are based within the Ministry of Natural Resources and Tourism, which creates challenges for information sharing.

Due to the fact conservation areas fall within territorial sea jurisdictions, which are not governed at the union level, separate governance and legal frameworks exist between Mainland Tanzania and Zanzibar. Consequently, this can result in weak coordination and impede marine turtle conservation activities.

CHAPTER THREE

3. GOVERNANCE, INSTITUTIONAL AND LEGAL FRAMEWORKS FOR CONSERVATION OF MARINE TURTLE

3.1 Governance Overview and Arrangements

The successful implementation of the National Action Plan for Marine Turtles (NAPCMT) requires robust multisectoral coordination and active engagement of stakeholders both within the marine sector and across other relevant sectors. Additionally, effective governance and comprehensive coordination will ensure better progress towards the implementation of the NAPCMT and achieve the desired outcomes and targets set in the plan.

Considering that the conservation of marine turtles is not a union matter, it is implemented under two distinct institutional arrangements in Tanzania. In Mainland Tanzania, the Ministry of Livestock and Fisheries (Fisheries Division) holds responsibility for marine turtle conservation. They work towards enforcing regulations and managing the conservation efforts within the Marine Protected Areas (MPAs), which are crucial habitats for marine turtles. The management of these MPAs is overseen by the Marine Parks and Reserves Unit (MPRU). On the other hand, in the context of Zanzibar, the Ministry of Blue Economy and Fisheries, specifically the Department of Marine Conservation (DMC), is responsible for the conservation of marine turtles. The DMC is mandated to protect all designated marine conservation areas, including those of significant importance for marine turtle conservation.

Both ministries play a vital role in enforcing laws and regulations to safeguard and conserve marine turtles and their habitats, ensuring their long-term survival. The coordinated efforts of these institutions are key to achieving the objectives set forth in the

NAPCMT and ensuring effective conservation of marine turtles in Tanzania.

3.2 Policy and Legal Frameworks

Marine turtles are protected by a multitude of national, regional, and international laws, conventions, and agreements. Such frameworks have been deemed necessary due to the global distribution and migratory behaviour of marine turtles. During their lifecycle, marine turtles inhabit multiple geo-political jurisdictions, each with different levels of commitment to and capacity for marine turtle conservation (Havice et al. 2018).

3.1 Global and Regional Frameworks

Tanzania has signalled its intent and commitments by participating in several regional and international agreements and conventions especially those related to natural resource management including marine turtle conservation. These frameworks serve as important guidelines and agreements that recognize the significance of protecting these vulnerable species and their habitats. By promoting awareness, implementing conservation measures, and fostering collaboration among nations, these frameworks contribute to the sustainable conservation and management of marine turtle populations, ensuring their survival for future generations.

Convention on Biological Diversity (1992)

The CBD promotes the conservation and sustainable use of biodiversity, including marine turtles. It provides a framework for countries to develop strategies and measures to protect and conserve marine turtle habitats and populations. Strategic statement: Develop and implement biodiversity conservation strategies and action plans that specifically address the conservation needs of marine turtles in line with CBD objectives. The United Republic of Tanzania ratified the United Nations

Convention on Biological Diversity in March 1996. Signatory states are required to develop strategies or programmes that integrate conservation and sustainable use of biodiversity into sectoral or cross-sectoral plans or policies.

Convention on Migratory Species of Wild Animals (CMS)

The CMS also known as the Bonn Convention was signed in 1979 in Bonn and entered into force in 1983, Tanzania is a contracting party to this convention. The convention aims to conserve terrestrial, marine and avian migratory species throughout their range. It is an intergovernmental treaty, concluded under the guidance of the United Nations Environment Programme (UNEP), concerned with the conservation of wildlife and habitats on a global scale.

The migratory species that have been categorized as being in danger of extinction throughout all or a significant proportion of their range are listed on Appendix I of the convention and migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation organized by tailored agreements are listed in Appendix II to the convention.

The Convention on Migratory Species (CMS) is an environmental treaty of the United Nations, which provides a global platform for the conservation and sustainable use of migratory animals and their habitats. Tanzania ratified the CMS in July 1999. The convention brings together the States through which migratory animals pass, providing a legal foundation for internationally coordinated conservation measures throughout a migratory range.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES regulates international trade in endangered species, including marine turtles and their products. It supports the

conservation and sustainable use of marine turtle populations by controlling and monitoring international trade. Strategic statement: Ensure compliance with CITES regulations to prevent illegal trade in marine turtles and their products and promote sustainable use of marine turtle resources.

IOSEA Memorandum of Understanding

The Indian Ocean South-East Asia (IOSEA) Marine Turtle Memorandum of Understanding (MoU) is a regional agreement which was established under the auspices of the Convention on Migratory Species (CMS). It aims to protect, conserve, replenish and recover marine turtles and their habitats, based on the best scientific evidence, considering the environmental, socio-economic and cultural characteristics of the signatory States. To achieve this objective, a Conservation and Management Plan (CMP) has been instituted, fostering collaboration among signatory states within the Indian Ocean and South-East Asian region, as well as other range states. In recognition of the global importance of marine turtles, the Government of the United Republic of Tanzania became a signatory state to the Indian Ocean South East Asia (IOSEA) Marine Turtle Memorandum of Understanding (MoU) in 2001. As a signatory state, Tanzania is committed to implementing the activities outlined in the Conservation and Management Plan (CMP) of the IOSEA Marine Turtle MoU.

Western Indian Ocean Marine Turtle Task Force

The Western Indian Ocean Marine Turtle Task Force (WIO-MTTF) was formally established in 2007 under the Nairobi Convention, in partnership with the IOSEA Marine Turtle MoU. It functions as a technical committee, bringing together stakeholders with a wide range of expertise in both scientific and management aspects. The WIO-MTTF was set as a joint initiative of the IOSEA Marine Turtle MoU and the Nairobi Convention. It promotes implementation of

the IOSEA Marine Turtle MOU and its integral Conservation and Management Plan (CMP) in the WIO region.

Nairobi Convention

The Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region signed in Nairobi on 21 June 1985, as amended and renamed "the Amended Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean" on the 31 March 2010.Tanzania is a contracting party to this convention. The Nairobi Convention provides a mechanism for regional cooperation, coordination and collaborative actions, and enables the Contracting Parties to harness resources and expertise from a wide range of stakeholders and interest groups towards solving interlinked problems of the coastal and marine environment.

United Nations Convention on the Law of the Sea, UNCLOS (1982)

United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982. It come in force since 16 November 1994, UNCLOS (1982) article 194 wording "the measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life".

Ramsar Convention

Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1971, also known as Ramsar. The Ramsar convention was established on 2 February 1971 came into force 21 December 1975.Tanzania is a contracting party to this convention. "The Ramsar convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources". Ramsar is not affiliated with the UN system of

Multilateral Environmental Agreements (MEAs), however, it works hand in hand with MEAs and Ramsar is an associated with *"biodiversity-related cluster"* of treaties and agreements. The Ramsar Convention is the only global environmental treaty which works particularly in ecosystem, and it works with Member State all over the world. Ramsar site account for critical eg Criteria to supports vulnerable, endangered, or critically endangered species or threatened ecological communities and supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region."

3.2 National Policies and Legal Frameworks

Marine turtles are of major conservation concern in Tanzania and are therefore afforded complete protection under National Fisheries Policy and associated legislation.

National Fisheries Policies

There are several national policies that direct support the conservation of marine turtles. The policies call for the government to strategically participate in the management, protection and control of fisheries resources; and the conservation of aquatic biodiversity, fisheries and aquaculture productivity, and ecosystem processes. The policies include;

- National Fisheries Policy 2015 (mainland Tanzania)
- Zanzibar Fisheries Sector Policy, 2022

National Legislations

National acts play important role in the conservation of marine turtles. These Acts provide the legal framework for the protection and conservation of all aquatic flora and fauna including marine turtles. Notably, among these acts are those related to fisheries, marine protected areas (MPAs), and environmental regulations. The Fisheries Acts address critical issues such as fisheries

management and bycatch, helping minimize the accidental capture of marine turtles in fishing activities. The Marine Parks and Reserves Act establishes protected areas where marine turtles find sanctuary and safeguard their habitats from unsustainable activities.

The Environmental Management Acts, play a significant role in the protection of coastal and marine environments. They provide comprehensive environmental protection strategies such as reinforcing measures against pollution, habitat degradation, and unsustainable practices that can adversely impact marine turtle habitats and populations.

- The Fisheries Act No. 22 of 2003 (mainland Tanzania)
- Zanzibar Fisheries Act No. 7 of 2010
- Deep Sea Fisheries Management and Development Act No. 5 of 2020
- The Marine Parks and Reserves Act No. 29 of 1994 (mainland Tanzania)
- Environmental Management Act No 20 of 2004 (mainland Tanzania)
- Zanzibar Environmental Management Act No. 3 of 2015
- Tanzania Fisheries Research Institute Act No 11 of 2016
- Wildlife Conservation Act No 5 of 2009

Other frameworks

These instruments that support marine turtle conservation include:

- Fisheries Master Plan 2021/22 – 2036/37 (mainland Tanzania)
- National Environmental Master Plan for Strategic Interventions 2022 – 2032

- National Biodiversity Strategy and Action Plan 2015 - 2020
- Zanzibar Fisheries Master Plan 2023 - 2038
- NPoA for implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the context of food security and poverty eradication (SSF guidelines)
- The Post-2020 Global Biodiversity Framework
- United Nations Framework Convention on Climate Change

3.3 Current Implementation and Coordination Framework in Relation to Marine Turtle Conservation in Tanzania

As of 2023, the conservation framework for marine turtles in Tanzania is a collaborative approach that involves multi-sectoral, multi-stakeholder, policies and initiatives. There are several national and international legal frameworks, agreements and arrangements which support conservation of marine turtles. At the forefront of these frameworks are government agencies such as the Marine parks and reserves unit which is the Focal Point for the Indian Ocean South-East Asia Marine Turtle Memorandum of Understanding, and the Ministry of Natural Resources and Tourism which is the Focal Point for CITES and CMS. Other government authorities which play critical roles include the Ministry of Blue Economy and Fisheries – Department of Marine Conservation (Zanzibar), the Ministry of Livestock and Fisheries – Fisheries Resource Protection Section (mainland Tanzania), Research and academic institutions, Local Government Authorities and the Deep-Sea Fishing Authority. These entities are responsible for policies and legislation development, enforcement and education.

Also, Non-Government Organizations and private sectors such as hotels and diving centres contribute through direct and indirect engagement in conservation efforts of marine turtles such as community awareness, data collection, nesting beach protection and restoration of critical habitats.

At the grassroots level, there is the active engagement of local coastal communities. Local coastal communities are involved through community awareness and education campaigns and other activities which support conservation of marine turtles.

CHAPTER FOUR

4. THE NATIONAL ACTION PLAN

4.1 Strategic Objectives and Outcomes

The desired change for the NAPCMT is that all threats, barriers and challenges for marine turtles in Tanzania are addressed and leading to the long-term conservation of marine turtles and the health of their habitats. In order to achieve marine turtle conservation and management goals, a total of seven strategic objectives and seven strategic outcomes have been defined as follows.

4.1.1 Strategic Objectives

- Reducing direct and indirect causes of marine turtle mortality
- Reducing threats to critical marine turtle habitats
- Promote information and education programmes
- Strengthening enforcement of existing legal frameworks that protect marine turtles and their habitats
- Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats
- Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles
- Strengthen existing policies and legislations to provide for responsible marine turtle conservation

4.1.2 Strategic Outcomes

- Decreased mortality rates among marine turtles due to targeted interventions aimed at reducing human-induced threats such as bycatch, illegal trade, pollution, and habitat destruction.
- Improved protection and restoration of critical marine turtle habitats through the implementation of conservation measures,

habitat management plans, and sustainable coastal development practices, resulting in enhanced nesting and foraging habitats for marine turtles.

- Increased awareness, understanding, and engagement of local communities, stakeholders, and the general public regarding marine turtle conservation through comprehensive information and education programs.
- Enhanced enforcement and compliance with existing legal frameworks related to marine turtle conservation, leading to a reduction in illegal activities such as direct take of turtle and their eggs, trade and consumption, and destructive fishing practices.
- Improved understanding of marine turtle population dynamics, behaviour, migration patterns, and the impacts of threats through comprehensive research and monitoring programs. This knowledge enables evidence-based conservation strategies, adaptive management, and targeted interventions to mitigate threats and support the long-term survival of marine turtle populations.
- Improved collaboration and communication among institutions, including enhanced data sharing
- Enhanced policies and legislations that effectively support responsible marine turtle conservation and management

4.2 Conservation and Management Measures

This section outlines a comprehensive framework for stakeholders, policymakers, and conservation practitioners to guide their efforts towards the effective conservation and management of marine turtles and their critical habitats. The plan recognizes the critical need to address the various threats and challenges faced by marine turtles and provides a strategic approach to mitigate their impacts. In Table 1, the specific management actions are presented,

providing a clear roadmap for implementation. Each action is accompanied by defined objectives, strategic interventions, activities, responsible stakeholders, priorities and timelines.

Table 1: Conservation and Management Actions

Objective 1: Reduce direct and indirect causes of marine turtle mortality		**Timeframe**					
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Yr 1**	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**
1.1 Eliminate direct take of nesting females	1. Enforce laws prohibiting direct take	MPRU, DMC, LGAs, Marine Police, village councils					
	2. Conduct beach patrols and other MCS activities	MLF, MPRU, DMC, Marine Police, LGAs, VLCs/BMUs/SFCs					
	3. Establish marine turtle ecotourism initiatives	MLF, MPRU, DMC, LGAs, VLCs/BMUs/SFCs					
1.2 Eliminate egg harvesting by humans	1. Relocate high risk nests to a safer area	NGOs, community rangers, VLCs/BMUs/SFCs					
	2. Enforce laws prohibiting egg harvesting	MPRU, DMC, LGAs, Marine Police, village councils, VLCs/BMUs/SFCs					
	3. Conduct beach patrols and other MCS activities	MLF, MPRU, DMC, LGAs, Marine Police,					

		VLCs/BMUs/SFCs					
1.3 Implement measures to reduce egg predation by animals	1. Relocate high risk nests to safer area	NGOs, community rangers, VLCs/BMUs/SFCs					
1.4 Mitigate impacts of tidal inundation on nests	1. Relocate high risk nests to safer area with less inundation effect on turtle nest	NGOs, community rangers, VLCs/BMUs/ SFCs					
1.5 Reduce by-catch in fisheries	1. Regulate fishing activities at turtle hotspots e.g., gear restrictions, number of vessels and temporal closure during peak seasons	MLF, MPRU, DMC, LGAs, BMUs/VLCs, SFCs					
	2. Adopt and enforce the use of Turtle Excluder Devices in Tanzania	MLF, MoBEF, DSFA					
	3. Strengthen observer programme in semi-industrial and industrial fisheries	MLF, MoBEF, DSFA					
	4. Identify high-risk areas for marine turtles	MLF, MoBEF, DSFA					
	5. Enforce collection and	MLF, MOBEF,					

	submission of data on marine turtle bycatch in semi-industrial and industrial fisheries	LGAs, DSFA, NGOs, BMUs/VLCs/SFCs					
1.6 Eliminate targeted turtle fisheries	1. Behavioural change programme on risks associated with marine turtle consumption and awareness to coastal communities on the importance of marine turtle conservation	MLF, MoBEF, MPRU, DMC, DSFA, LGAs, NGOs, BMUs/VLCs, SFCs, Community					
	2. Conduct beach patrols and other MCS activities	MLF, MoBEF, MPRU, DMC, LGAs, DSFA, Marine Police, KMKM, BMUs/VLCs, SFCs					
	3. Conduct inspections at fish landing sites and migrant fisher camps	MLF, MoBEF, MPRU, DMC, LGAs, BMUs/VLCs/SFCs					
	4. Enforce fisheries laws and penalties	MLF, MoBEF, MPRU, DMC, LGAs, DSFA, BMUs/VLCs/SFCs					
	5. Collaborate with coastal communities for alternative livelihoods	NGO, MLF, MoBEF, BMUs/VLCs/SFCs					

1.7 Eliminate trade and consumption of turtle products	1. Raise awareness to the public of the importance of marine turtle conservation	MPRU, DMC, DSFA, LGAs, NGOs, BMUs/VLCs/SFCs, community					
	2. Enforce laws and penalties on trade and consumption	MPRU, DMC, LGAs, Marine Police, village councils					
	3. Conduct beach patrols and other MCS activities	MLF, MoBEF, MPRU, DMC, LGAs, Marine Police, BMUs/VLCs/SFCs					
	4. Conduct inspections at fish landing sites and migrant fisher camps	MLF, MPRU, LGAs, BMUs/VLCs/SFCs					
1.8 Reduce threats from marine debris	1. Collaborate with relevant agencies to practice and raise awareness to the public on the importance of good waste management practices	MPRU, DMC, LGAs, NEMC, ZEMA, NGOs, fishing companies, Community					
	2. Regulate disposal of unused fishing gears	MLF, MoBEF, MPRU, DMC, LGAs, VLCs/BMUs/SFCs					

	3. Conduct regular beach clean-up activities	NGOs, LGAs, BMUs, BMUs/VLCs/SFCs, Community, private sector					
	4. Strengthen district waste management plans	LGAs, districts, private sectro, ward and village councils					
	5. Collaborate with private sector to implement and support waste management plans	Private sector, NEMC, ZEMA, LGAs, districts, ward and village councils					
Objective 2: Reduce threats to critical marine turtle habitats							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
2.1 Identify and conserve nesting sites	1. Conduct surveys to identify important nesting beaches	Academic/Research Institutes, LGAs, NGOs, BMUs/VLCs/SFCs					
	2. Establish protected areas and conservation zones	MPRU, TFS, Forest Department, DMC, MLF, MoBEF, NEMC, LGAs, BMUs/VLCs/SFCs					
	3. Implement measures to	MPRU, TFS, Forest					

	prevent beach erosion including restoration of critical seagrass, mangrove and coral reef habitats, native plant species	Department, DMC, LGAs, Community, private sector					
2.2 Manage and regulate coastal development	1. Ensure Environmental Impact Assessments/ Environmental Protection Plan (EPP) consider marine biodiversity	NEMC, ZEMA, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, TFS					
	2. Enforce setback regulations for coastal construction	NEMC, ZEMA, LGAs, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, Tourism bodies, Ministry of Lands, Housing and Human Settlements					
	3. Monitor the implementation of mitigation strategies in response to EIAs	NEMC, ZEMA, LGAs, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, Tourism bodies, Ministry of Lands, Housing and Human Settlements					

	4. Promote implementation of Marine Spatial Planning	VPO, MPRU, TFS, Forest Department, DMC, MLF, MoBEF, NEMC, ZEMA, LGAs, NGOs, private sector, National Land Use Planning Commission (NLUPC)					
3 Minimize human disturbance on nesting beaches	1. Formulate local bylaws to regulate the use of motorbikes and bright lights on nesting beaches	LGAs, village councils, BMUs/VLCs/SFCs					
	2. Prohibit the establishment of migrant fisher camps on turtle nesting beaches	LGAs, BMUs/VLCs/SFCs, village councils					
	3. Formulate village land use plans to avoid human encroachment onto turtle nesting beaches	LGAs, BMUs/VLCs/SFCs, village councils, NGOs					
	4. To prohibit sand mining in areas of sea turtle nesting sites	LGAs, NEMC, ZEMA, village councils, BMUs/VLCs/SFCs					
2.4 Address solid waste	1. Provide and manage waste management	LGAs, private sector, NGOs					

pollution on nesting beaches	facilities in urban and rural communities						
	2. Formulate local bylaws to prohibit open defecation on beaches	LGAs, BMUs/VLCs/SFCs, village councils					
	3. Organize regular beach clean-up campaigns	NGOs, LGA, BMUs/VLCs/SFCs, Private sector, Academic institutions, Community					
2.5 Reduce light pollution on nesting beaches	1. Conduct awareness campaigns on the impacts of light pollution and to reduce light intensity	NGOs, private sector investors, LGAs, MPRUs, DMC, Community					
	2. Ensure adequate consideration of light pollution in Environmental Impact Assessments	NEMC, ZEMA, LGAs					
	3. Monitor the implementation of mitigation strategies in response to EIAs	NEMC, ZEMA, LGAs					
2.6 Reduce pollution at sea	1. Enforce laws on pollution, industrial and agricultural discharges etc.	NEMC, ZEMA, TPA, ZPC, ZMA, TASAC, MPRU, DMC, LGAs					
	2. Monitor intentional	NEMC, ZEMA,					

	discharge of wastes such as ballast water, oil spills, chemicals, solid wastes at sea etc.	TPA, ZPC, ZEMA, TASAC, MPRU, DMC, LGAs					
2.7 Implement measures to protect and restore critical habitats; seagrass meadows, coral reefs and Mangroves	1. Raise awareness in coastal communities of the importance of sustainable resource use	MPRU, DMC, LGAs, NGOs, Community					
	2. Enforce laws prohibiting the use of destructive fishing gear e.g., beach seines	MLF, MoBEF, MPRU, TFS, Forest Department, DMC, Marine Police, LGAs, BMUs/VLCs/SFCs, village councils					
	3. Conduct beach patrols and other MCS activities	MLF, MoBEF, MPRU, TFS, Forest Department, DMC, Marine Police, LGAs, BMUs/VLCs/SFCs					
	4. Enforce laws on pollution, industrial, domestic and agricultural discharges etc.	NEMC, TPA, ZPC, ZMA, TASAC, LGAs					
	5. Implement seagrass, mangrove and coral reef restoration and monitoring programmes	Academic/research institutions, TFS, Forest Department,					

		NGOs, Community, schools, private sector					
Objective 3: Promote information and education programmes							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
3.1 Develop educational materials and resources	1. Conduct an inventory of existing marine turtle education and awareness materials available in Tanzania and the wider WIO region	MPRU, DMC, MLF, MoBEF, LGAs, Research and Academic Institutions, NGOs					
	2. Develop and adapt marine turtle education and awareness resources from other regions.	MPRU, DMC, MLF, MoBEF, LGAs, Research and Academic Institutions, NGOs					
3.2 Develop and conduct focused education and awareness campaigns	1. Design and implement targeted stakeholder education and awareness programmes using innovative and creative tools	MPRU, DMC, MLF, MoBEF, LGAs, Research and Academic Institutions, NGOs					
	2. Organize workshops, seminars, and awareness sessions to target stakeholders e.g., policy-makers, law enforcers,	MPRU, DMC, MLF, MoBEF, NGOs, LGAs					

	coastal communities						
	3. Engage with schools and educational institutions to conduct education and awareness campaigns	MPRU, DMC, MLF, MoBEF, LGA, NGOs, Academic institutions					
	4. Advocate for the inclusion of marine turtle biology and marine conservation issues into school curricula	MPRU, DMC, MLF, MoBEF, Ministry of Education and Vocational Training,					
	5. Evaluate the effectiveness of education and awareness programmes	MPRU, DMC, MLF, MoBEF, NGOs, LGAs					
	6. Organise annual celebrations on World Sea Turtle Day (June 16th)	MPRU, DMC, MLF, MoBEF, NGOs, Private sector					
Objective 4: Strengthen enforcement of existing legal frameworks							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
4.1 Enhance enforcement capacity and training programs for law enforcement agencies	1. Conduct workshops and seminars for law enforcers and judicial on marine turtle conservation laws and regulations	MLF, MoBEF, MPRU, DMC, LGAs, NGOs					
	2. Conduct capacity building programs for VLCs, BMUs, SFCs on marine	MLF, MoBEF, MPRU, DMC,					

	turtle conservation laws and regulations	LGAs, NGOs					
	3. Establish a community-based monitoring network within coastal communities	MLF, MoBEF, MPRU, DMC, LGAs, NGOs					
Objective 5: Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
5.1 Assess and monitor nesting activity	1. Implement a nest monitoring and protection programme	1. Academic/research Institutions, NGOs					
	2. Conduct population assessments to determine reproductive behaviour	2. NGOs, MPRU, DMC, LGAs, BMUs/VLCs, SFCs					
5.2 Improve understanding of in water life cycle phases	1. Deploy satellite tracking devices to monitor turtle migratory behaviour	1. Academic/research institutes, MPRU, DMC, NGOs					
	2. Identify the location of key foraging	2. Academic/research institutes, MPRU, DMC, NGOs					

	3. Conduct studies on habitat utilization	3. Academic/research institutes, MPRU, DMC, NGOs						
5.3 Promote Research programme with specific thematic areas on marine turtles	1. Recruit masters and PhD students to conduct research on marine turtles	1. Academic/research institutes, MPRU, DMC, NGOs						
	2. Secure funding for marine turtle research	2. Academic/research institutes, MPRU, DMC, NGOs						
	3. Conduct research on high-risk areas for marine turtles	3. Academic/research institutes, MPRU, DMC, NGOs						
5.4 Investigate socio-cultural values associated with marine turtles	1. Conduct socio-economic surveys to capture knowledge, attitude and practice within coastal communities	1. Academic/research institutes, MPRU, DMC, NGOs						
5.5 Improve knowledge	1. Develop accessible database system for real	1. MLF, MoBEF, MPRU, DMC,						

management on marine turtles	time data for marine turtles	NGOs					
	2. Support stakeholder participation in regional and international marine turtle meetings, conferences, workshops etc. Support information sharing at international forum	2. Academic/research institutes, MLF, MBEF, MPRU, DMC, NGOs					
	3. Publish data in peer reviewed journals	3. Academic/research institutes, NGOs					
	4. Promote marine turtle conservation efforts in Tanzania in TV, radio and print media, and on websites and social media platforms	4. MLF, MBEF, MPRU, DMC, NGOs					
Objective 6: Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
6.1 Enhance communication and coordination amongst	1. Establish a National Marine Turtle Conservation Committee	Director of Fisheries - MLF and MoBEF					
	2. Training and capacity building to Committee	Development Partners and					

national stakeholders	members	NGOs					
	3. Develop Annual implementation plans	Established Committee					
	4. Strengthen coordination and information sharing through participation of national focal points of related conventions in the proposed National Marine Turtle Conservation Committee						
	5. Convene national forums/Expos on the conservation of marine turtles						
6.2 Strengthen regional and international collaboration	1. Ensure participation in the Western Indian Ocean (WIO) Marine Turtle Task Force (MTTF) meeting	MLF, MoBEF, MPRU, Ministry of Natural Resources and Tourism					
	2. Ensure representation of Tanzania in regional and international conferences/symposiums/ expos on marine conservation	MPRU, DMC, MLF, MoBEF					
	3. Timely submission of IOSEA report to	MPRU, DMC, MLF, MoBEF					

	secretariate						
	4. Maintain strong communication with IOSEA secretariat	MLF, MoBEF, MPRU, Ministry of Natural Resources and Tourism					
Objective 7: Strengthen existing policies and legislations to provide for responsible marine turtle conservation							
Strategic Interventions	**Activities**	**Responsible stakeholders**	**Timeframe**				
7.1 Strengthen legislative frameworks	1. Conduct a comprehensive review of current frameworks to address gaps and propose necessary amendments	Central government, MPRU, DMC, LGAs, Academic/research institutions, NGOs					
	2. Conduct public awareness campaigns on the legal compliances and consequences	MPRU, DMC, MLF, MoBEF, LGAs, NGOs					
	3. Advocate for resource allocation to enforcement of marine wildlife legislation	MPRU, DMC, MLF, MoBEF, LGAs, NGOs					
	4. Formulate bylaws that protect marine turtles and their habitats	LGAs, BMUs/VLCs/SFCs, village councils, NGOs					

7.2 Mainstream marine turtle conservation issues into the national fisheries and biodiversity agenda	1. Develop policy briefs for informed decision making	NGOs, MPRU, DMC, MLF, MoBEF					
	2. Incorporate marine turtle conservation measures in district development management plans/legal frameworks	NGOs, MPRU, DMC, MLF, MoBEF					

4.3 Roles and Responsibilities of Key Stakeholders in the Implementation of NAPCMT

The successful development and implementation of the national action plan hinges upon the active involvement of diverse stakeholders. Through a thorough consultation process, key stakeholders were identified, recognized, and entrusted with vital roles and responsibilities during the execution of the action plan. The collaborative efforts of these stakeholders will play a critical role in turning the national action plan into tangible results.

Table 2: Summary of Roles and Responsibilities of Key Actors

Stakeholder	Roles and responsibilities
Relevant Ministries (MPRU under MLF, DMC under MoBEF, Vice President's Office Division of Environment)	* Development of action plans and strategies for marine turtle conservation; * Establishing and gazetting of new Marine Protected Areas; * Mobilizing funds to support conservation activities; * Enact and enforcement of laws and regulations; Operationalization of international conventions; Development of MoU for conservation of marine turtles; * Support and provide stakeholder coordination.
Local government Authorities (Regional, Municipal and District Government	* Support community education and awareness; * Support formulation and approval and implementation of by-laws; * Capacity building to BMUs and CFMAs staff, * Enforcement of the laws and regulations;

Offices	* Strengthen stakeholder engagement; * Collaborating with community members and NGOs in turtle monitoring and conservation; * Create committees at the Ward level for conservation of marine turtles; * To provide reports and information about actions threatening marine turtles.
Ward/Village councils	* Provide education and awareness raising; * To formulate, approve and implement by-laws to protect sea turtles; * Support law enforcement; * To monitor and protect nests; Conduct beach clean-up campaigns * Report cases that threaten marine turtles.
Coastal communities	* Hold the key responsibilities to ensure sustainable use of marine resources; Ensure the use of proper fishing techniques; Share information with the responsible authorities about threats to marine turtles such as poaching; * Comply with Acts and Regulations; Support enforcement of laws; * To support the government in conservation of marine turtles.
Sponsors e.g., USAID, WIOMSA, Development	* To provide funds to support marine conservation programs; * To support education and awareness;

Partners	* To support research and monitoring.
NGOs/ CSOs	* To provide capacity building to the communities; * To design projects that support alternative livelihoods for coastal communities to reduce dependence on hunting and killing of marine turtles; * To conduct research and coordinate conservation activities; * To provide funding and technical support; To support and collaborate with the government.
Private sector	* To provide funds to support conservation activities such as education and awareness programs; * To share data with the government; * To monitor and protect nesting beaches.
Research/academic institutions	* To conduct research and analyze data to support conservation and decision-making and disseminate findings; * To collaborate with stakeholders to provide education and awareness for the conservation of turtles;
National authorities e.g., DSFA, NEMC, ZEMA	* To provide guidelines, and enforce Laws and regulations related to marine and coastal management; * Review of regulations to align with the current global and national perspectives; * To provide education and awareness to the

	communities.
Religious leaders	* To provide education and awareness to the coastal communities
Law enforcement agencies	* Responsible for providing education and awareness raising to the communities about laws and regulations concerning marine resources; * Responsible for Law enforcement and conducting regular and joint patrols
National Marine Turtle Conservation Committee	* Responsible to oversee and coordinate the implementation of National Action Plan; * Solicit funds for conservation activities; * To review and evaluate the national action plan and existing conservation strategies.
International/ Regional bodies e.g., IUCN, WIOMSA, UN agencies	* Review of Conventions based on country perspectives; * To provide financial support for conservation of marine turtles; * Provide guidelines about the international vision on marine turtle conservation; Education and awareness raising; * keep supporting the government's efforts.

4.4 Swot Analysis for the NAPCMT

The SWOT analysis is a valuable strategic tool that provides an in-depth assessment of the internal strengths, weaknesses, as well as

external opportunities and threats associated with NAPCMT implementation. A SWOT analysis will allow us to gain a comprehensive understanding of the factors that can influence the success and impact of conservation efforts. By systematically examining the strengths, weaknesses, opportunities, and threats, we can identify areas of advantage, areas for improvement, potential avenues for growth, and potential risks or challenges that need to be addressed. The SWOT analysis serves as a foundation for informed decision-making, strategic planning, and the development of effective strategies to maximize the positive outcomes of the NAPCMT in conservation efforts while mitigating potential risks. It provides valuable insights for shaping the action plan and ensuring that it is aligned with the conservation goals, responsive to the internal and external context, and capable of overcoming challenges and leveraging opportunities.

4.4.1 SWOT Analysis

Table 3: Summary of Strengths, Weaknesses, Opportunities, and Threats for NAPCMT Implementation

STRENGTHS	WEAKNESSES
• Action plan developed on the basis of broad stakeholder participation and consensus • Diverse marine ecosystems in Tanzania, which provide habitats for a variety of marine turtle species • Commitment of the government of Tanzania to IOSEA MoU and to develop CMP for marine turtles	• Coordination and collaboration challenges in multisectoral approaches • Insufficient financial resources and limited equipment • Low prioritization of marine wildlife in national policy • Inadequate enforcement of existing regulations

• Existing legal frameworks that support marine turtle conservation and management. • Increased local community interest in actively contributing to marine turtle conservation initiatives.	• Limited data on marine turtle populations, migration patterns, critical nesting sites, and threats hinders the development of evidence-based conservation strategies. • Limited awareness and education among local communities and the general public about the importance of marine turtle conservation and the need to mitigate threats can impede conservation efforts. • Limited integration of climate change issues into sectoral policies
OPPORTUNITIES	**THREATS**
• Political good will and government commitment (IOSEA MoU) • Collaboration and partnerships: Engaging with national and international conservation organizations, government agencies, research institutions, and local communities can foster collaboration, knowledge	• Climate change impacts • Inadequate financial resources for implementation • Changing political climate • Migrant fishers

sharing, and resource mobilization. • Community-based conservation initiatives: Involving local communities in marine turtle conservation efforts through capacity building, alternative livelihood programs, and eco-tourism initiatives can enhance conservation outcomes. • Policy and legal reforms: Advocacy for stronger enforcement of existing regulations, as well as the review and amendment of policies and legislation, can provide a favourable legal framework for marine turtle protection. • Research and monitoring: Investing in scientific research and monitoring programs to fill data gaps and better understand marine turtle populations, migration patterns, behaviour, and threats to inform targeted conservation actions. • Public awareness campaigns:	

Implementing public awareness campaigns, educational programs, and outreach activities can raise awareness and foster a culture of marine turtle conservation among local communities, schools, and other stakeholders.	

CHAPTER FIVE

5 REVIEW, IMPLEMENTATION, MONITORING AND EVALUATION

5.1 Review of the National Action Plan

The NAPCMT will undergo an annual review conducted by the implementation committee to assess the progress, accomplishments, and challenges encountered throughout its implementation and update/amend the conservation and management actions, timelines and SWOT analysis respectively. This comprehensive review process will provide an opportunity to evaluate the alignment of actions with set goals and targets, identify areas in need of improvement, and capture valuable lessons learned. Key stakeholders, experts, and relevant authorities will be actively engaged in providing feedback, insights, and recommendations to refine the NAPCMT. Through this iterative process, the NAPCMT can be flexibly modified and adjusted to effectively address emerging issues, evolving priorities, and changing circumstances. By integrating a robust review mechanism, the NAPCMT ensures it remains responsive, accountable, and capable of delivering meaningful outcomes in the conservation of marine turtles and their habitats over the designated five-year period.

5.2 Monitoring and Evaluation

Monitoring and evaluation (M&E) are very important tool for assessing the progress of the NAPCMT in achieving the set targets and ensuring accountability and facilitating effective communication and fostering support from stakeholders. The M&E matrix established and will be used to measure the implementation effectiveness by tracking the general performance, outputs attained and the lesson learned during the implementation of the NAPCMT.

Monitoring will be undertaken on a continuous basis, while Evaluation of the implementation of the NAPCMT will be done annually and at the end of the action plan's duration. Annual evaluations are intended to assess performance and provide opportunity to reflect on the gaps and propose actions.

5.3 Recommendations on Effective Implementation of the NAPCMT

5.3.1 Proposed Implementation and Coordination Framework

The NAPCMT has been designed to ensure effective leadership, management, and coordination that adequately supports its implementation. The National Committee, consisting of representatives from both Mainland Tanzania and Zanzibar, should be established to provide oversight and coordination of activities outlined in the NAPCMT. The committee will be established by the recognized mandates as per government and ministerial framework and organograms arrangements from both Mainland Tanzania and Zanzibar.

5.3.2 Marine Wildlife Trust Fund

The effective implementation of the NAPCMT to ensure long-term conservation requires a sustainable source of funding. Therefore, establishing a dedicated Marine Wildlife Trust Fund to support conservation activities for endangered species, including marine turtles, would be a significant step towards ensuring their long-term survival and the protection of their habitats. Such a trust fund would provide a sustainable and reliable source of funding to support critical conservation initiatives and address the numerous threats and challenges faced by these vulnerable species. Moreover, it will ensure the implementation of long-term conservation strategies.

The fund could be supported through various mechanisms, including government allocations, private donations, grants, partnerships with conservation organizations, and revenue generated from eco-tourism.

The allocated funds from the Marine Wildlife Trust Fund shall be to facilitate and support marine wildlife conservation, inside and outside MPAs particularly in-

(a)Anti-poaching efforts and law enforcement;

(b) Habitat protection and restoration;

(c)Conservation education, outreach, and awareness raising programs;

(d) Scientific research and monitoring;

(e) Capacity-building and training for conservation practitioners, and

(f) any other activity related to conservation of Marine Wildlife.

5.3.3 Diversity, Equity and Inclusion

The National Action Plan for Conservation of Marine Turtles prioritizes gender equity and inclusivity as an important part of its implementation strategy. Recognizing the importance of diverse voices in ensuring sustainable conservation of marine turtles, this action plan is committed to fostering an inclusive environment where all stakeholders, irrespective of gender or social status, can actively participate and contribute. The approaches will include but not limited to:

- Capacity Building and awareness: Targeted training, workshops, and educational programs will be specifically tailored for women and youth, enhancing their knowledge and skills related to marine

turtle conservation. This approach will further encourage and increase their interest in marine turtle conservation efforts.

- Creating safe and equitable environments for participation, ensuring that all activities consider the specific needs and constraints faced by women and youth, including designing user-friendly schedules and transportation logistics, as well as considering social and cultural norms.

5.3.4. Reporting Plan

This sub-section details the Plan for internal and external reporting systems or approach which will be required through the implementation of the plan.

5.3.5. Internal Reporting Plan

This internal reporting plan will involve the preparation of various reports, including from committee to others stakeholders either weekly, monthly, Quarterly and Annual basis or as they are required from time to time. The Internal Reporting Plan is described below:

Table *4*: Internal Reporting Plans

S/NO.	REPORT ON THE STRATEGIC INTEREVETION	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
1.	Reducing direct and indirect causes of marine	Government Agency, NGOs and other	Quarterly Annually	CEO-MPRU & DMC

S/NO.	REPORT ON THE STRATEGIC INTEREVETION	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
	turtle mortality	stakeholders		
2.	Reducing threats to critical marine turtle habitats	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
3.	Promote information and education programmes	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
4.	Strengthening enforcement of existing legal frameworks that protect marine turtles and their habitats	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
5.	Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC

S/NO.	REPORT ON THE STRATEGIC INTEREVETION	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
6.	Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC
7.	Strengthen existing policies and legislations to provide for responsible marine turtle conservation	Government Agency, NGOs and other stakeholders	Quarterly Annually	CEO-MPRU & DMC

5.3.6. External Reporting Plan

This Plan contains reports that are used by various stakeholders, including PMO, CAG, OTR, Parliament, DPs, the General Public and the international community. The reports will be prepared on a quarterly and annual or demand basis from time to time. The reporting plan will be in accordance with the statutory requirements as directed from time to time, as well as the Government Performance reporting requirements. The external reporting plan is described as below**.**

Table *5*: External Reporting Plans

S/No.	TYPE OF REPORT	RECEPIENT	FREQUENCY	RESPONSIBLE PERSON
1.	Quarterly Progress Report	OTR /MLF /MoFP/ MoBEF	Quarterly	CEO-MPRU & DMC
2.	Mid-Year Review Report	OTR /MLF /MoFP/ MoBEF	Semi-Annually	CEO-MPRU & DMC
3.	Annual Progress Report	OTR /MLF /MoFP/MoBEF	Annually	CEO-MPRU & DMC
4.	Ruling Party Election Manifesto Implementation Report	OTR /MLF /MoFP	Annually	CEO-MPRU & DMC
5.	Annual Financial Statement	CAG, MoBEF,MLF	Annually	CEO-MPRU & DMC
6.	Performance Contract	OTR	Quarterly/Annually	CEO-MPRU & DMC
7.	Parliamentary Committees Reports	Parliament	Annually	CEO-MPRU & DMC

8	International reports	UN, regional secretariat and other international organizations	Quarterly/Annually	CEO-MPRU, DMC & Focal Point for CMS and CITES

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ANNEXES

Annex A: Monitoring and Evaluation Plan

Strategic Intervention	Key Performance Indicator	Definition of Key Performance Indicator	Baseline		Target					Means of Verification	Responsible stakeholder
			2024	Value	Y1	Y2	Y3	Y4	Y5		
1.1 Eliminate direct take of nesting females	% decrease in annual number of females harvested	Marine turtles that are coming to nest on beaches	5	%		2	1	1	1	Reports from monitoring programs. Reports from BMUs/CFMAs/SFCs Marine Frame Survey - MLF	MLF, MoBEF, MPRU, DMC, LGAs, NGOs, CBOs, VLCs, BMUs, SFCs, Marine Police, private sector, Village councils, Community

1.2 Eliminate egg harvesting by humans	% decrease in the annual number of nests harvested	Eggs from the sighted nests		%						Reports from monitoring programs. Reports from BMUs/CFMAs/SFCs	MLF, MoBEF, MPRU, DMC, LGAs, NGOs, CBOs, VLCs, BMUs, SFCs, Marine Police, village councils, private sector, Community
1.3 Implement measures to reduce egg predation by animals	% decrease in the annual number of nests predated	Sighted nests that are predated by animals such		%						Reports from monitoring programs. Reports from BMUs/CFM	NGOs, community rangers, VLCs, BMUs, SFCs, community rangers, MPRU, DMC,

										As/SFCs	MLF, MoBEF, LGAs, TAFIRI, ZAFIRI, Community
1.4 Mitigate impacts of tidal inundation on nests	% decrease in the annual number of nests inundated	Sighted nests that are covered by water during the spring tides		%						Reports from monitoring programs. Reports from BMUs/CFM As/SFCs	NGOs, BMUs, VLCs, SFCs
1.5 Reduce by-catch in fisheries	Decrease in the annual number of bycatch incidents in small scale fisheries Decrease in the	A bycatch is the unintentional capture of marine turtles during fishing activities A bycatch is the unintentional	6000 54	# #						Reports from the respective ministries	MLF, MOBEF, LGAs, DSFA, NGOs, BMUs, VLCs, SFCs

	annual number of bycatch incidents in industrial fisheries	capture of marine turtles during fishing activities									
1.6 Eliminate targeted turtle fisheries	Number of vessels targeting turtles Number of gear specific for turtles confiscated annually	Fishing vessels which specifically target marine turtles Fishing gears which specifically target marine turtles		# #						Reports BMUs/VLCs /SFCs	NGOs, BMUs, VLCs, SFCs, Community
1.7 Eliminate trade and consumption of turtle products	Number of cases reported annually Number of cases per year	Reports of incidents of consumption and trade of marine turtles Penalties issued for		# #						Reports from village councils, BMUs/VLCs /SFCs	LGAs, NGOs, BMUs, VLCs, SFCs, community

	where penalty issued	illegal fishing and trade of marine turtles									
1.8 Reduce threats from marine debris	Number of districts with waste management plans Number of BMU conducting cleaning Number of BMU with waste management plan	Districts implementing active waste management plans These are Beach Management Units actively conducting regular beach clean-up programs. Beach Management Units that have active waste management plans in place and are	15	# # # #						Reports from village councils, BMUs/VLCs /SFCs	LGAs, NGOs, BMUs, VLCs, SFCs, community

		implementing them.									
Objective 2: Reduce threats to critical marine turtle habitats											
2.1 Identify and conserve nesting sites	Number of hectares of suitable beach habitat available for nesting turtles Number of beaches incorporated in CFMAs	The total mapped area on the beach that has the potential for nesting These are beaches identified for nesting and incorporated into CFMAs plans	40	# #		3	3	3	3	Activity reports submitted at MPRU	Academic/Research Institutes, MPRU, DMC, LGAs, NGOs, BMUs, VLCs, SFCs
2.2 Manage and regulate coastal development	Number of EIA that consider marine turtle nesting habitat	Each Environmental Impact Assessments (EIA) that will take into consideration nesting habitats for marine turtles.	50	#	55	60	65	70	75	Survey reports submitted at MPRU	NEMC, ZEMA, MPRU, DMC, MLF, MoBEF, NGOs, BMUs, VLCs, SFCs, TFS,

											Forest department
2.3 Minimize human disturbance on nesting beaches	Number of bylaws Number of districts plans that incorporate measures to minimize human disturbance Percentage reduction in sand mining incidents	The bylaws formulated at the local level to control and manage the use of nesting beaches Each district that will have formulated guideline measures to control and manage the use of nesting beaches Extent to which the number of reported sand mining incidents has decreased over a		# # %	5 5	60	65	70	75	Survey reports submitted at MPRU	NEMC, ZEMA, MPRU, DMC, MLF, MoBEF, NGOs, BMUs, VLCs, SFCs

		specified period									
2.4 Address solid waste pollution on nesting beaches	Number of nesting beaches impacted by solid waste	The extent to which solid waste, such as litter, debris, or pollution, affects nesting beaches for marine turtles	15	#		9	5	1	0	Reports from MPRU, DMC, NGOs, BMUs/CFMAs/SFCs	NGOs, BMUs, VLCs, SFCs
2.5 Reduce light pollution on nesting beaches	Number of beaches with reduced light intensity	The total number of beaches where efforts have been made to lower light intensity		#						Survey reports submitted at MPRU	NEMC, ZEMA, LGAs, NGOs, private sector, Community
2.6 Reduce pollution at sea (reduces sources of pollution at sea) (reduce	Number of penalties issued in relation to pollution	These are penalties and fines imposed by relevant regulatory authorities or		#						Reports from MLF, MoBEF, DSFA, Ports authorities	MLF, MoBEF, DSFA, Ports authorities

marine pollution)	Decrease in number of sources of pollution	agencies in response to pollution incidents or activities This refers to the reduction in the total count of identified pollution sources within a specified area or ecosystem over a given period								Reports from Academic/ Research institutions , MPRU, DMC, NGOs	Academic/R esearch institutions, MPRU, DMC, NGOs
2.7 Implement measures to protect and restore critical habitats; seagrass meadows, coral reefs and	Number of hectares of critical habitats restored Number of hectares of critical habitats	The total area in hectares of restored critical habitats such as mangrove, sea grass and coral reef The total area in hectares of critical	0 0	ha ha						Reports submitted at MPRU	MPRU, DMC, LGAs, TFS, NGOs, BMUs, VLCs, SFCs, Community

Mangroves	under improved management	habitats with improved management									
Objective 3: Promote information and education programmes											
3.1 Develop educational materials and resources	Number and types of educational materials developed	These educational materials such as brochures, videos, posters, books etc produced to be used in awareness raising about marine turtles	TBD	#	100	100	100	100	100	Reports and materials developed in place and submitted at MPRU	MPRU, DMC, MLF, MoBEF, LGAs, Research/Academic Institutions, NGOs
3.2 Develop and conduct focused education and awareness programmes	Number of education and awareness activities implemented	This refers to the activities or programs conducted to promote education and raise awareness about marine	TBD	#	27	27	27	27	27	Reports from LGAs/BMUs/SFCs/VLCs submitted at MPRU	MPRU, DMC, MLF, MoBEF, LGAs, Research/Academic Institutions, NGOs

	Number of people reached (number of direct participants)	turtles These are individuals who directly engage or participate in education and awareness campaigns									
Objective 4: Strengthen enforcement of existing legal frameworks											
4.1 Enhance collaboration and coordination amongst law enforcement agencies	Number of workshops and meeting conducted Number of community members	These workshops are designed to enhance the awareness of law enforcement officers of the laws and regulations governing marine turtle conservation Individuals who	0 0	# #	4 1	4	4	4	4	Quarterly reports submitted at MPRU Agreement	MLF, MoBEF, MPRU, DMC, LGAs, NGOs

	reporting incidents Increased number of joint interventions	report incidents of violation of laws and regulations A joint intervention refers to a collaborative activity or effort undertaken to support the conservation of marine turtles.								submitted at MPRU	
Objective 5: Strengthen research and monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats											
5.1 Assess and monitor nesting activity	Number of districts with active monitoring programmes	The districts that have active marine turtle monitoring programs and are implementing them The studies	2 0	# #		1 1				Reports submitted at MPRU	Academic/research Institutions, NGOs, MPRU, DMC, LGAs, BMUs,

	Number of annual population assessments conducted	conducted to assess the population dynamics of marine turtles									VLCs, SFCs
5.2 Improve understanding of inwater life cycle phases	Number of studies conducted	Research/studies undertaken to elucidate the life cycle of marine turtles	0	#		1				Reports submitted at MPRU	Academic/research institutes, MPRU, DMC, NGOs
5.3 Promote Research programme with specific thematic areas on marine turtles	Number students undertaking research on marine turtles Funding secured	These are students who are engaged in research studies focused on marine turtles The funds that have been secured to support marine	0 0	# #			1 1			Number of reports and scientific articles Reports submitted at MPRU	Academic and Research Institutions

		turtle conservation efforts									
5.4 Investigate socio-cultural values associated with marine turtles	Number of surveys conducted	These are surveys conducted to understand the socio-economic values associated with marine turtles in coastal communities	0	#		1				Reports submitted at MPRU	Academic/research institutes, MPRU, DMC, NGOs
5.5 Improve knowledge management on marine turtles	Number of communication products Number of communication media	Communication products include a range of materials designed/produced to disseminate knowledge and raise awareness about marine turtle conservation and	0 0	# #	1	2	3	2 1		Publications Communication	Academic/research institutes, MLF, MBEF, MPRU, DMC, NGOs

	developed and upgraded	management Communication media refer to the various digital platforms and channels used for sharing and exchanging information regarding marine turtle conservation								platforms	
Objective 6: Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles											
6.1 Enhance communication and coordination amongst national stakeholders	National Marine Turtle Committee established	The National Marine Turtle Committee is an administrative body that will be established to	0	#	1					Report submitted at MPRU	MPRU, DMC, MLF, MoBEF Established

	Number of Committee meeting conducted Number of agreements developed Number of annual meetings conducted	oversee the implementation of the National Action Plan These are the operational meetings that the committee will convene during the implementation of the National Action Plan These are the official agreements or Memorandums of Understanding entered into between entities with the goal of collaborating on	0 0 0	# # # 	2 1 1	2 1	2 1	2 1	2 1	Meeting minutes and Reports Agreement submitted at MPRU Reports and minutes	committee Established committee Respective Focal points

		marine turtle conservation efforts These are the stakeholder meetings or forums that will be conducted during the implementation of the National Action Plan									
6.2 Strengthen regional and international collaboration	Number of regional and international forums attended	This refers to the forums held at both regional and international levels	0	#	1	1	1	1	1	Reports	MPRU, DMC, MLF, MoBEF
Objective 7: Strengthen existing policies and legislations to provide for responsible marine turtle conservation											
7.1 Strengthen legislative	Number of legal frameworks	This involves reviewing the existing legal	0	#		7				Revised legislation	MPRU, DMC, MLF, MoBEF

frameworks	reviewed Number of bylaws formulated	frameworks related to marine turtle conservation These are legal frameworks established and implemented by local communities to govern the conservation of marine turtles and their habitats	0	#	4	8	8	7		27 by-laws approved by LGAs (mainland Tanzania and Zanzibar)	LGAs, BMU/SFCs/VLCs
7.2 Mainstream marine turtle conservation issues into the national fisheries and biodiversity agenda	Number of sensitization meetings with national decision makers	These are meetings conducted to enhance the awareness of decision-makers, aiming to influence decision-making processes and	0 0	# #	1 1	1 2	1 2	1 2	1 2	Meeting reports Policy	MPRU, DMC, MLF, MoBEF

	Number of plans/legal frameworks that incorporated marine turtle conservation measures	strengthen law enforcement These refer to the plans and legal frameworks that have been developed to incorporate the conservation of marine turtles and their habitats into official policy and practice								briefs developed	

Annex B: List of individual contributors

No	Name	Position	Institution
1	Anthonia M. Mpemba	District Fisheries Officer	Bagamoyo District Council
2	Anthony Livinas Mbega	District Fisheries Officer	Mafia District Council
3	Ernest L. Kamata	District Fisheries Officer	Kigamboni Municipal Council
4	Ezra Ongoro katete	District Fisheries Officer	Mkinga District Council
5	Isike Zuberi	District Fisheries Officer	Mtwara Mikindani Municipal Council
6	Essao Timothy Ngongolowo	Municipal Fisheries Officer	Lindi Municipal Council
7	Rose Salema Mtui	Manager-Environmental Research Coordination	National Environmental Management Council
8	Magreth Mchome	Senior Marine Conservation Warden (DMRS)	Marine Parks and Reserves Unit

9	Humphrey Mahudi	Acting Warden in Charge	Tanga Coelacanth Marine Park
10	Malcom Ryen	Former Director at Fanjove Island Kilwa	Essential Destinations (Tourism Sector)
11	Bagaya A. Mbwana	District Fisheries Officer	Tanga City Council
12	Humphrey Tillya	District Fisheries Officer	Pangani District Council
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16	Ahmad Habibu Mkali	District Fisheries Officer	Kilwa District Council
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21	Hassan Libwala	District Fisheries Officer	Fisheries Education and Training Agency (FETA) - Mbegani campus
22	Anita Julius	Warden in Charge, DSM Marine Reserve System (DMRS)	Marine Parks & Reserve Unit
23	Amin M. Abdallah	Acting Warden in Charge	Mafia Island Marine Park (MPRU)
24	Ulli Kloiber	Conservation & Education Manager	Chumbe Island Coral Park (CHICOP)
25	Lucy Magembe	Country Director	The Nature Conservancy, Tanzania
26	Zephania Arnold	Fisheries Officer	WWF, Tanzania
27	Jerry Mang'ena	Executive Director	Aqua-Farms Organization

28	Frank Mirobo	General Secretary	Western Indian Ocean Early Career Scientists Network
29	John Chikomo	Executive Director	Journalists' Environmental Association of Tanzania (JET)
30	Jenifer Gilla	Environmental Journalist	Nipashe/ Environmental News
31	Danielle	Director	Mafia Island Diving
32	Abouzeid Ahmed	Dive Manager	Butiama Lodge/ Bigblu Dive Center
33	Peter Byrne	Managing Director	Kinasi Limited
34	Kenneth Malcomess	General Manager	Andbeyond Mnemba Island
35	Mgalula Masoud Lyobah	Principal Fisheries Officer	Tanzania Fishing Corporation
36	Omar Suleiman	Officer In Charge	MoBEF - Pemba
37	Juma Hamad Machano	Fisheries Officer	Department of Fisheries Development, MoBEF
38	Iddi Mohamed Ali	Fisheries Officer	Department of Fisheries and Conservation, MoBEF
39	Aly Mwalim Mahfoudh	District Fisheries Officer	MoBEF
40	Mohd M. Omar	District	MoBEF

		Fisheries Officer	
41	Shibli M Haji	Fisheries Officer	Department of Fisheries Development, MoBEF
42	Omar Mpango simai	District Fisheries Officer	MoBEF
43	Ali Juma Ali	District Fisheries Officer	Department of Fisheries Development, MoBEF
44	Said Shaib Said	Manager - Tumbatu Marine Conservation Area (TUMCA)	Department of Marine Conservation, MoBEF
45	Frank Vincent Sima	Principal Conservation Officer Mangroves Section	Tanzania Forest Services Agency
46	Julius Edward Salema	Marine Environmental Officer	Tanzania Ports Authority
47	Martha Kaombwe	Environmental Officer	Tanzania Ports Authority

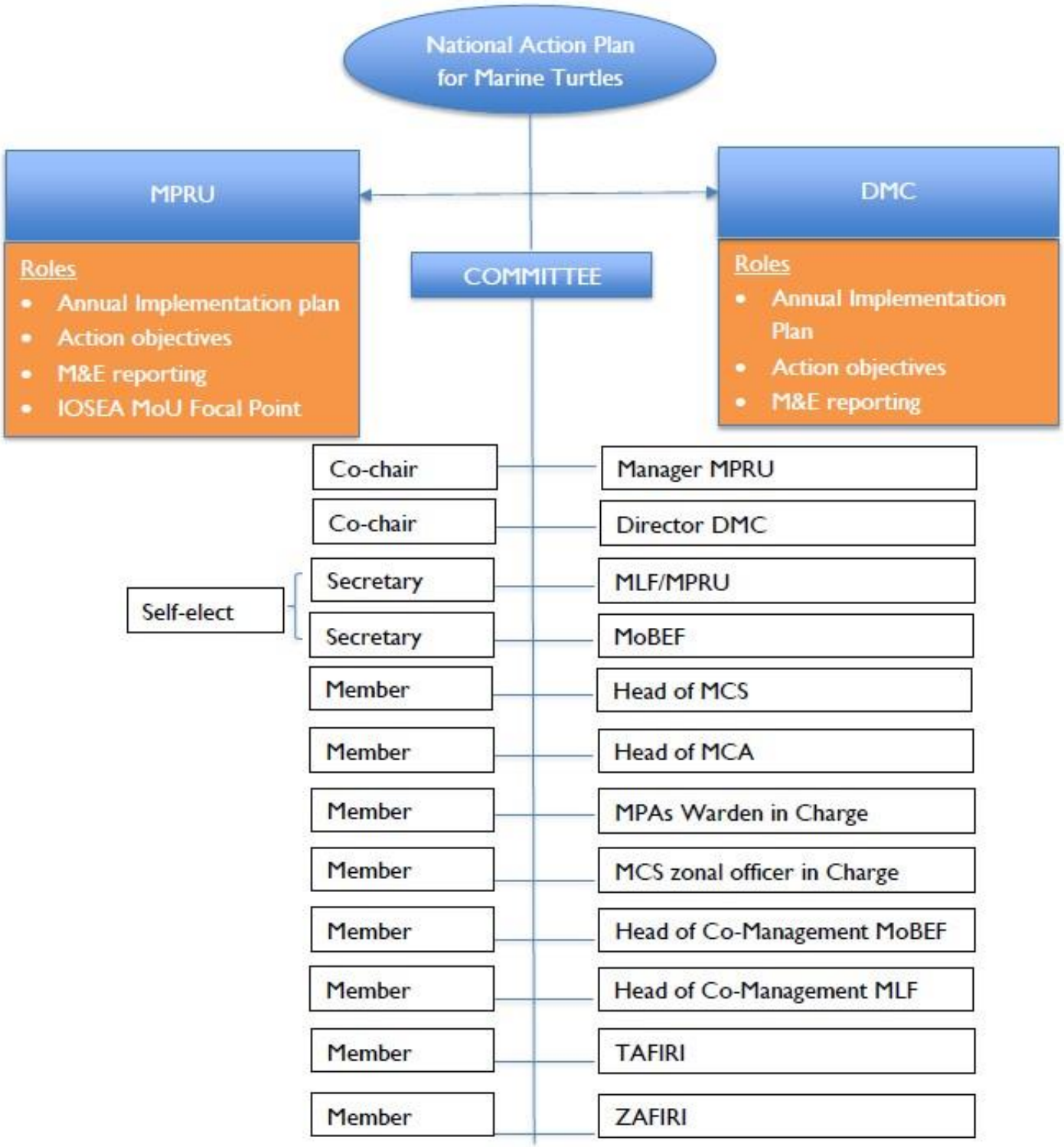
ANNEX C: LIST OF VILLAGES VISITED DURING COMMUNITY CONSULTATION

Mainland Tanzania		
No	**Name of the Village**	**Number of Participants**
1	Rushungi	6
2	Malalani	7
3	Kimbiji	12
4	Buyuni	12
5	Changwahela	12
6	Mlingotini	10
7	Namela	10
8	Msimbati	10
9	Mchinga1	10
10	Kijiweni	9
Zanzibar		
11	Makombeni	10
12	Makoongwe	11
13	Wambaa	10
14	Wesha	10
15	Makangale	10
16	Michamvi	9
17	Uroa	9
18	Kiwengwa	9
19	Tumbatu/Mtakuja	9
20	Mbuyu Tende	12

Annex D: Conservation Committee

Chair/Co-Chair-2	**Manager MPRU/DMC**
Secretary	**Nominated from MLF/MPRU and MoBEF**
Institution	**Members**
PO-RALG-	**Director of Fisheries-TAMISEMI**
MLF	**Assistance Director –FRP & Head of Co -Mgt**
MoBEF	**Head of Co-Mgt (Oversee all Managers of MCA) and 5 Managers of MCAs**
MPRU	**Head of Conservation & 4 WICs**
DFSA	**Deputy Director General**
Research Institutions	**ZAFIRI & TAFIRI**
Environmental Authority	**NEMC & ZEMA**
MNRT	**Focal Point for CMS and CITES**
Other Invited Government – Institution	**VPO-DoE**
Invited stakeholder	**Development partner/NGO**

Annex E: Committee Structure



Annex F: Tentative Budget for The Implementation of The Plan

S/n	Strategic objectives/interventions cost	Cost ($) '000'	Yr1	Yr2	Yr3	Yr4	Yr5
1	Reducing direct and indirect causes of marine turtle mortality	130,000	30,000	30,000	25,000	25,000	20,000
2	Reducing threats to critical marine turtle habitats	80,000	25,000	20,000	20,000	10,000	10,000
3	Promote information and education programmes	53,000	15,000	10,000	10,000	10,000	8000
4	Strengthening enforcement of existing legal frameworks that protect marine turtles and their habitats	187,000	50,000	48,000	35,000	30,000	24,000
5	Strengthen research and	145,000	35,000	35,000	30,000	25,000	20,000

	monitoring to address knowledge gaps and understand the impacts of threats on marine turtle population and their habitats						
6	Strengthen national, regional and international stakeholder collaboration for conservation of marine turtles	141,000	38,000	38,000	25,000	25,000	15,000
7	Strengthen existing policies and legislations to provide for responsible marine turtle conservation	150,000	40,000	40,000	40,000	40,000	30,000
	Grand total	**886000**	**23300**	**221000**	**185000**	**165000**	**127000**