

CHUMBE ISLAND
CORAL PARK

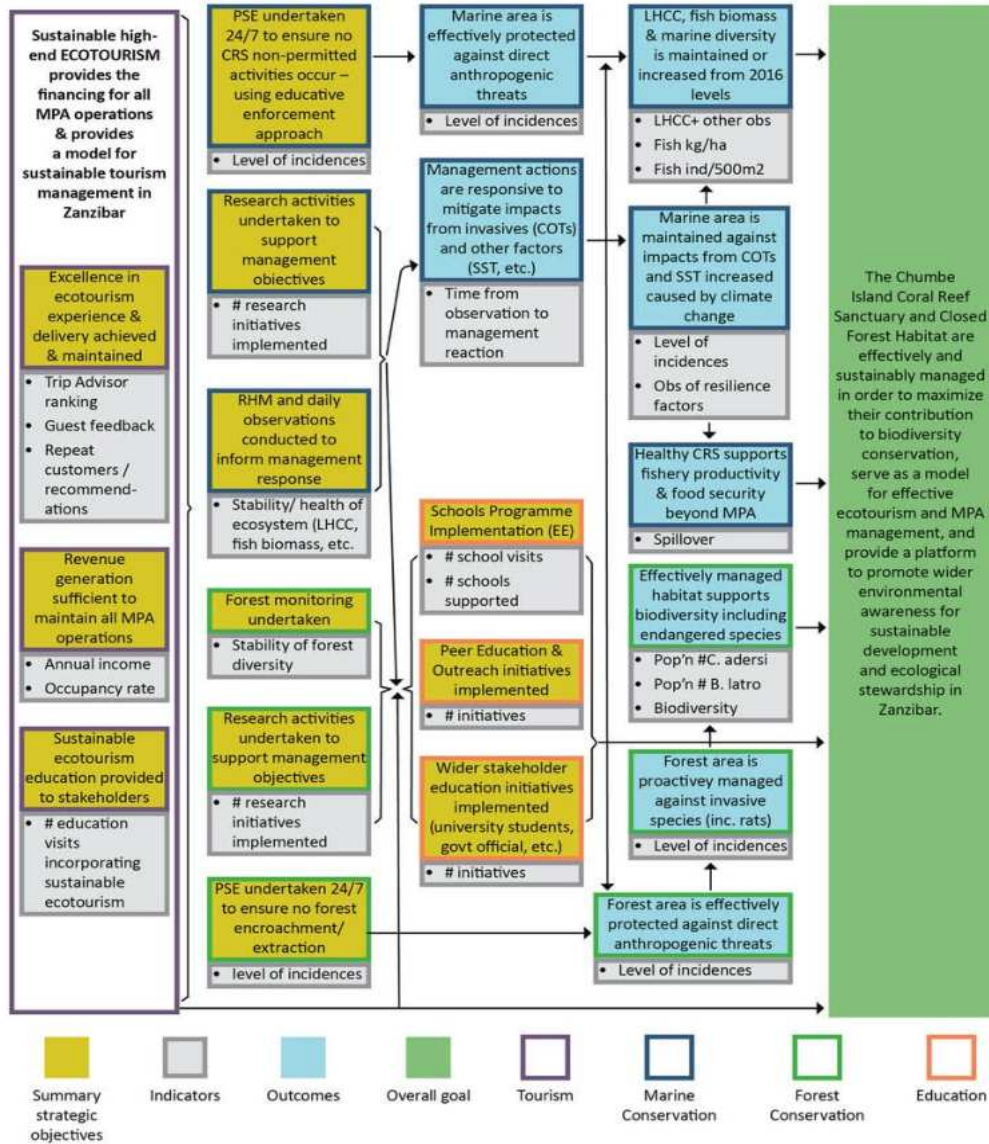
Conservation & Education

Status report
2023/2024



Chumbe's overall vision

The Chumbe Island Coral Reef Sanctuary and Closed Forest Reserve are effectively and sustainably managed in order to maximize their contribution to biodiversity conservation, serve as a model for effective ecotourism and MPA management, and provide a platform to promote wider environmental awareness for sustainable development and ecological stewardship in Zanzibar.



Basic concept model to achieve overall Chumbe vision.

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Acronyms

CBF	Chumbe Big Five – Citizen Science Project
CFR	Closed Forest Reserve
CHICOP	Chumbe Island Coral Park
COT	Crown of Thorns
CRS	Chumbe Reef Sanctuary
DoF	Department of Forestry
DTP	Deutsch-Tanzanische Partnerschaft (German Tanzanian Partnership)
EE	Environmental Education
ENSO	El Niño-Southern Oscillation
FGD	Focus Group Discussions
HOD	Head of Department
IMS	Institute of Marine Sciences
IOD	Indian Ocean Dipole
IUCN	International Union for the Conservation of Nature
JMU	James Madison University
KPI	Key Performance Indicator
LHCC	Live Hard Coral Cover
ManPlan	Management Plan (2017-27)
MC	Department of Marine Conservation
MEL	Monitoring, Evaluation and Learning
MPA	Marine Protected Area
NGO	Non- Government Organization
OccObs	Occasional Observations
PSE	Patrol, Surveillance and Enforcement
RHM	Chumbe Reef Health Monitoring
SE	Standard Error
SIT	School for International Training
SST	Sea Surface Temperature
SUZA	State University of Zanzibar
SWWD	Synchronized Whale Watching Day
USA	United States of America
USFS	United States Forest Service
WCS	Wildlife Conservation Society
WMU	World Maritime University
WOD	World Ocean Day
WIO	Western Indian Ocean

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INTRODUCTION

This status report reviews achievements against strategic conservation and education-related objectives that were set in line with CHICOP's 3rd ten-year management plan (CHICOP, 2017) for the season 2023-24. Conducted annually, this report analyses results, identifies challenges and outlines key activities that need to be undertaken in 2024-25. 'Key Performance Indicators' (KPIs) are used to provide an at-a-glance view of the anticipated measurable milestones and targets for progress and have been assessed utilizing the various monitoring, evaluation, and learning (MEL) mechanisms. Monitoring (M) progress, evaluating (E) achievements, and implementing an adaptive management approach based on lessons learned (L) are essential processes for achieving the various goals and targets identified and achieving overall management effectiveness.

CONSERVATION

The core strategic focus areas for CHICOP's Conservation programme are (A) Patrol, Surveillance and Enforcement (PSE), (B) In-house Monitoring and (C) Research (in collaboration with partners). In line with the current ManPlan (2017-27), targets and progress of Conservation KPI's for 2023/2024 are outlined in table 1.

Table 1. Conservation KPI's for 2023/24 – measurable targets versus achievements.

Conservation KPI's		Yearly Target	Achieved
			23/24
# active PSE observations conducted in CRS	Compound	365	365
# CRS boundary marker maintenance checks conducted	Annual	4	4
Minimum # Security staff on island to assist with PSE	Annual	2	0
# Ranger reports submitted (filled on a daily basis) to Conservation & Education Manager	Compound	365	365
# Occasional Observations (OccObs) forms completed & submitted to Conservation & Education Manager	Annual	12	12
# Summary ranger reports sent to Department of Fisheries	Annual	4	4
# scientific publications	Annual	1	5
# presentations at conservation events and scientific conferences	Annual	1	
# Reef Health Monitoring (RHM) full suite of surveys conducted	Annual	1	1
# water quality surveys conducted (in collaboration with SUZA)	Annual	2	0
# WIO-SWWD (whale watching) annual events conducted	Annual	1	1
# Coconut crab population surveys conducted	Annual	-	1
Total av. Live Hard Coral Cover (LHCC) in CRS (in %)	Annual	≥50	Pre-bleaching (2024): 42-45 Post-bleaching (2024): 34 ± 7
Total Fish Biomass in CRS (in kg/ha)	Annual	>1000	1,437
Total sea urchin density in CRS (in m ²)	Annual	≤1	0.07
Total fleshy algae cover in CRS (in %)	Annual	<10	17.6 ± 4.7
# Coral colonies observed with bleaching stress (in %)	Annual	<10	2.4
# individual corals showing evidence of disease in CRS (in %)	Annual	<5	4.2
# COTS observed (in #/16ha)	Annual	<2	2
# of SST loggers inside the CRS	Annual	2	2
# comprehensive research plans in place that are updated yearly	Annual	1	1
# Ranger conservation all team meetings	Annual	6	6

A. PATROL, SURVEILLANCE AND ENFORCEMENT (PSE)

A.1. Patrol, Surveillance and Enforcement – Coral Reef Sanctuary (CRS)

In line with A.1.1 and A1.2, data from the Ranger Reports show that from April 2023 to April 2024 a total of 32 negative incidents were recorded (Fig. 1). Details about the respective incidents can be found in the Ranger Reports that were filled and recorded on a daily basis.

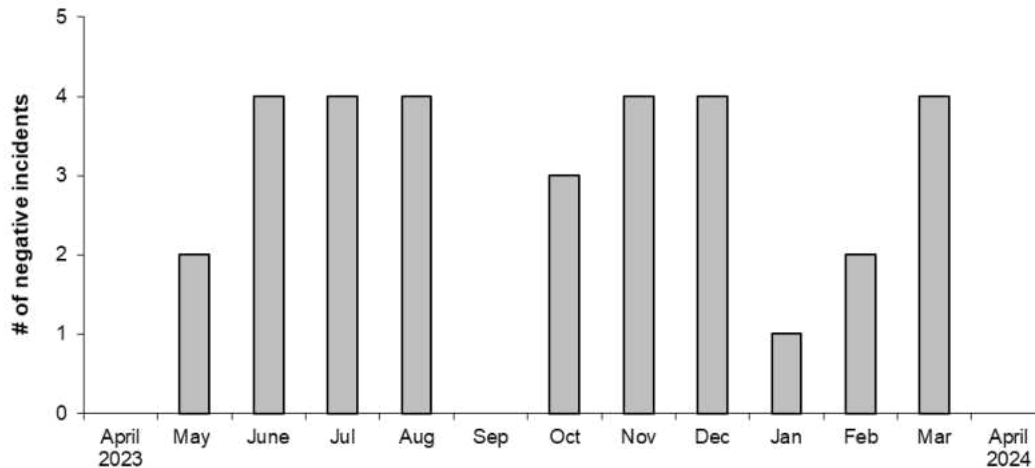


Figure 1. Total number of negative incidents in the Chumbe Reef Sanctuary (CRS) from April 2023 to April 2024. Negative incidents include infringements (trespassing activities), boat activities linked to non-authorized tourism activities and non-scheduled research boat activities.

A total of 19 infringement attempts, including poaching and anchoring, were recorded. Unfortunately, two poaching incidents could not be prevented, resulting in the loss of marine biomass. The first poaching event occurred on July 31st, when four fishers captured nine spotted halfbeaks and 20 reef needlefish within the central area of the Marine Protected Area (MPA) (Fig. 2). The boat, along with the catch and fishing gear, was confiscated by CHICOP and the case referred to the Zanzibar Department of Marine Conservation (MC). The MC determined that the fishers had violated the Fisheries Act of 2010 and imposed a fine of 600,000 TZS. Upon payment of the fine, CHICOP released the confiscated boat and fishing gear, while the caught fish remained in the custody of the MC department.



Figure 2. From left to right: Poachers with their catch on Chumbe Island; poachers handed over to the Department of Marine Conservation (MC); letter from MC informing CHICOP about the fine of 600,000 TZS.

The second poaching incident occurred on December 20th, when a fisher was caught spearfishing inside the MPA at dawn. Before being apprehended and brought to the island, he had already caught a significant amount of reef fish, including a large brown-marbled grouper, reef lobster, stingrays, and sea cucumbers. Initially cooperative, the poacher was taken to the CHICOP office, where the confiscated catch was recorded and weighed. While awaiting the arrival of the Marine Conservation lawyer at the Department of MC, the poacher, with outside assistance, managed to escape unnoticed from the CHICOP office. The case was subsequently handed over to the Mazizini police, who have been unable to locate him to date. The confiscated catch, frozen and preserved as evidence, remained in the CHICOP office until February 6th, 2024, when it was returned to the ocean in the presence of an MC representative as a symbolic gesture (Fig. 3).



Figure 3. From left to right: Poacher being questioned by CHICOP’s ranger team; confiscated catch including reef fish, lobsters, stingrays and sea cucumbers; catch returned to the ocean after being stored as evidence for more than a month.

Figure 4 shows the months when the Chumbe rangers provided emergency support to fishers in distress. This is a vital service the rangers provide, and instances ranged from helping fishers with engine repairs, to pulling boats out of dangerous sea conditions and providing fishers with food and accommodation on Chumbe Island while they waited for the weather to clear. In this year, the number of attempted infringements exceeded the instances of assistance provided to fishers in distress this season. This may be related to there being fewer severe weather events in this period, resulting in a reduced need for the ranger team to conduct rescue operations.

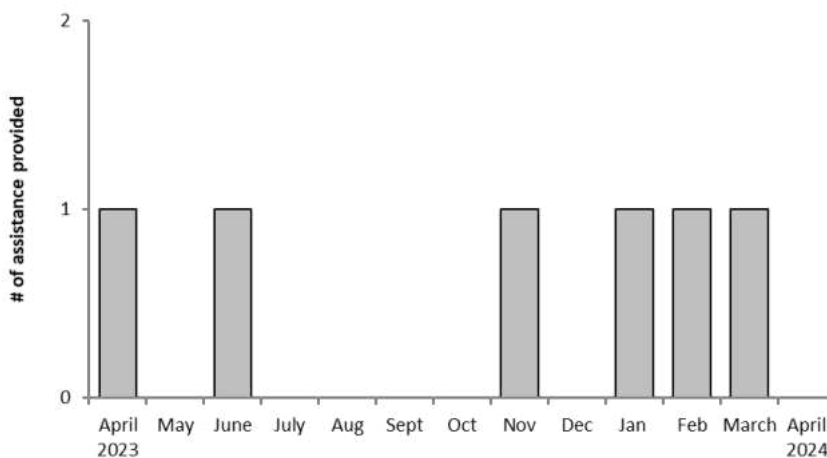


Figure 4. Assistance provided to fishers in distress in the CRS from April 2023 to April 2024.

During this period, additional security officers from the police or military were not stationed on the island due to funding constraints. However, the ongoing presence of two youth members from Unguja, Faisal Abdalla and Kassim Khamis, employed as full-time patrol rangers on Chumbe Island since March 2023, ensured consistent Protection, Surveillance, and Enforcement (PSE) activities. The ranger team, composed of 12 Zanzibaris, has been instrumental in preventing further poaching incidents.

The PSE equipment inventory (A.1.4) includes two fiber boats (Virore 1 and 2), a speedboat (Shumba), two sets of binoculars, two patrol torches, and communication materials for fishers (e.g., a Chumbe map and information about the park).

Buoy maintenance checks (A.1.5) were conducted periodically throughout 2023/24, though not all instances were recorded. In December 2023, all buoys were inspected and cleaned using scuba gear (Fig. 5). Two solar lights were found to be non-functional and require replacement with new units from Sealite. Despite this, all buoys, including three demarcation buoys and two mooring buoys located outside the northern and southern CRS borders, remain in good working condition.



Figure 5. Buoy maintenance check using Scuba gear in December 2023.

A.2. PSE – Closed Forest Reserve (CFR)

CFR ranger reports were submitted by the Head Ranger during conservation meetings at the end of each month (example shown in Fig. 6). No illegal activities (defined as cutting of firewood, hunting wild animals, or capturing wild animals) took place within the forest reserve in 2023/24.

Closed Forest Reserve (CFR) Ranger Report Form 2023						Month: December
DATE	TIME	LOCATION	TYPE OF CASE	ACTIVITY	EVENT INFORMATION	NAMES OF RANGERS/POLICE INVOLVED
1-12-23		In the whole forest reserve	NA	NO ACTIVITY HAS TAKEN PLACE.	NO EVENT INFORMATION	Chagga
21-12-23						

Figure 6. Example of a CFR Ranger report from December 2023, submitted by Assistant Head Ranger, Ali Yusuf Chagga.

B. IN-HOUSE MONITORING

B.1.3 Annual RHM

The 18th season of the Chumbe Reef Health Monitoring (RHM) was completed in March 2024. Table 2 summarizes the key results against targets from 2023/24 compared to 2022/23. Live hard coral cover (LHCC) results were obtained through bleaching monitoring surveys using photo quadrats, combined with summary data from various international research groups (page 25).

Benthos	Target	2022/23	2023/24
Live hard coral cover (LHCC)	≥ av. 50 % LHCC across all CRS	49	Pre-bleaching (2024): 42-45% Post-bleaching (2024): 34% ± 7%
Macroalgae	< 10 % fleshy algae cover on reef areas	2.1	17.6 ± 4.7 %
Algal turf	No target set	38	10.0 ± 4.3
Coral bleaching	< 10 % of colonies surveyed show indications of mortal bleaching	1.9	2.4
Coral disease prevalence	< 5 % corals surveyed show signs of disease	1.8	4.2
Sea urchin density	≤ 1/m ² sea urchin density in CRS	0.18	0.07
COT density	<2/16ha COT density maintained	2	2
Fish data	Target	2022/23	2023/24
Total fish biomass	≥ 1100 kg/ha fish biomass in CRS	1,553	1,437

Table 2. Ecological reef health indicators, targets, and results across the CRS, from 2023/24 in comparison to 2022/23

Benthic monitoring results

The average LHCC across the CRS ranged between 42% and 45% prior to the onset of the fourth global coral bleaching event. A post-bleaching benthic survey conducted in September 2024 indicated a reduction in LHCC to 34% ± 7%. Additionally, macroalgal cover increased significantly, from 2.1% to 17.6% ± 4.7%

following the bleaching event. Further post-bleaching surveys are planned for 2024 to assess the continued impact of the bleaching, which was still ongoing at the close of this reporting period (April 2024).

During the 2023/24 monitoring season, the mean number of coral colonies per 75.8 m² radius showed little change compared to the 2021/2022 data (Fig. 7). Notably, two-thirds of the permanent transects were surveyed prior to the severe bleaching event that severely impacted the CRS in March/April 2024. Across the CRS, 2.4% of the hard coral colonies surveyed per radius were affected by mortal bleaching. As shown in Figure 8, there has been a marked increase in both mortal and color bleaching of coral colonies (Fig. 9) since the mass coral bleaching event in 2016, pushing the affected percentage beyond the critical threshold.

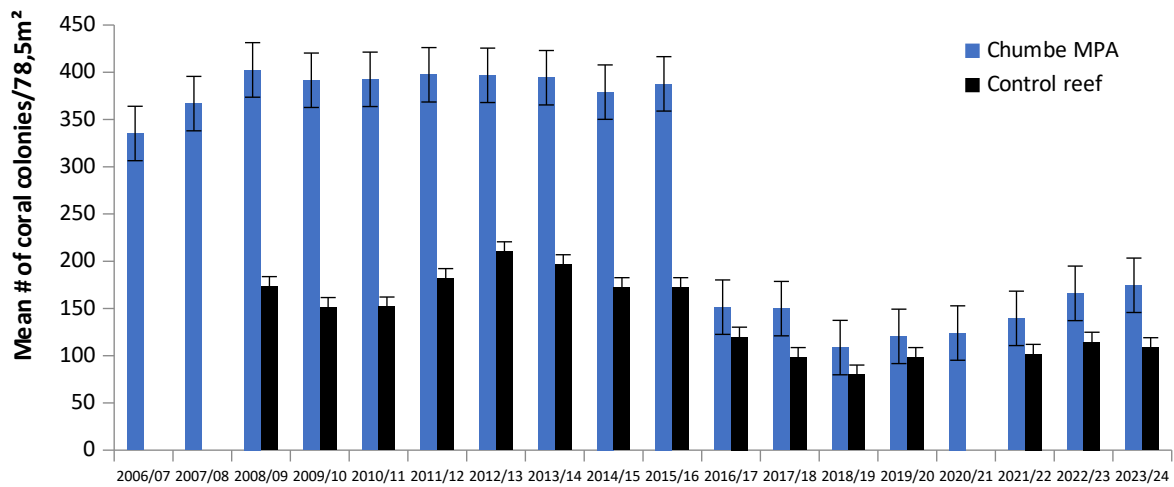


Figure 7. Mean number of hard coral colonies in the CRS compared to the control reef over monitoring seasons. Note: missing data in 2020-21 from the control reef are linked to limited funding due to COVID-19.

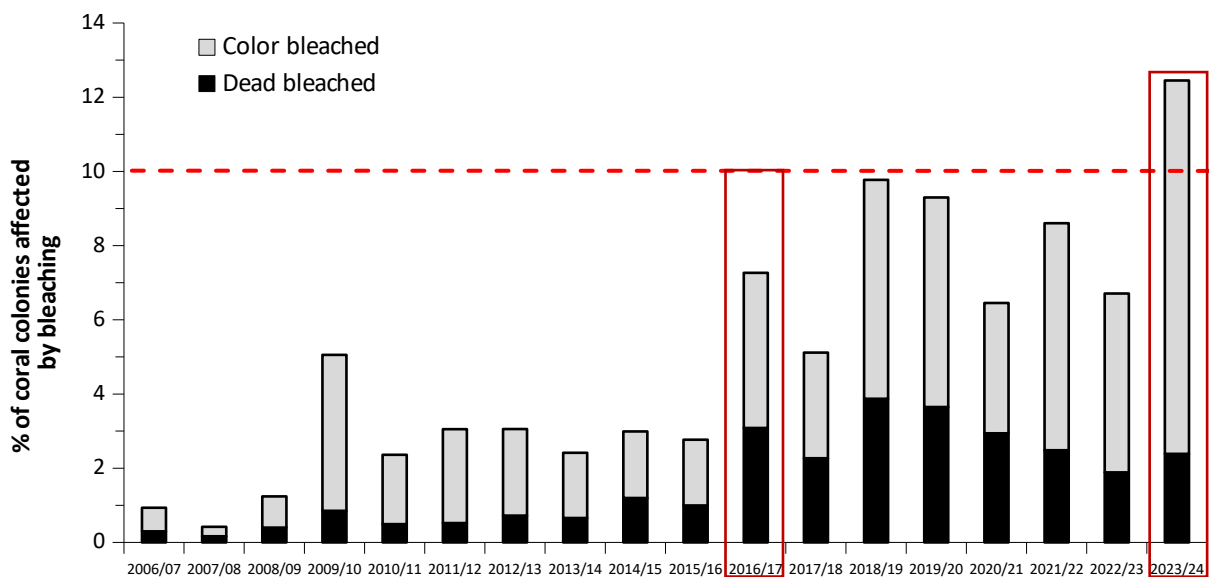


Figure 8. Proportion of coral colonies affected by color (grey) and mortal (black) bleaching across the CRS over monitoring seasons. Red boxes indicates the season of mass coral bleaching events. Red dashed line indicates target of <10% coral colonies affected by mortal bleaching.



Figure 9. Coral bleaching in coral genus *Acropora* inside the CRS during onset of global coral bleaching event in March 2024.

Impact of the 4th Global Coral Bleaching event in the WIO region including Chumbe Island

The prolonged three-year La Niña phase, which had moderated sea temperatures, ended in late 2023. This shift was followed by the forecast and subsequent development of an El Niño event that persisted throughout the first quarter of 2024 and led to the [announcement of the fourth global coral bleaching event](#) by NOAA on 15 April 2024.

In addition to Chumbe’s RHM protocol, bleaching monitoring surveys using photo quadrats were conducted from December 2023 until April 2024 and SST was closely monitored in-situ (see page 17).

First signs of thermal stress impact on *Pocillopora* colonies was observed by the end of January 2024 (Fig. 10). As shown in Figure 11, more genera were impacted over the following weeks, with first mortalities seen in at the beginning of March and bleaching severity peaking by the end of March /beginning of April. Chumbe’s coral bleaching data were submitted to CORDIO and contributed to the [Regional Coral Bleaching Report 2024](#).



Figure 10. Bleaching caused by thermal stress in *Pocillopora* colonies, recorded on 30th January 2024.

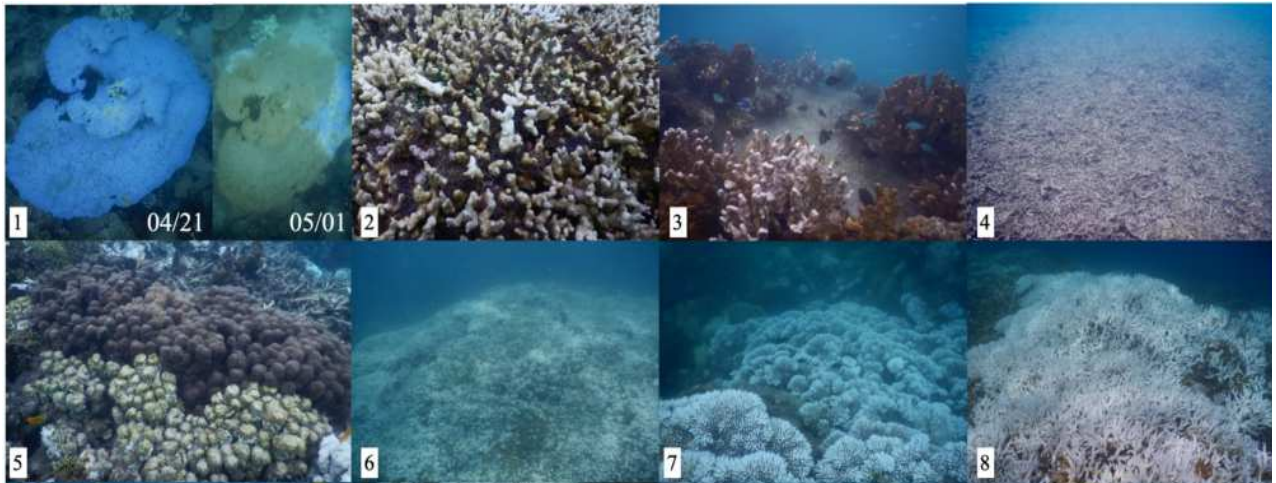


Figure 11. Visual impressions of the 2024 coral bleaching inside the CRS, highlighting genera most susceptible to thermal stress. 1) Acropora (table corals) progressing from bleaching to mortality within a span of ten days. 2) Porites rus affected by thermal stress. 3) Isopora colonies, some appearing healthy and others bleached. 4) Coral rubble field along the northern reef crest, a result from the 2016 bleaching event. 5 and 6) Galaxea: large field along the southern fore reef, partly dead. 7 and 8) Acropora colonies at the southern reef site at varying stages of bleaching including mortality. Photos @ Christian Boudreaux.

Figure 12 provides insights into the prevalence of coral diseases inside the CRS over the monitoring years. In 2023/24, 4.2% coral colonies across the CRS showed signs of compromised health, which is significant higher than last season and most likely linked to the observed elevated SST similar to 2016. Among the 11 described syndromes found across the CRS (as described by Taylor, 2008¹), the most common ones are shown in Figure 13.

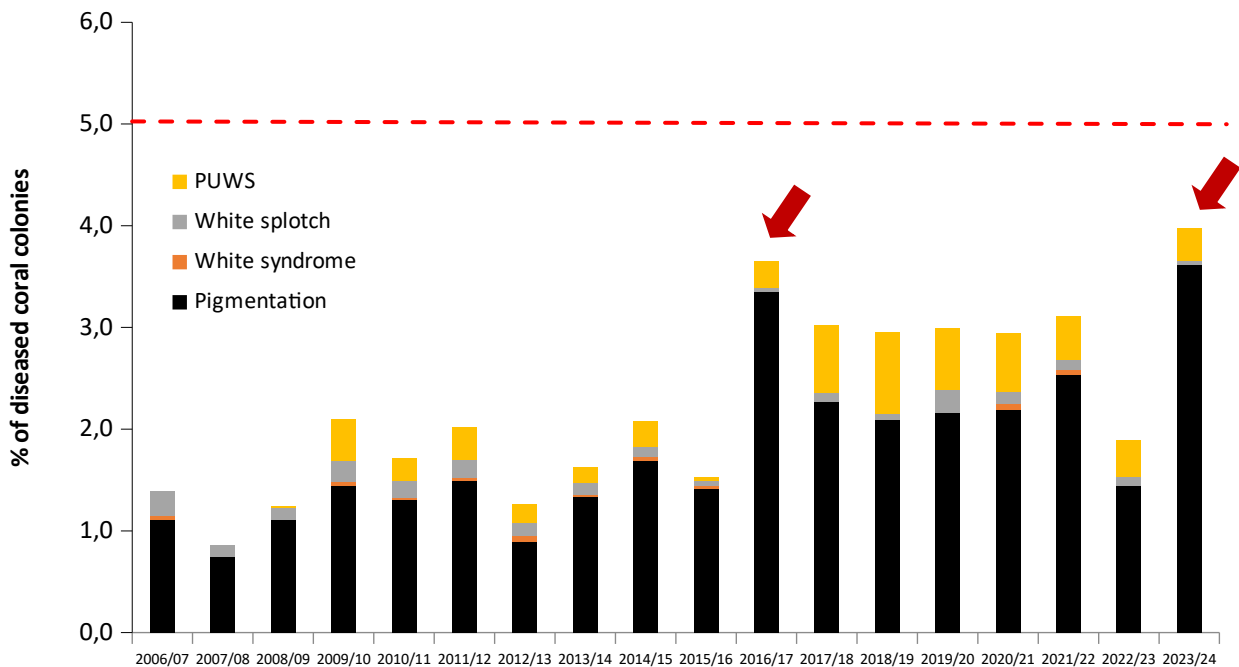


Figure 12. Proportion of coral colonies affected by common coral diseases inside the CRS over monitoring seasons. Red dashed line indicates threshold of <5% coral colonies affected.

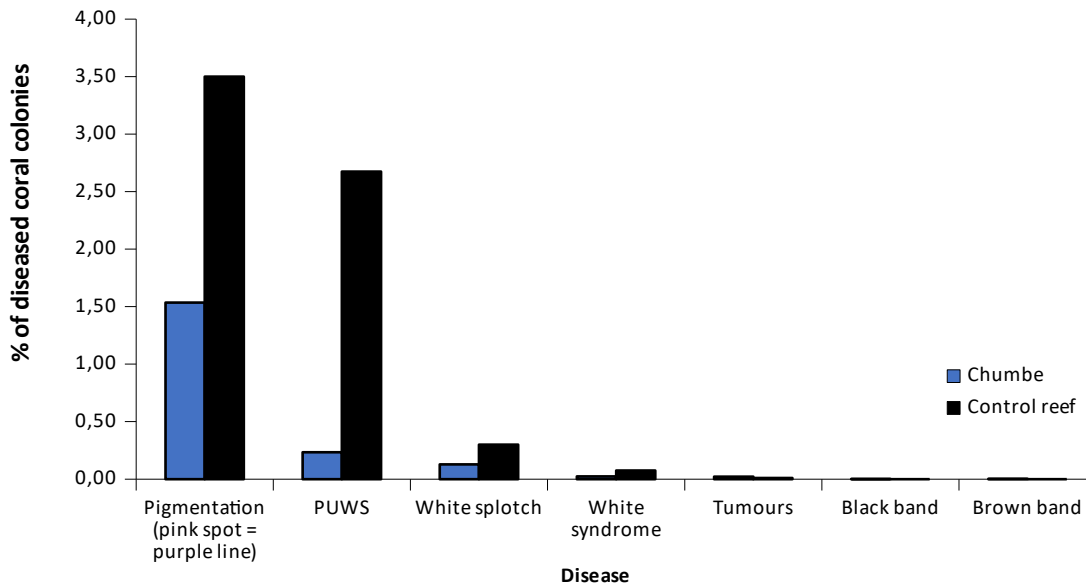


Figure 13. Proportion of coral colonies affected by the most common coral diseases (Pigmentation, PUWS, White splotch) inside the CRS, compared to the Control reef, across 18 monitoring seasons.

¹ Pigmentation Response (PR), Porites Ulcerative White Spot (PUWS), White Syndrome (WS), Black Band Disease (BBD), Tumours (T), Brown Band Disease (BrBD), Chumbe White Splotch (CWS), COT predation, dead bleached, colour change due to bleaching, unsure of cause or symptom.

Crown of Thorn (COT) densities within the permanent radii were within the threshold (two individuals/16ha), while 1.13 % of surveyed coral colonies were affected by COT feeding scars. The COT removal programme (initiated after an outbreak in 2004) has been ongoing (Fig. 14): in 2023 a total of 20 animals were removed and measured, and in 2024 (until the end of April) four animals were removed.



Figure 14. Number of COTs removed from the CRS per year (2004 – April 2024).

As sea urchin density is considered to be an important indicator for coral reef health, the distribution, abundance and density of sea urchin species (*Diadema setosum*, *Diadema savignyi*, *Echinothrix diadema*, *Echinometra mathaei*) are part of CHICOP's annual RHM. Figure 15 shows CHICOP's RHM urchin results inside the CRS (blue) in comparison with urchin densities in a fished control reef (black), assessed against a regional threshold density of less than 1 urchin/m² (red dashed line). In 2023/24 urchin density across the CRS was 0.07 urchins/m².

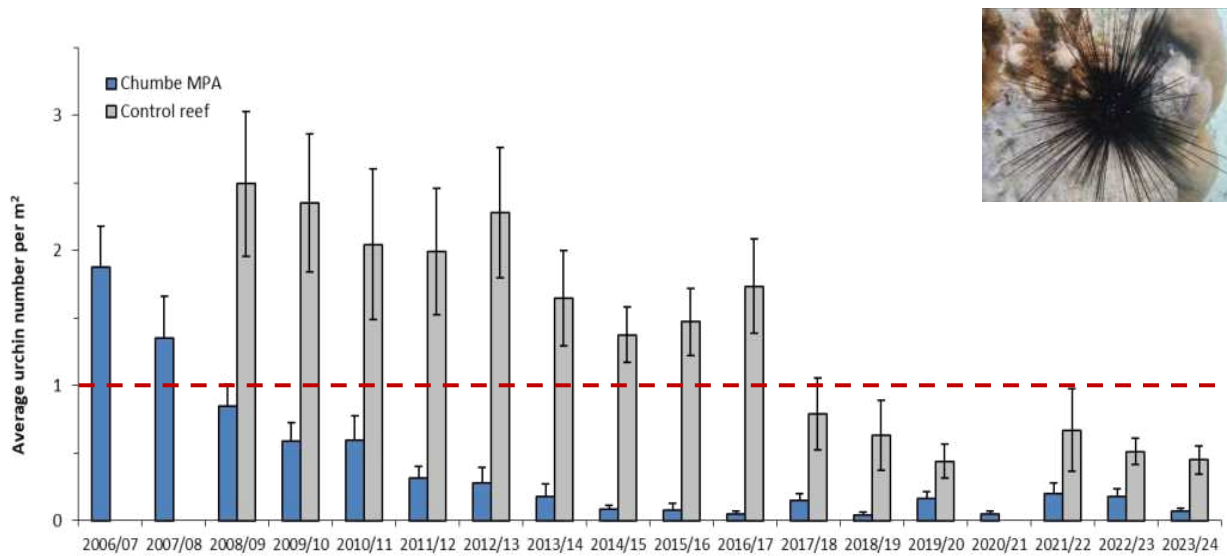


Figure 15. Comparative urchin densities between the CRS and a control site that is fished. Red dashed line indicating target density.

Sea urchin mortality event

Dead and dying *Echinothrix diadema* were first observed on December 1st, 2023, inside the CRS and on the adjacent reef on the eastern side of Chumbe Island. In response, a Zanzibar Sea Urchin Task Force was established in collaboration with Dr. Omri Bronstein (Tel Aviv University, Israel) and Dr. Peter Schupp (Oldenburg University, Germany). Additionally, a dedicated WhatsApp group was created to connect various stakeholders, including IMS, NGOs, dive centers, and others, providing updates and serving as a platform for sharing in situ observations.

Chumbe's in situ observations and photo documentation of dead and dying individuals showed a rapid progression of symptoms, leading to death within few days: initially, urchin movement was impacted, causing many to get swept off the reef substrate. Several infected urchins showed slow spine movement and tissue loss along the apical ambulacrum and loss of spines. The most common sightings in the reef, however, were empty tests, next to piles of spines, and scattered Aristotle lanterns (Fig. 16). According to Zirler et al. (2023) these pathologies seem to be unique and differ by appearance from other pathologies associated with echinoid mortalities—such as predation, osmotic stress or heat shock.



Figure 16. *Echinothrix diadema* die-off event: Infected urchins are characterized by tissue necrosis and spine loss (middle image) resulting in bare skeletons that could be found in the reef in unusual high numbers (left and right images).

Samples of healthy appearing (Fig. 16a), infected and dead *E. diadema*, as well as healthy appearing *Diadema setosum* urchins were collected on 8th December 2023, preserved in ethanol and frozen at the Institute of Marine Sciences (IMS), Zanzibar. In June 2024 the samples were cleared for export to the University of Oldenburg (Germany) where they are going to be analyzed for identification of a potential pathogen.



Figure 16a. Two healthy appearing *Echinothrix diadema* in the CRS.

Reef fish monitoring results

In 2023/24 an overall fin fish biomass of 1,437 kg/ha was reached inside the CRS which remains significantly higher than in the fished control reef (Fig. 17). These results confirm that the CRS has remained a resilient ecosystem with biomass levels beyond the 1,100 kg/ha ecosystem indicator level for a healthy and robust reef, developed by Fujita and Karr (2012).

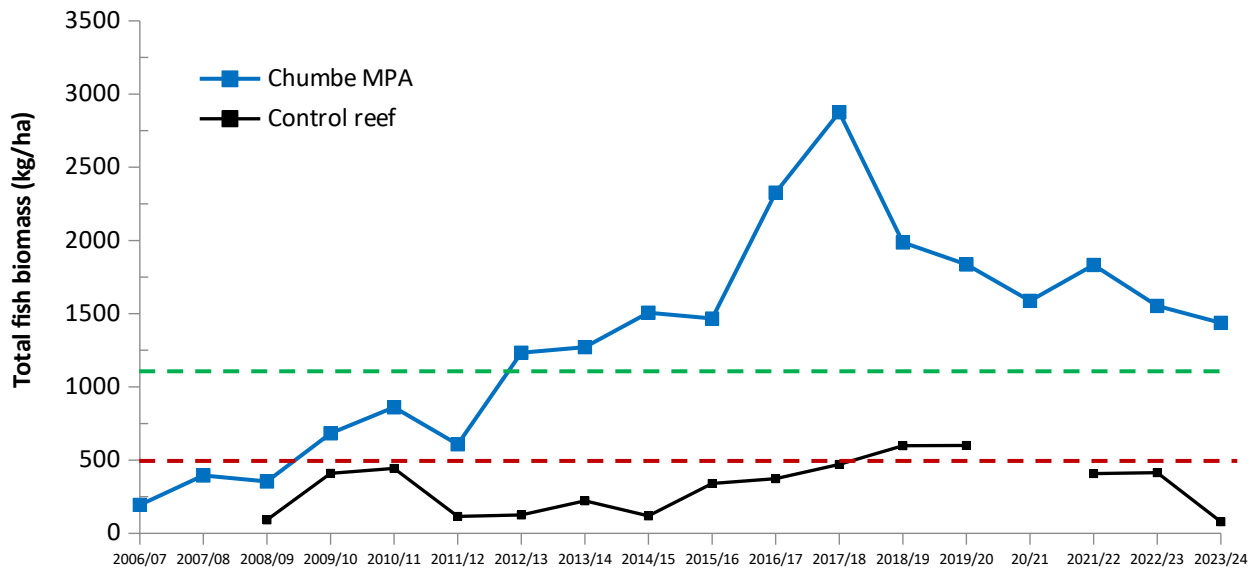


Figure 17. Total fish biomass (kg/ha) in the CRS compared to the control reef over monitoring seasons.

Note: missing data in 2020/21 from the control reef are linked to limited funding due to COVID-19.

Ecosystems thresholds related to fish biomass (Fujita & Karr, 2012) are represented by:

Red dashed line (< 500 kg/ha) - unhealthy state that may recover if fishing is restricted

Green dashed line (> 1,100 kg/ha) - healthy and resilient system.

Figures 18 and 19 show fin fish biomass according to the six fish families that have been monitored inside the CRS and in the fished control. As in previous years parrotfish (Scaridae) biomass is dominating over the other fin fish families inside the CRS and as key herbivores they have the capability of feeding and changing the structure of coral reefs by providing the removal of algal turfs and coral tissue. The fished control reef shows a big drop in fish biomass and lacks top predator families such as groupers (Serranidae).

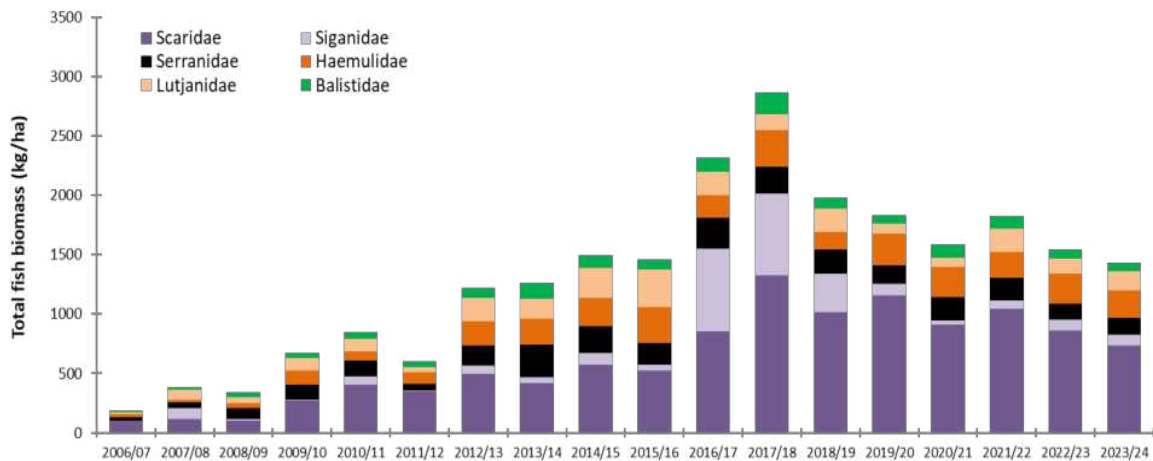


Figure 18. Fish biomass (kg/ha) for respective fish families (parrotfish, rabbit fish, groupers, sweetlips, snappers, and triggerfish) in the CRS over monitoring seasons.

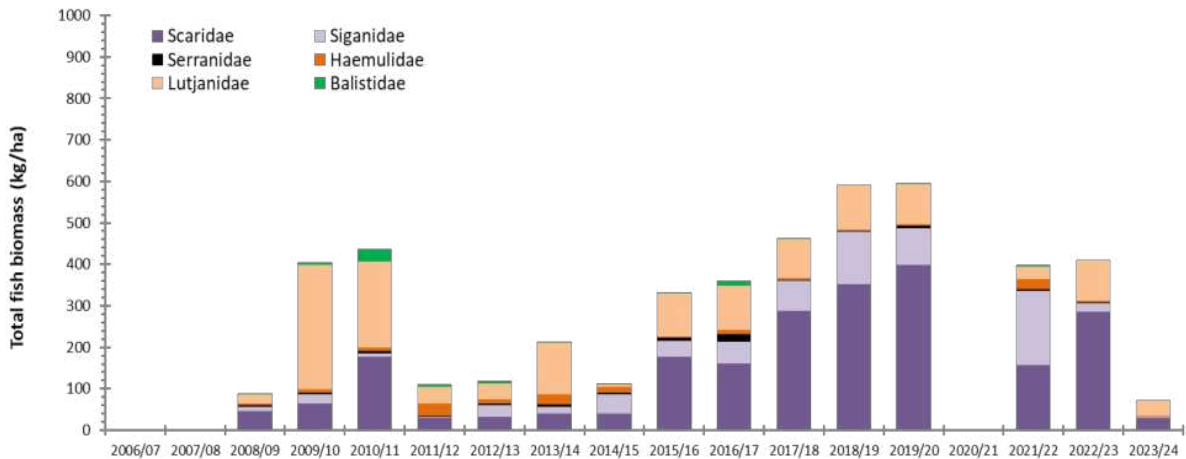


Figure 19. Fish biomass (kg/ha) for respective fish families (parrotfish, rabbit fish, groupers, sweetlips, snappers, and triggerfish) in the fished control reef over monitoring seasons.

The fished control reef shows a big drop in fish biomass and lacks top predator families such as groupers (Serranidae). Comparative triggerfish biomass (Fig. 18, 19) and densities (Fig. 20) during 2023/24 revealed that levels inside the CRS remained higher than in the fished control reef. This shows that Chumbe is providing a critical refuge for triggerfish, especially for *Balistapus undulatus* which is the most common predator for sea urchins around Zanzibar (McClanahan, 2000).

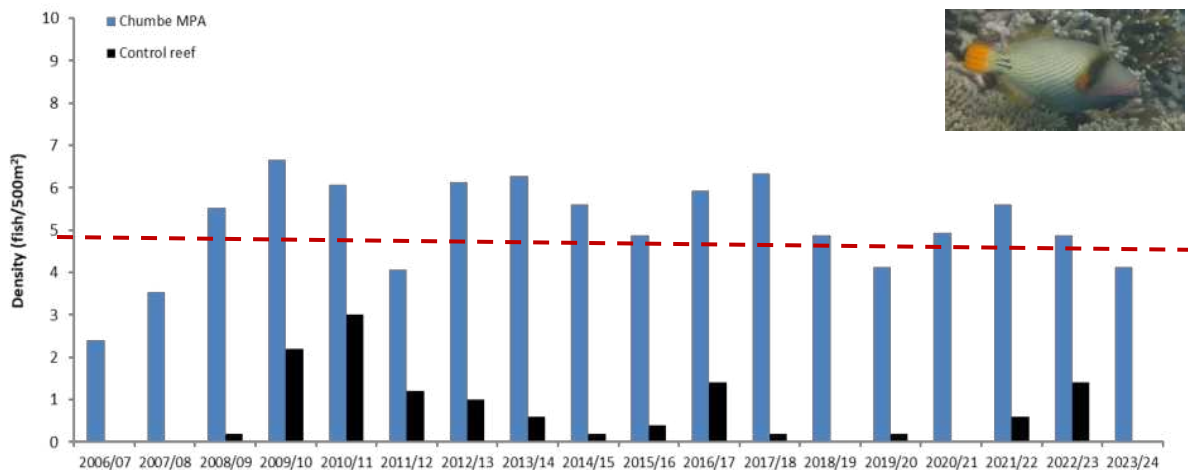


Figure 19. Comparative triggerfish density over monitoring seasons. Red dashed line shows healthy indicator level of 5 fish/500 m².

The enhanced biomass and density of these commercially important fish families is recognized in fisheries science to increase the reproductive potential by protecting individuals that are then able to grow to larger individual sizes, making them exponentially more fecund than their smaller, younger counterparts (Hadj-Hammou et al, 2024).

CHICOP's RHM confirms that commercially important fish larger than 50cm have significantly higher density levels inside the CRS compared to the fished control reef (Fig. 21) suggesting increased fecundity that supports the spill-over of individuals and larvae to neighboring fishing grounds.

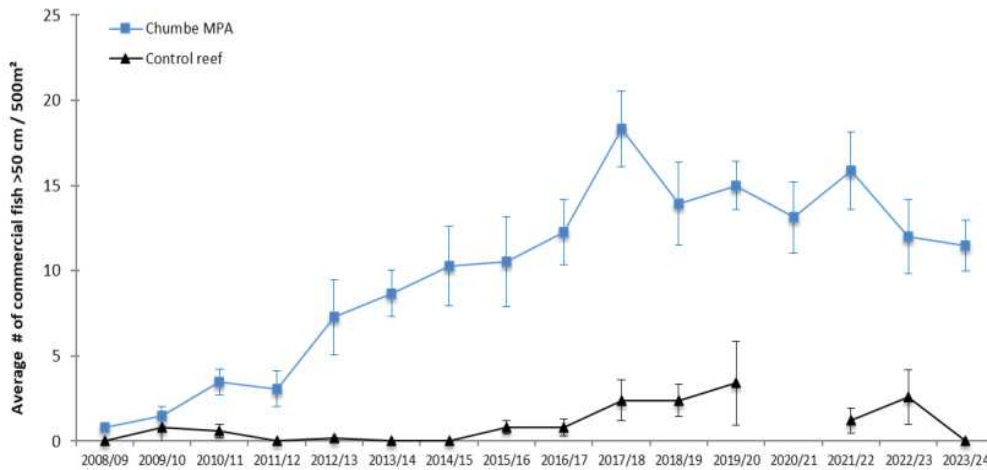


Figure 21. Comparative density of commercially important fish larger than 50 in the CRS and control reef over monitoring seasons.

B.1.5 SST monitoring

In April 2023, the HOBO temperature logger maintained through a long-term collaboration with Dr. Christopher Muhando at IMS ceased operation due to a battery failure. As replacement loggers were unavailable at IMS for several months, CHICOP procured its own HOBO logger with funding from the Blue Parks Small Grants project. The new logger was installed in November 2023, restoring the ability to monitor sea surface temperature (SST) during the anticipated bleaching period in early 2024.

Globally, both the Indian Ocean Dipole (IOD) and the El Niño-Southern Oscillation (ENSO) index were strongly positive and in phase, resembling the conditions observed during the first global coral bleaching event in 1997/98. The resulting heat stress was also evident in the CRS, with an initial SST peak in December 2023, and elevated SST persisting for a longer duration (February to mid-April 2024) compared to 1998 (Fig. 22).

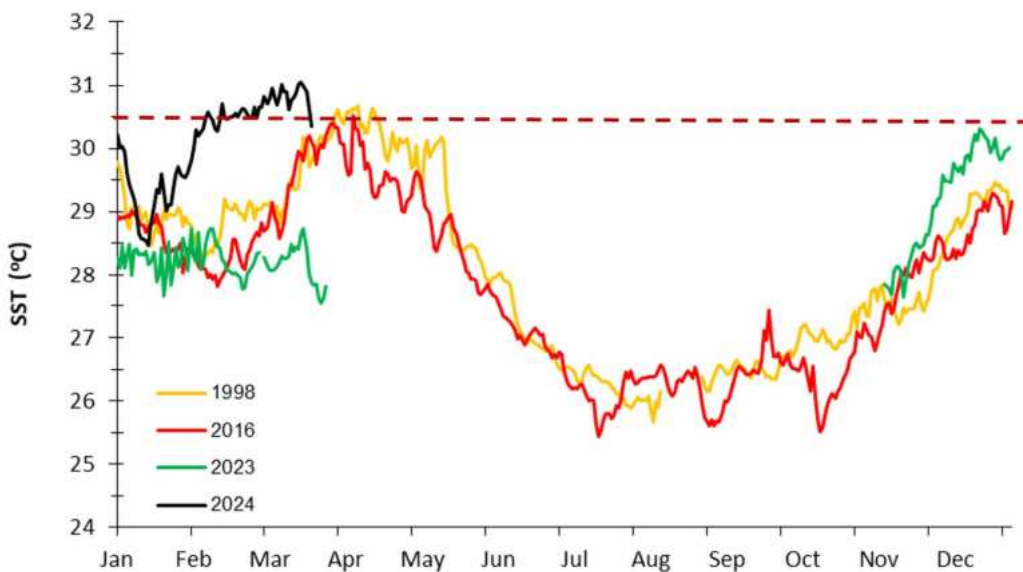


Figure 22. Comparison of SST records in 1998 (orange line), 2016 (red line), 2023 (green line) and 2024 (up to May, black line). Bleaching threshold temperature indicated via red dotted line. Source: Muhando and CHICOP, unpublished data.

B.1.7 Occasional Observations (OccObs)

In August 2022, the 'Occasional Observations' protocol evolved into the 'Chumbe Big Five' (CBF) citizen science project (Fig. 23) which encourages Chumbe visitors to get involved in reporting and monitoring reef sharks, stingrays, turtles, brown-marbled grouper (*Epinephelus fuscoguttatus*), dolphins and other visiting megafauna.



Figure 23. 'Chumbe's Big Five' blackboard (left) from which sighting data is transferred to a datasheet 2023/24 (right) and entered into CHICOP's database.

From September 2017 to April 2024, a total of 785 days of CBF observations (representing survey effort) were recorded (Fig. 24). Notably, survey effort increased during the most recent season due to effective promotion of the CBF project by the Guiding Rangers. Sightings per category and year are presented in Figure 25, confirming that blacktip reef sharks remain a regularly observed megafauna species within the CRS.

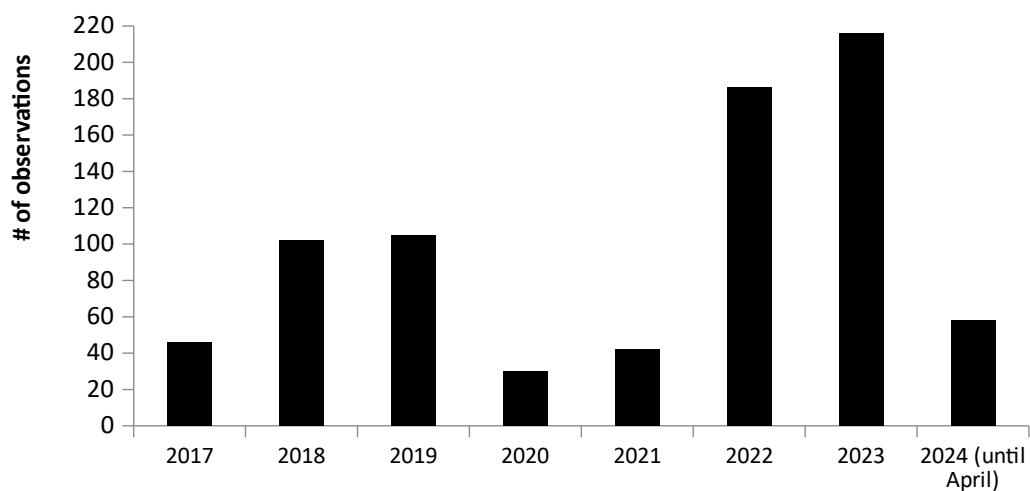


Figure 24. Yearly CBF observation records (2017 - April 2024) inside the CRS.

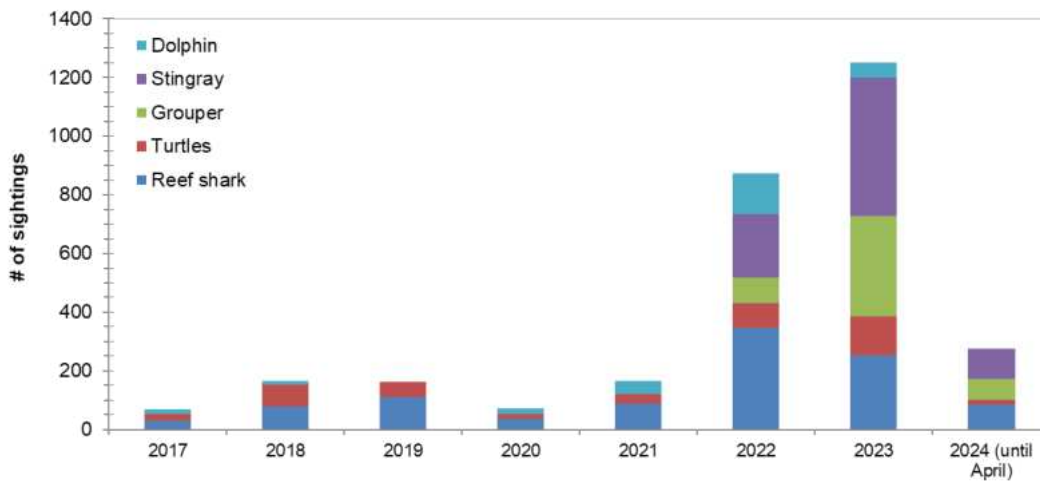


Figure 25. Sightings of CBF megafauna per year (2017 - April 2024) inside the CRS. Brown marbled grouper and stingrays were added as CBF categories in August 2022.

The encounter rate defined as the percentage of encounters based on survey effort was 86% for stingrays, followed by the iconic, brown-marbled grouper (74%) and blacktip reef sharks (62%). The encounter rate for both sea turtle species (hawksbill and green) was 47%, while the encounter rate for dolphins was 4% (Fig. 26).

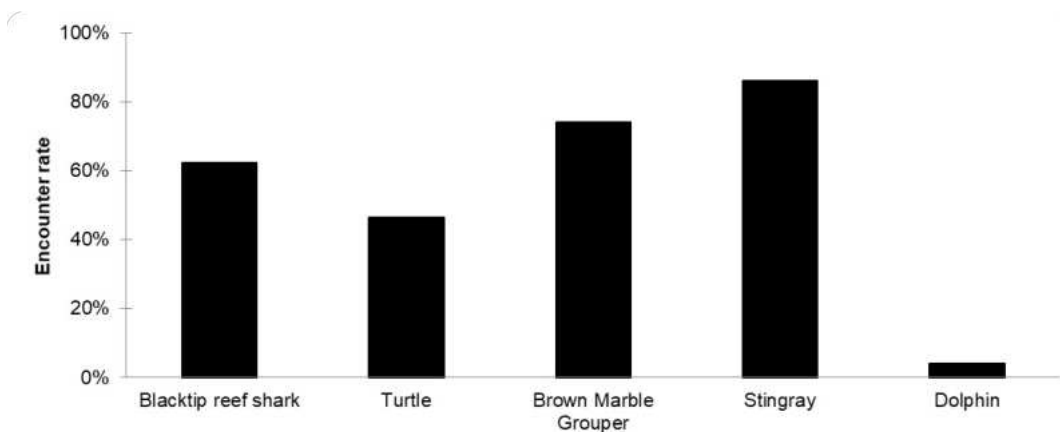


Figure 26. Overall encounter rate (%) of blacktip reef shark, sea turtle, brown marble grouper, stingrays and dolphin inside the CRS during a survey period of 12 months (May 2023 to April 2024).

A comparative analysis of blacktip reef shark and sea turtle sightings over a 6.5 year survey period (September 2017 – April 2024) reveals seasonal variations in encounter rates. The highest number of blacktip reef sharks was observed in February (Fig. 27a), while hawksbill turtle sightings peaked in December and green turtle sightings in October (Fig. 27b).

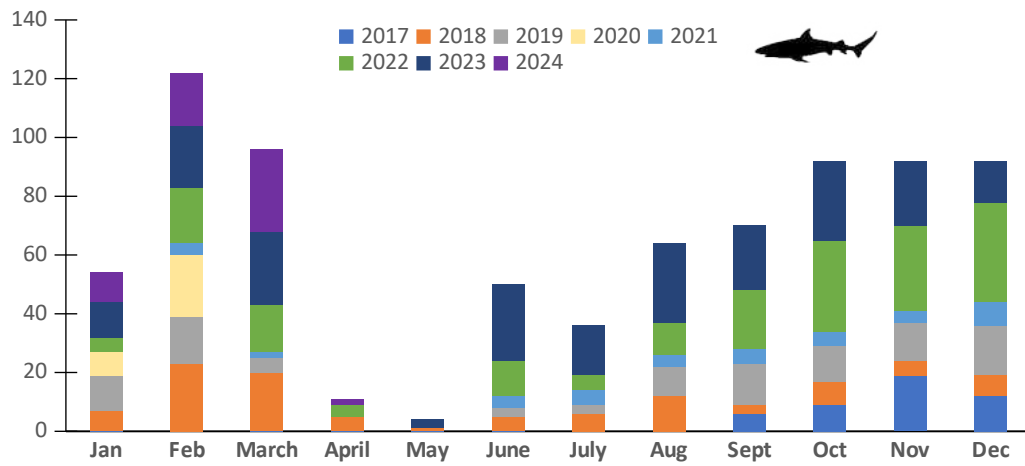


Figure 27a. Comparative sightings of blacktip reef sharks inside the CRS during a survey period of 6.5 years (Sept 2017 to April 2024).

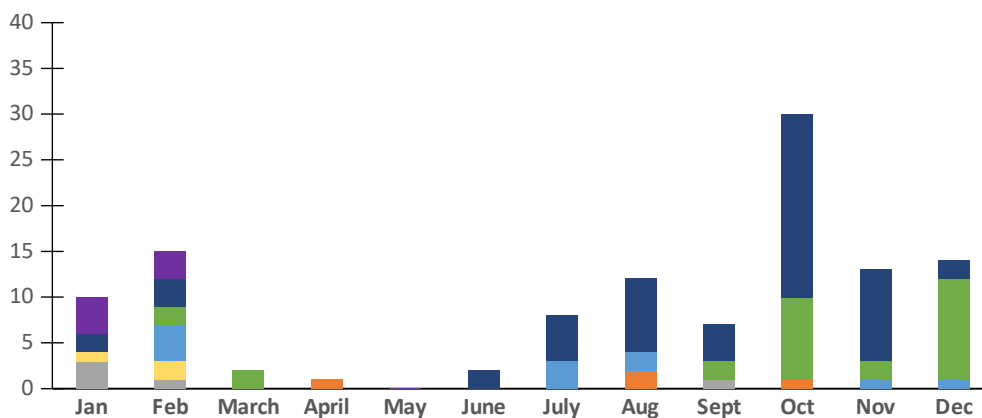
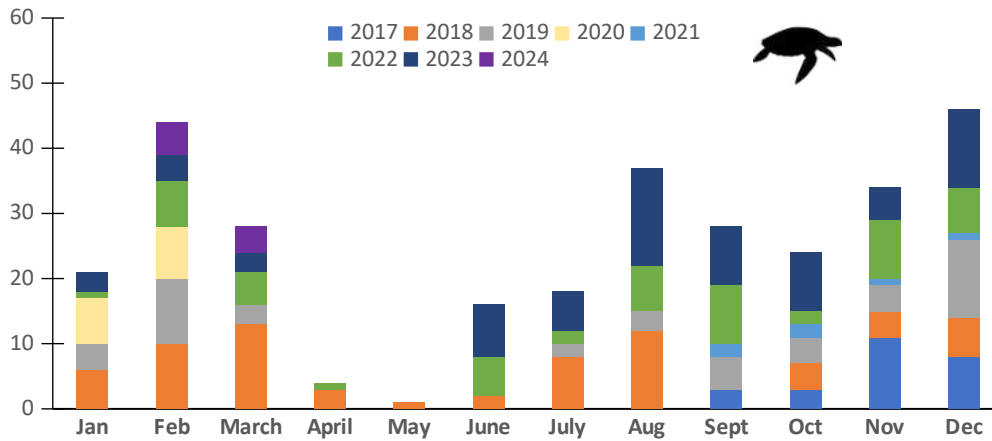


Figure 27b. Comparative sightings of hawksbill turtles (upper graph) and green turtles (lower graph) inside the CRS during a survey period of 6.5 years (Sept 2017 to April 2024).

B.1.9 Synchronized Whale Watch Day



In 2023, the East African Synchronized Whale Watch Day (SWWD) was held on August 20. This regional initiative, launched by Dr. Matt Richmond, follows a standardized protocol for recording key humpback whale data. On Chumbe Island, observations were conducted from sunrise to sunset from the top of the lighthouse (Fig. 28), resulting in 11 recorded sightings and 26 individual whales. Among them, at least nine were identified as calves.

Figure 28. Promotion of SWWD 2023

on Chumbe's social media channels

B.2. Closed Forest Reserve (CFR)

B.2.1 and B.2.2 Aders' duiker

During this season, Chumbe completed an Aders' duiker (*Cephalophus adersi*) assessment in collaboration with USFS (United States Forest Service), including the following activities:

September 2023

- An initial literature review on Aders' duiker research confirmed that the species is currently classified as "Vulnerable" on the IUCN Red List, rather than "Critically Endangered" (IUCN, 2023). However, in Zanzibar, the species remains highly threatened, as verified by the Department of Forestry (DoF).
- A planning meeting with the DoF was successfully held on 26th September 2023 (Fig. 29) to discuss next steps.



Figure 29. Aders' duiker planning meeting with colleagues from the Department of Forestry, Zanzibar.

October 2023

- Chumbe collaborated with WCS Zanzibar, receiving four trail cameras for testing before purchasing additional equipment. In early October, two cameras were deployed in the Chumbe Forest Reserve, capturing footage of a male Aders' duiker in the north of the CFR on October 7th at 10:21 am (Fig. 30). Based on this positive sighting, a species monitoring specialist from the WCS Big cats programme, Alice Laguardia, offered our team a collaborative, half-day training session on October 13th which provided further insights into camera trapping research design and setting modalities.



Figure 30. Male Ader's duiker caught by camera trap inside the CFF on 7th October 2023.

November 2023

- Based on previous survey discussions and the successful video footage from September, DoF was eager to proceed with a habitat suitability assessment on Chumbe Island which took place on the 18th and 19th November 2023.
- Survey summary: DoF was highly impressed by the well protected coral rag habitat on Chumbe Island; as anticipated line transects could not be carried out as the forest was too dense (especially after the rains), guided by Chumbe's Head Ranger the survey team explored the middle and southern part of the forest reserve but did not encounter any duikers; wildlife cameras CHU001, CHU002 and CHU004 were also checked on the first survey day but didn't reveal any Aders' duiker sightings; the botanical food plant survey was carried out by DoF botanist, Mr. Twahir and Chumbe's Head Ranger on the second survey day and confirmed the presence of more than 20 different species known as Aders' duiker food plants from previous studies on Chumbe and Mnemba Island; wildlife camera CHU003 was checked on the second survey day and revealed eight Aders' duiker sightings on four different days; closer analysis of the videos confirmed that all sightings involved the same individual: a large male with a purple ear mark, named Mr. Purple by team which was translocated from Mtende/Zanzibar to Chumbe Island in the year 2000 (Fig. 31).
- An international press release about outcomes was made and promoted on the Chumbe website: <https://chumbeisland.com/adere-duiker/>

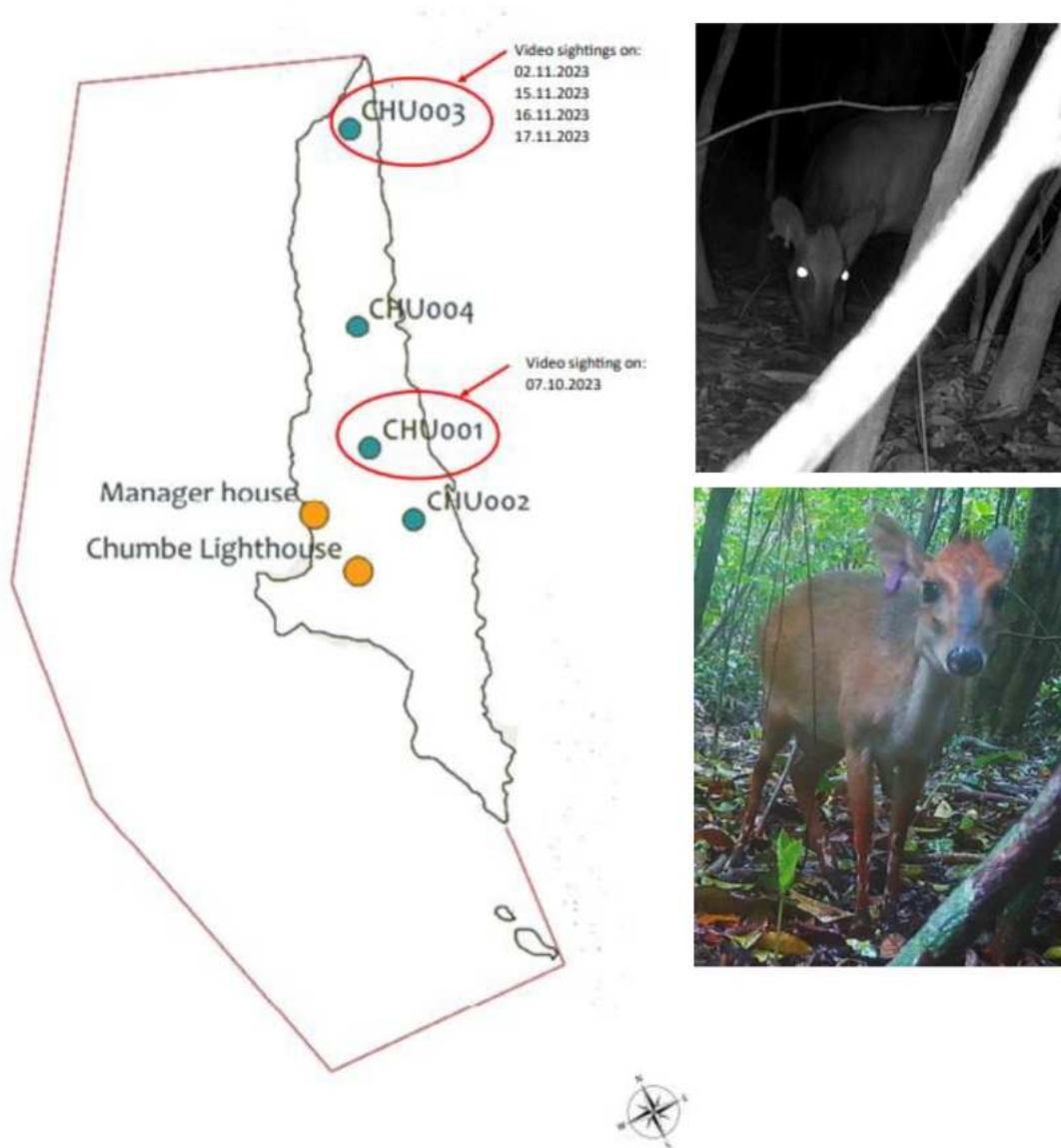


Figure 31. Chumbe Island map with location of wildlife cameras (CHU001-CHU004) and associated Aders' duiker video sightings from wildlife camera CHU003, located in the north of the Chumbe Forest Reserve that confirmed the presence of 'Mr. Purple', a male duiker with a purple ear tag that was translocated to Chumbe Island in the year 2000.

February 2024

DoF published an Aders' duiker survey report in collaboration with Chumbe, providing the following recommendations:

1. Since the survey observed the presence of at least one adult male Aders' duiker, which appeared to be in good health despite its old age, we recommend the translocation of two female and one male Aders' duiker from Mnemba Island to replenish the population on Chumbe Island and enhance genetic diversity.
2. The translocated animals should be subject to a high level of monitoring, including camera trapping, led by the Chumbe conservation team, to ensure their well-being and successful integration into the ecosystem.
3. Considering Bronkhorst's dissertation (Bronkhorst, 2000), which highlighted the negative impact of Suni antelopes on forest health and the reduction of foraging and sheltering opportunities for Ader's duiker on Mnemba Island, it is not recommended to translocate Suni antelopes to Chumbe Island.

B.2.3, B.2.4, B.2.5 Coconut crab

Professor Tim Caro conducts annual visits to Zanzibar to carry out a long-term mark–recapture study of Coconut Crabs (*Birgus latro*) on Chumbe Island. This research aims to estimate both the total population size and the demographic structure of the species on the island. Current estimates suggest a population of approximately 175 individuals. Due to the island’s full protection status, Chumbe serves as an important ecological baseline for comparison with exploited populations elsewhere. In contrast to most locations across Zanzibar, the Coconut Crab population on Chumbe is considered healthy and stable, and it may act as a potential source for re-populating surrounding islands near Unguja.

B.2.6 Invasive species monitoring

Indian House Crows (*Corvus splendens*), a non-indigenous invasive species widespread across Zanzibar, were monitored throughout the season by CHICOP’s Head Ranger and reported during weekly ranger meetings. On Chumbe Island, up to 12 individuals were observed simultaneously, although no nesting activity was recorded. In collaboration with the Zanzibar DoF, an experienced hunter was engaged to support eradication efforts, resulting in the culling of four adult crows. Additionally, the Head Ranger conducted regular chew-stick monitoring surveys, which confirmed the continued absence of rats on the island.

Roseate tern monitoring

Roseate terns are a migratory bird species with a widespread but highly fragmented global distribution. They face numerous serious threats, including human disturbance, predation by rats, and extreme weather events—challenges that are also present in regions such as Tanzania.

A notable breeding site in Unguja, first described and photographed in 1929 by J.H. Vaughan in ‘The Birds of Zanzibar and Pemba’, consists of two small islets located in the southern part of the Chumbe Reef Sanctuary. This year, the terns arrived at the islets on July 5th and began breeding around July 12th. To ensure maximum protection during the breeding season, access to both islets was restricted. A breeding survey conducted on August 5th recorded approximately 300 adult terns, 675 eggs, and 13 chicks (Fig. 32). No additional surveys were carried out in order to minimize disturbance during this sensitive period. The terns departed the islets around mid-September.



Figure 32. Arrival of Roseate terns on small islets in the CRS (left); nests with eggs (middle); and a young chick hatched on August 5th 2023.

B.2.7 Conservation and ranger meetings

The Conservation and Education Manager and Assistant Manager led weekly Head Ranger meetings, as well as Conservation & Education team meetings. Minutes were recorded, including action points and assigned responsibilities. Key outcomes and decisions were subsequently shared during regular Head of Department (HOD) meetings.

C. RESEARCH

Among the national research proposals submitted during this reporting period was one by Salum Khairat Mohammed from the State University of Zanzibar (SUZA). As part of her master's thesis titled "*Distribution and Abundance of Coral Reef Fish Larvae in Relation to the Lunar Cycle*," she conducted a one-day field visit to Chumbe Island to collect samples.

A new collaboration was established with Professor Peter Schupp and his team from the Institute for Chemistry and Biology of the Marine Environment (ICBM) at the University of Oldenburg, Germany. As part of the SOMWAT project - a MeerWissen Initiative supporting African-German partnerships for ocean knowledge (<https://meerwissen.org/partnership-projects/somwat/>) - Chumbe Island was selected as one of the reference sites for regular water and sediment sampling in seagrass beds (Fig. 33) over the next two years. SOMWAT focuses on the socio-ecological role of seagrass meadows, which are known for reducing anthropogenic pollution and enhancing water quality. These functions support the resilience of adjacent coastal ecosystems, including sponge gardens and coral reefs.



Figure 33. SOMWAT team taking water samples in the protected seagrass beds in Chumbe Island.

The second collaborative project Chumbe joined, in September 2023, was the Marine Litter Monitoring Project—an Africa-wide study on marine plastic pollution initiated by Prof. Peter Schupp following the MeerWissen Network Meeting in Zanzibar (June 2022). On Chumbe Island, six transects were surveyed along both the western sandy beach and the eastern intertidal zone, resulting in the collection of 1,372 litter items weighing a total of 16 kg. This baseline data is vital for establishing a long-term marine litter monitoring program around Chumbe and contributes to international efforts to better understand plastic pollution in the Western Indian Ocean region.

C.3 Research communication

C.3.1 Scientific publications

During this reporting period, five peer-reviewed scientific publications were released based on research conducted in the Chumbe Reef Sanctuary:

- ❖ AU-IBAR, 2023. Review of Existing Marine Protected Areas (MPAs), Lessons, Best Practices and Guidelines for their Sustainable Implementation and Governance in Conservation of Aquatic Biodiversity Resources in the East and Southern African Regions
- ❖ Larsen, J., Maar, M., Rasmussen, M. L., Hansen, L. B., Hamad, I. Y., & Stæhr, P. A. U. (2023). High-resolution hydrodynamics of coral reefs and tracing of pollutants from hotel areas along the west coast of Unguja Island, Zanzibar. *Marine Pollution Bulletin*, 191, 114968.
- ❖ Caro, T., Rashid, R. S., Zeltman, J., Gierse, L. M., & Sollmann, R. (2024). Meta-and subpopulation estimation with disparate data: Coconut crabs in the Western Indian Ocean. *Animal Conservation*, 27(2), 184-195.
- ❖ Legrand, W., Kuokkanen, H., Marucco, F., Hazenberg, S., & Fischer, F. (2024). Survival of the fittest? A call for hospitality to incorporate ecology into business practice and education. *Cornell Hospitality Quarterly*, 65(1), 68-87.
- ❖ Koneru, M. (2024). The ABCs of Animal Coloration: Anthropogenic Change, Behaviour and Crabs (Doctoral dissertation, University of Bristol).

C.3.2. Communication collaterals

During 2023/24, a new Zanzibar Sustainable Seafood Guide was developed as an update to the original guide produced by CHICOP in 2017. The new edition was created in collaboration with the Ministry of Blue Economy and Fisheries, the Zanzibar Commission for Tourism, the Zanzibar Association of Tourism Investors, and the Rotary Club of Stone Town Zanzibar.

The guide serves as an educational and awareness-raising tool designed to assist the tourism industry and consumers in making informed, environmentally responsible choices regarding seafood consumption. Its primary objective is to reduce demand for over-exploited and vulnerable species that play a crucial role in maintaining healthy marine ecosystems.

The guide is available for free download:

https://chumbeisland.com/wp-content/uploads/2024/02/Zanzibar-Sustainable-Seafood-Guide_Chumbe-Island.pdf



C.3.3. Conferences and workshops

UNEP Collective Leadership and Technical Dialogues workshop, Stone Town, April 2023

CHICOP is one of only two private sector members of the Task Force for the Regional Ocean Governance Strategy process, managed by the Nairobi Convention Secretariat under UNEP. This quarter, CHICOP's Director and Marketing Manager participated in a Joint Collective Leadership and Technical Dialogues Write-shop at Hotel Verde. The event featured expert discussions on key themes, including ocean governance, the blue economy, marine biotechnology, research and development, and financing within the Indian Ocean Rim Association. The participation reinforced CHICOP's commitment to regional marine conservation efforts. More details are available in the [Writeshop report](#).

IUCN workshop, Nairobi, May 2023

Chumbe's Conservation and Education Assistant Manager, Salim Abdalla, attended a five-day workshop in Nairobi hosted by IUCN for BIOPAMA & BEST project grantees. The workshop focused on knowledge sharing, offering Chumbe Island the chance to interact with global grantees and learn from their success stories. Salim described the experience as "incredible," highlighting the valuable insights gained on project implementation and developing PANORAMA solutions.

USAID Heshimu Bahari Pause and Reflection meeting, Stone Town, June 2023

CHICOP attended the USAID Heshimu Bahari 'Pause and Reflect' workshop, where Chumbe was recognized as a world-class example of public-private partnership and private sector-led conservation in Zanzibar. The event highlighted Chumbe's role as a key stakeholder, and there are plans for the Heshimu Bahari project to involve Chumbe in upscaling efforts. Chumbe looks forward to contributing its knowledge and expertise for the benefit of Zanzibar as the project progresses.

Global Funds for Coral Reefs (GFCR) visit, July 2023

Nicole Trudeau, Jean Mensa and Fahd Al-Guthmy visited Chumbe, to showcase Chumbe as leading example of private-sector-led marine conservation. The visit reaffirmed GFCR's commitment to supporting Chumbe and prepared for a larger delegation in March 2024.

Volunteers & Interns

During 2023/24, the following outstanding individuals (Fig. 34) supported Chumbe's conservation and education initiatives on site:

US volunteer Ammar Reizeck completed a one-month internship at Chumbe in July 2023, focusing on marine litter monitoring. His work included reviewing scientific literature, conducting beach litter investigations, collecting data, and presenting results. He also assisted with data entry and ethnobotanical activities in the Chumbe office.

Peter M. Mahenge, a very enthusiastic Tanzanian joined Chumbe as Marine Science and Conservation intern for three months from August to October 2023. Peter decided to focus on humpback whale monitoring and developed this topic into a small-scale project, which involved coordinating and recording humpback whale sightings around Chumbe, preparing and implementing evening talks for international ecolodge guests. Besides this small-scale project, Peter also assisted in guiding ranger activities including patrolling the MPA, coral reef monitoring, reef shark observation data collection, camera trapping in Chumbe's Forest Reserve and EE trips to Chumbe Island.

Additionally, through our partnership with the DTP e.V. (German-Tanzanian Partnership) two new volunteers, Natalie Volkwein and Elisabeth Kraemer, joined our team to support conservation, education, and eco-tourism efforts.



Figure 34. Chumbe volunteers and interns in 2023/24 (left to right): Ammar Reizeck, Peter M. Mahenge, Natalie Volkwein and Elisabeth Kraemer.

Conservation Partnerships

CHICOP was pleased to continue its collaboration with the U.S. Forest Service on the implementation of several key conservation and education initiatives, including the Youth Conservation Ambassadors Programme (see page 40), the Women Ranger Internship Programme (see page 41), and the Aders' Duiker Assessment (see page 21).

CHICOP also partnered with the US-based Marine Conservation Institute, which had awarded CHICOP the Blue Parks Award in 2019 (<https://marine-conservation.org/blueparks/awardees/chumbe/>). This collaboration enabled CHICOP to enhance environmental monitoring within the Coral Reef Sanctuary before, during, and after the 2024 El Niño event. As part of this effort, HOBO monitoring equipment was installed (Fig. 35) which included temperature, conductivity, and pH loggers, to more effectively track water parameters that influence coral bleaching.



Figure 35. Installing HOBO monitoring equipment in the CRS.

ENVIRONMENTAL EDUCATION (EE)



The core strategic focus areas for CHICOP’s Environmental Education (EE) programme are (D) schools programme, (E) peer education and outreach initiatives and (F) wider stakeholder education initiatives. In line with the current ManPlan (2017-27), targets and progress of EE KPI’s for the period from 1st June 2023 to 31st May 2024 are presented in Table 3.

Table 3. Education KPI’s for 2023/24 – measurable targets versus achievements.

Education KPI’s	Yearly Target	Achieved
		23/24
# EE trips conducted to Chumbe Island	37	48 (32x funded externally)
# EE school trips conducted to Chumbe Island	20	23
# school children participating in EE schools trips to Chumbe Island	280	227
# teaching personnel (including local schools, Universities and NGOs) participating in EE trips to Chumbe Island	29	88
# peer education activities conducted (off island)	2	4
# community EE trips conducted to Chumbe Island with ‘Target’ and ‘Non-target’ communities	6	8
# fishers participating in EE trips to Chumbe Island	90	51
# EE University trips with SUZA University	1	1
# EE University trips with IMS Zanzibar	1	0
# EE University trips with other national Universities	5	1
# University students participating in EE trips to Chumbe Island	98	104
# EE trips conducted to Chumbe Island with government departmental agencies	2	2
# Government officers participating in EE trips to Chumbe Island	30	27
# EE trips with associated local NGO-Training Centers	2	6
# NGO members participating in EE trips to Chumbe Island	28	73
# ‘International days’ recognized through event-based activities on/off the island	1	6

Key achievement

During the 2023/24 season, 48 EE excursions were conducted to Chumbe Island, engaging 582 participants (see table 4 and figure 36). This marks a significant milestone, especially given the constraints of limited internal funding. Notably, the achieved KPI exceeded the annual target. Special thanks are extended to Silversea and the German Tanzanian Partnership (DTP), whose support made 65% of these EE trips possible during this period.

Table 4. EE trips conducted during 2023/24, according to the following, color-coded EE stakeholder groups: primary and secondary schools from Zanzibar (purple), communities from Zanzibar (light blue), national and international NGOs (light yellow), Government groups (orange), national and international Universities (light green).

Year	Month	Day	Group	Category
2023	June	2	James Madison University	International University
2023	June	4	James Madison University	International University
2023	June	13	KAWA Training Center (Tourguides)	NGO
2023	June	15	KAWA Training Center (Marine Course)	NGO
2023	June	16	SIT - climate change group 1	International University
2023	June	17	SIT - climate change group 2	International University
2023	June	22	Sustainable Seafood/Suppliers group 1	Community
2023	June	26	Sustainable Seafood/Suppliers group 2	Community
2023	June	27	Sustainable Seafood/Suppliers group 3	Community
2023	July	11	Sustainable Food Event winners	Community
2023	September	5	Chukwani Secondary School	School
2023	September	12	Kombeni Secondary School	School
2023	September	14	Minhaj Islamic School	School
2023	September	20	Abeid Amani Karume Secondary School	School
2023	September	21	Assalam International School	School
2023	September	26	Dr Salmin Amour Secondary School	School
2023	September	28	Mikunguni Secondary School	School
2023	October	3	SIT Undergraduate	International University
2023	October	9	Youth Summit Delegates	NGO
2023	October	10	Chuini Primary School	School
2023	October	12	Langoni Secondary School	School
2023	October	17	Donge Sec school	School
2023	October	19	Mbuzini Secondary school	School
2023	October	24	Maungani School	School
2023	October	26	Mombasa Center Sec Shool	School
2023	November	16	Al Rayyan	School
2023	November	21	Fishing community - Mazizini	Community
2023	November	30	Fishing community - Chukwani	Community
2023	December	4	Kijana Kwanza	School
2023	December	7	Benbella Secondary School	School
2023	December	19	SUZA (tourism)	National University
2024	January	9	ZAFIRI	Government
2024	January	11	Ministry of Health	Government
2024	January	16	Is-Hami Environmental Club	NGO
2024	January	18	SUMAIT	National University
2024	January	23	Al Malik Training Center	School
2024	January	25	Kidongo Chekundu Teachers	School
2024	January	30	Unguja Ukuu Teachers	School
2024	February	1	Fishing community - Chuini	Community
2024	February	10	Inspired Zanzibar Forum (IZF)	NGO
2024	February	13	Nyerere Secondary School	School
2024	February	15	Sunni Madressa School	School
2024	February	27	Nah-Dhat Islamiya	School
2024	March	5	Fishing community - Tumbatu	Community
2024	March	4	SIT	International University
2024	March	7	South East Coast International School	School
2024	March	12	GoGi Abroad	International NGO
2024	April	4	World Maritime University	International University

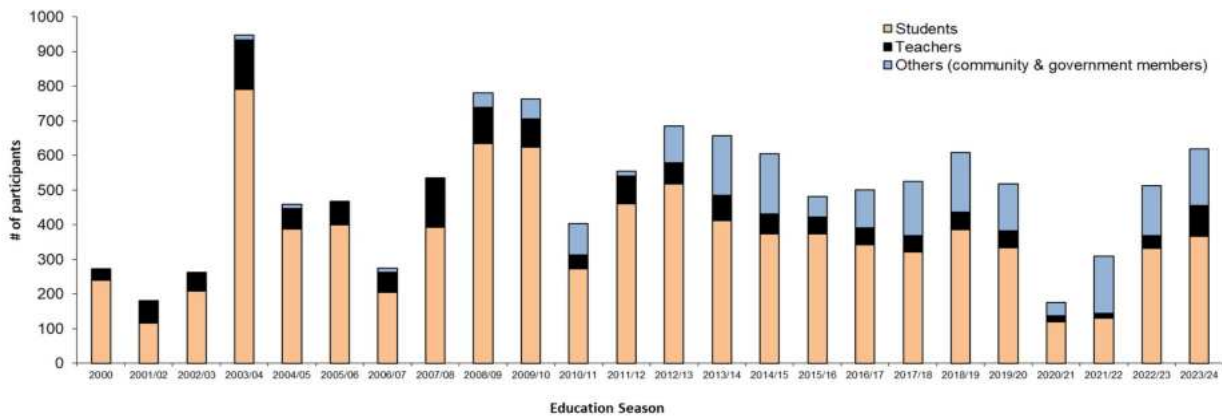


Figure 36. Total number of participants (students, teachers, government officials, and community members) that have participated in EE trips to Chumbe Island, from 1996 until April 2024.

D. SCHOOLS PROGRAMME

In line with D.6, updated pre- and post-excursion questionnaires were utilized for the 23 schools that participated in the 2023–24 EE season. Of the 23 participating schools, 14 were public secondary schools, three primary schools (government and private mixed), one Islamic school, one international school (South East coast) and three teacher training schools.

A total of 179 students (30 primary and 149 secondary) completed both pre- and post questionnaires, as part of the EE programme (table 5).

	Secondary School (n=149)	Primary School (n=30)
Age Range (years)	11 – 21	10 – 17
Average Age (years)	16	12
Gender Balance (% female)	53	50
Do not know how to swim (%)	60	37
Family involved in fishing (%)	24	40
Families aware of conservation (%)	68	73
E-club membership (%)	64	50

The survey results show that the EE programme helped students improve their knowledge and awareness of the environment. Secondary students showed gains of 7–30% across ten different knowledge questions, while primary students improved by 11%. One of the biggest changes was in understanding that corals are living animals. Before the trip, only 21% of secondary and 63% of primary students knew this, but after the Chumbe field trip 85% of secondary and all primary students answered correctly. This shows that the programme not only boosted overall knowledge but also helped clear up important misconceptions about coral reefs. The findings also highlight broader issues such as low swimming skills and the positive influence of environmental clubs in both school levels.

One major challenge in evaluating learning outcomes is the difficulty of maintaining consistent engagement with the same group of students throughout the entire duration of the programme.

Teacher evaluation workshop

Due to teacher availability, the Teacher Evaluation Workshop (D.7 and D.8) for Chumbe’s EE programme 2023/24 was conducted outside the reporting period, on 8 June 2024. It gathered valuable feedback from 19 participating teachers (11 male, 7 female) from the above mentioned secondary and primary schools. Most teachers (53%) were aged 30–39, and a significant portion (32%) had 5–10 years of teaching experience, while none had less than five years.

Notably, 72% were first-time visitors to Chumbe Island, and 94% took part in snorkeling, enriching their understanding of marine ecosystems. Although 72% felt adequately informed before the trip, 22% faced challenges from parents, such as obtaining permission for students to attend the field trip and addressing concerns about students’ late return on excursion days.

All teachers agreed that the trip aligned well with the school curriculum and that student safety was well managed. Additionally, 83% of teachers felt there were sufficient practical sessions during the Chumbe field trip, enhancing the hands-on learning experience, while 17% expressed a preference for even more practical activities, such as games and experiments.

Post-trip engagement was high, with 83% of teachers conducting lectures, discussions, or environmental activities with their students after the Chumbe field trip, ensuring that the experience and knowledge gained were shared with peers and incorporated into classroom teaching.

For the next EE phase (2024/25), Blue Economy was the most preferred focus area (47%), followed by overfishing (26%) and marine pollution (16%). Key suggestions included incorporating more pre-snorkeling training, using Kiswahili only for pre/post-tests, enhancing practical exercises, introducing educational games, improving equipment, and increasing trip capacity. Overall, teachers expressed strong satisfaction with the programme and emphasized its value in fostering environmental awareness and curriculum integration.

The full report can be downloaded [here](#).

E. COMMUNITY EDUCATION & OUTREACH PROGRAMME

In alignment with objective E.5, fishing communities from Mazizini and Chukwani (target communities) visited Chumbe Island, alongside non-target communities from Chuini and Tumbatu. EE sessions on the island were facilitated by Khamis Khalfan, Salim Abdalla Salim, and Head Ranger Omar Nyange. To evaluate the impact of the visit, small focus group discussions (FGDs) were conducted with community members both before and after the field trip.

Key outcomes and findings

A total of 52 participants (41 males and 11 females) participated in the EE excursions. Before the excursion, many members in these groups believed the island was exclusively for guests and off-limits to Zanzibaris. After the trip, perceptions shifted positively, recognizing Chumbe as a valuable site for learning, recreation, and effective marine management benefiting local people. Participants commended the CHICOP’s efforts in establishing the project.

Regarding marine protected areas (MPAs), participants agreed on their importance, emphasizing that benefits should extend to government, local communities, and society as a whole. Many reported that their

fishing areas—including Bawe, Changuu, Mazizini, and Mkokotoni—are in poor condition, with widespread overfishing, lack of regulations, and prevalent illegal and unsustainable fishing practices.

Sustainable Seafood Workshops for local suppliers

In June 2023, Chumbe held four workshops with local seafood suppliers as part of the “Zanzibar Sustainable Seafood Guide and Best Practices” project. These sessions aimed to raise awareness and build knowledge around sustainability in the seafood supply chain. The workshops targeted suppliers—particularly those from nearby communities working with hotels that support sustainable practices but had not yet engaged their suppliers. Discussions focused on the entire supply chain, highlighting how fishers, traders, hotels, and guests all play a role in shaping what seafood is caught, sold, and served.

Supported by the German-Tanzanian Partnership, 35 participants—including fishmongers, oyster collectors, and live lobster exporters—took part in the Chumbe Island workshops. This specific EE programme featured a mix of experiential and discussion-based activities, such as snorkeling and intertidal walks to explore marine biodiversity, interactive food web exercises to illustrate ecological connections (Fig. 37), sustainable seafood lunch showcasing viable alternatives, and classroom sessions introducing the Sustainable Seafood Guide and key ecological principles. These sessions ended with open group discussions on practical steps to improve sustainability across the seafood trade.

Pre- and post-assessments revealed a notable increase in participants’ awareness and motivation, underscoring the value of involving all stakeholders in the seafood supply chain to drive meaningful, lasting change toward sustainability. A detailed report can be downloaded here:

https://docs.google.com/document/d/1_YnBxrBqOIFVnKpc02iYRqm3OuRLoSqDRaODcylh/edit?tab=t.0



Figure 37. Interactive food web exercise with local seafood suppliers after snorkeling in the CRS.

F. WIDER STAKEHOLDER EDUCATION INITIATIVES

Youth Summit Delegates

In October 2023, Chumbe Island joined the Zanzibar International Youth Tourism Summit, which welcomed delegates from 23 countries. The summit highlighted youth-driven digital innovation for sustainable tourism, with a focus on Zanzibar. Discussions covered opportunities for youth in the tourism sector, the role of technology, engagement in the blue economy, and climate action through the Glasgow Declaration.

As part of the summit programme, youth delegates were invited to Chumbe Island for an EE excursion. The visit included guided snorkeling (Fig. 38) and exploration activities aimed at showcasing marine conservation and sustainable tourism practices in action while providing an interactive and enjoyable learning experience for the delegates.

Testimonials

"I'll take what I learned and bring environmental and blue economy education to schools and universities in my country."

"As an ambassador, I'll engage in sustainable tourism activities and promote Chumbe Island's core mission through my online platforms."

"I want to use technology, especially virtual reality, to give more people the opportunity to experience conservation areas both virtually and in person."



Figure 38. Delegates from the Youth Summit group enjoying the snorkeling in the CRS.

National and International University groups

In line with F.1 EE trips for national universities were conducted with SUZA (target) and SUMAIT (application based).

In addition, seven EE trips were conducted with international universities, involving the School of International Training (SIT), James Madison University (JMU), and the World Maritime University (WMU).

In total 86 students completed the international EE survey at the end of the excursion. Figure 39 highlights the diverse nationalities of the participants, including Tanzanian students enrolled in such international study programmes.

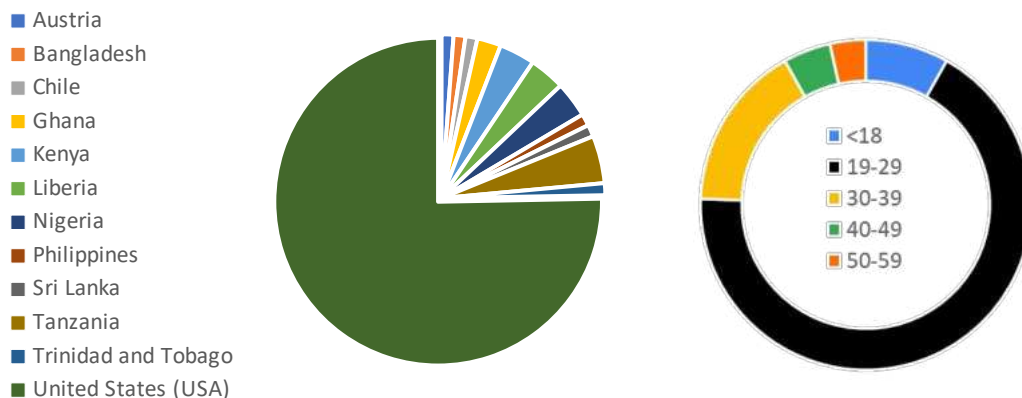


Figure 39. Demographics (left graph) and age distribution (right graph) of international university students who filled the survey (n= 86).

According to the survey results 95% of students agreed that the knowledge provided during the Chumbe EE field trip was relevant to their studies. Furthermore, all aspects of the programme were rated as excellent (Figure 40).

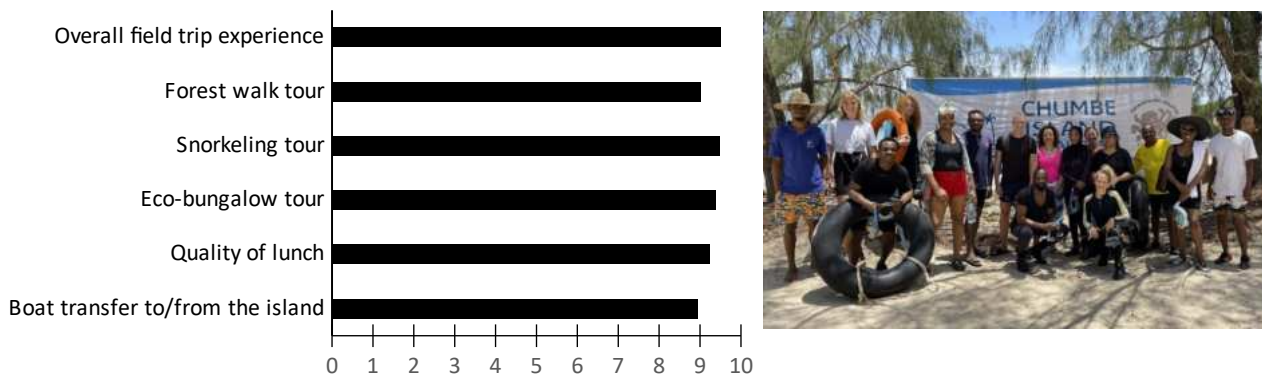


Figure 40. EE programme feedback on a rating scale: 1/poor to 10/excellent (left graph) and WMU group getting ready for snorkling on Chumbe Island (left photo).

Testimonials

“Thank you so much for allowing me to have this amazing experience.”

“I am very impressed with the work that is being done here and I would love to be a part of it someday.”

“This for me, will remain an everlasting memory. An experience to share with family, friend, workmates and all who pass my way.”

“Keep up the good work, because the world needs people like you to thrive in order to achieve environmental sustainability; and I am also sure that the nature on this island is glad to have you watch over it, too.”

Local NGOs

In line with F.5 and F.6, four EE trips with the following local NGO/training centres were conducted, including Kawa Training Center, IS-Hami Club and Inspired Zanzibar Forum (IZF).

The age distribution chart (Figure 41, right) shows that the majority of participants were between 19 and 29 years old. The left graph in Figure 41 presents participants' ratings of various aspects of the EE excursions. All categories, including quality of delivery, relevance to training, learning environment, engagement level, and overall experience, received very high ratings, with most scores exceeding nine out of ten. This reflects consistently high satisfaction with the programme across all evaluated areas.

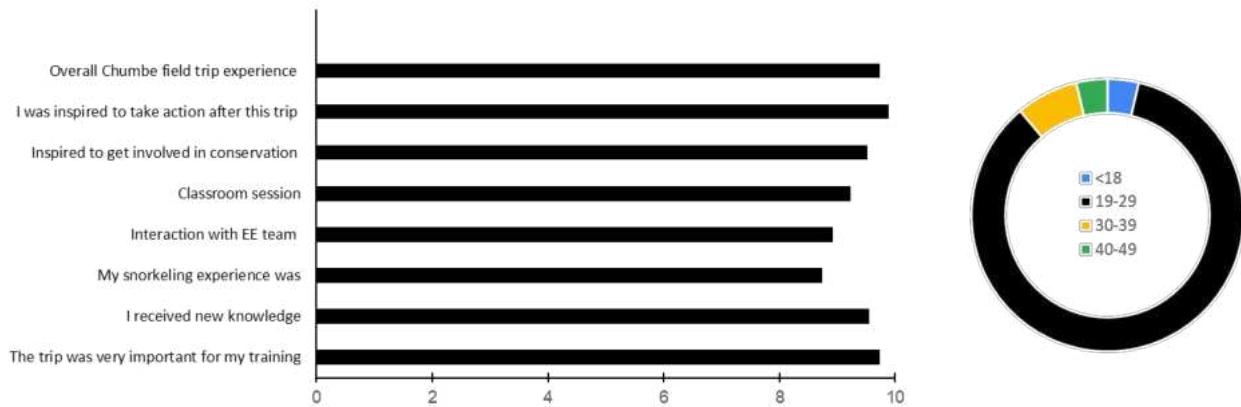


Figure 41. EE programme feedback on a rating scale: 1/poor to 10/excellent (left graph) and age groups of NGO members (right).

Take-away messages mentioned by participants in the survey:

"I learned to preserve environment for the sustainable future of Zanzibar."

"Taking care of marine life is taking care of our life for the present and future generations."

"We would like to see more eco-tourism projects established in Zanzibar."

Government

In line with F.3 and F.4, EE trips for government officials were conducted with key members from the (1) Ministry of Health and (2) Zanzibar Fisheries Research Institute.

In total 27 government officials participated in the EE trips and completed the feedback survey. Nearly 80% were between 19 and 29 years old (Fig. 42, left graph). The focus for these groups was on exchanging ideas and engaging in in-depth discussions with the Chumbe team about how Chumbe operates, and opportunities for strengthened collaboration. Government officials rated the collaboration sessions an average of 9.2 out of 10 (Figure 42, right graph). According to the survey, all participants agreed that the knowledge shared during the EE experience was relevant to their work. By the end of the excursion, 90% of respondents were aware that Chumbe operates as a not-for-profit organization. The overall experience was rated as excellent, with an average score of 9.5 out of 10 (Figure 42, right graph).

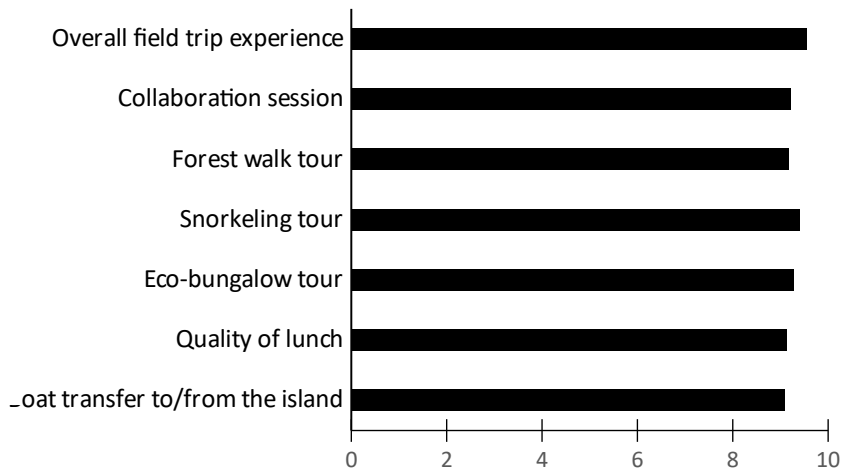
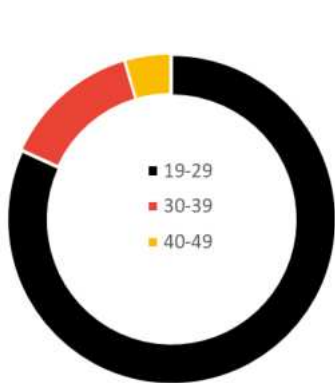


Figure 42. Age range (left graph) and EE programme feedback on a rating scale: 1/poor to 10/excellent (right graph).

Testimonials

“Please continue to motivate our communities in conserving our environment.”

“Thank you!! Your education was precious to me.”

“Please share the ecotourism principles with other island investors.”



Recognition of International Events



Earth Day – April 22nd

Focused on raising awareness about coral bleaching through social media and sharing insights from coral bleaching monitoring efforts.

World Environment Day - June 5th

CHICOP marked the #BeatPlasticPollution theme with a strong commitment to eliminating single-use plastics in its operations. Regular activities, such as beach clean-ups by CHICOP staff, took place on the day. Guests continue to be encouraged to manage their plastic waste responsibly and leave no trace. As Zanzibar’s Destination Ambassador for the UNWTO’s Global Tourism Plastics Initiative, CHICOP remains dedicated to protecting the environment for future generations.

World Oceans Day - June 8th

Chumbe’s EE team visited Maungani Secondary School’s Environment Club for an interactive ocean conservation session. Students took part in quizzes, with winners receiving educational supplies donated via the Pack for a Purpose programme—encouraging continued ocean stewardship.

International Day of Mangrove Conservation – July 26th

CHICOP hosted a drawing competition for secondary students to raise awareness about mangrove protection. Winners were awarded certificates and educational materials from Pack for a Purpose at a ceremony held at the CHICOP office. The event showcased the creativity of Zanzibari youth and emphasized the importance of preserving mangrove ecosystems.

World Rangers Day - July 31st

Chumbe Island joined global rangers in celebrating their role in protecting nature and cultural heritage. During an evening talk, Head Ranger Omar Nyange shared insights into his duties, while younger rangers gave testimonials on the benefits of working on Chumbe Island.

International Coastal Cleanup Day - September 17th

CHICOP, in partnership with Jungle Paradise Resort, organized a beach clean-up at Mbweni/Mazizini. In just 90 minutes, 29 volunteers—including Chukwani Secondary students and the Chumbe team—collected 252 kg of waste, including 759 plastic bottles, 150 glass bottles, and 526 other items. The initiative showcased the impact of collective action in protecting our coastlines.

Peer education activities

YOUTH CONSERVATION AMBASSADORS PROGRAMME

Building on the existing Chumbe EE programme, the Youth Conservation Ambassadors Programme (YCAP) was successfully established in collaboration with USFS. Targeting 18–20-year-olds from local Zanzibar communities with a keen interest in conservation, the programme offered a unique learning opportunity for participants to become ‘Chumbe Ambassadors.’

The programme was designed in August and September 2023 and officially launched in October 2023 with the first cohort of four youth ambassadors. Over a six-week period, participants engaged in weekly, hands-on learning sessions on Chumbe Island, each focused on a different conservation theme, including forest and marine conservation, eco-technology, ocean plastics, blue economy and waste management. Ambassadors actively took part in Chumbe’s ecological surveys and learning field techniques for conservation management. They were also given weekly assignments to reinforce their learning. In addition, they developed skills in public awareness, communication, and social media engagement.

The first YCAP concluded with four public awareness events (radio programme, beach-clean-up, mangrove planting with communities and marine conservation community event) led by the ambassadors where they applied their knowledge to educate the wider community on environmental issues. In December, an assessment and feedback session was conducted to evaluate learning outcomes and programme impact. Based on these insights, the programme was refined and adapted for the second cohort. The second YCAP started in February 2024 and is expected to run until August 2024. Alumni of the first YCAP remain engaged with Chumbe and continue to participate in follow-up ambassador activities at least once every three months. Impressions of YCAP are captured in Fig. 43.



Figure 43. Memorable moments during Chumbe’s YCAP, implemented from October 2023 to April 2024.

WOMEN RANGER INTERNSHIP PROGRAMME

Building on a ranger training event conducted by Chumbe in early 2022, a women ranger training programme (WRT) was also developed in collaboration with USFS in August 2023 and implemented from October 2023 to April 2024. The initiative focused on empowering women from local communities who traditionally have limited access to practical conservation opportunities. Two rounds of five-day introductory ranger programmes were conducted, each involving five female participants who were stationed on Chumbe Island throughout the training.

The programme offered immersive, hands-on training and mentorship across key ranger skills, including patrolling, biophysical monitoring (forest, marine, and intertidal), boat operation and engine maintenance, in-water safety (both theoretical and practical), environmental education, ecotourism, and guiding. Chumbe’s education and ranger teams played an active role in delivering the sessions, contributing their expertise and enriching the overall learning experience.

Following each introductory course, the two top-performing participants were selected for a three-month internship on Chumbe Island, offering extended field experience and professional development in conservation management.



Figure 44. Memorable moments during Chumbe’s Women Ranger Training (WRT), implemented from October 2023 to April 2024.



The Conservation and Education team is enormously proud of the work that has been achieved through our partnerships and collaborations. Thank you for your on-going engagement and support.

Asante-sana.

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