



University of Dar es Salaam

# SOAF NEWS

A Newsletter of the School of Aquatic Sciences and Fisheries Technology | Vol. 1 Issue 1 | December 2023

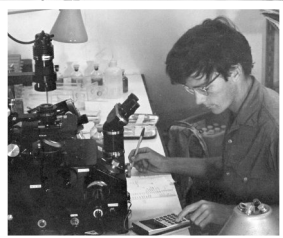


## Kunduchi Campus: *Its Captivating Journey Through Time*

INSIDE



**Kunduchi: A birthplace of marine sciences...**



**Kunduchi: An ideal setting to begin one's career...**



**SoAF at Kunduchi Campus...**



**Going back to where it all started ...**



## DISCLAIMER

The opinions expressed and arguments employed herein are those of the authors and do not necessarily reflect the official views of the University of Dar es Salaam.

# Editorial Board

## CHIEF EDITOR

Dr. Samwel M. Limbu

## MEMBERS

Dr. Rashid A. Tamatamah

Dr. Julius F. Woiso

Dr. Siajali P. Zegge

Mr. Samson J. Philemon

## Design and Layout by

Mr. Magembe R. Malima  
Email: [robigemedia@gmail.com](mailto:robigemedia@gmail.com)

## PHOTO CREDIT

Prof. Ian Bryceson

Dr. Albogast T. Kamukuru

Dr. Lydia Kanyairita

Mr. Rashidi Bilali

College of Agricultural Sciences  
and Food Technology (CoAF)

School of Aquatic Sciences and  
Fisheries Technology (SoAF)

e-ISSN 2961-6360

# About SoAF

The School of Aquatic Sciences and Fisheries Technology (SoAF) was established on September 22<sup>nd</sup>, 2020 and operates at Kunduchi Campus, about 16 km away from the University of Dar es Salaam Mwalimu Nyerere Mlimani Campus.

The School's mission is to advance the economic and social development in aquaculture, fisheries and aquatic environmental sciences through effective teaching, research, innovation and knowledge exchange linked to its vision of becoming a centre of excellence for training and conducting cutting edge scientific and technological innovations in aquaculture, fisheries and aquatic environmental sciences for sustainable and inclusive development.

Despite being a recently established academic unit at the University of Dar es Salaam, SoAF possesses an intriguing history and is home to a diverse mix of both early career scientists and seasoned experts in the field. The School boasts a wide range of expertise in various fields, including marine and freshwater sciences, wetlands ecology and watershed management, fisheries science and management, aquaculture, socio-economics and aqua-business, and aquatic pollution.

SoAF is the only unit in the country that offers degree programmes in fisheries, which are complemented by a comprehensive knowledge of marine and freshwater sciences. It is an ideal learning and research place for individuals interested in pursuing a career in fisheries, aquaculture, and aquatic sciences.

In addition to providing educational opportunities, SoAF also offers support for innovative research and access to technical advice through consultancy services.

**The next issue of SoAF News will be out in March 2024.**

**We welcome submissions of short reports, ongoing researches, completed researches, extension/outreach activities and commentaries related to aquatic sciences.**

**Please send your articles to [soaf@udsm.ac.tz](mailto:soaf@udsm.ac.tz)**



# Contents

Message from the Vice Chancellor .....	1
Message from the Dean .....	2
Message from the Chief Editor .....	3
Kunduchi: A birthplace of marine sciences in Tanzania .....	4
Prof. Philip O. J. Bwathondi	
Kunduchi: An ideal setting to begin a career in marine sciences .....	6
Prof. Ian Bryceson	
History of marine science training at the University of Dar es Salaam .....	9
Prof. Yunus D. Mgya	
SoAF at Kunduchi Campus: Embracing the origins .....	12
Dr. Blandina R. Lugendo	
My memories of Kunduchi .....	15
Mr. Guard L. Mziray	
Forty-five years at Kunduchi as a student, resident, instructor, and laboratory scientist .....	17
Dr. Albogast T. Kamukuru	
‘Going back to where it all started’ – a personal story .....	19
Dr. Rashid A. Tamatamah	
Kunduchi: A stepping stone towards development of my career .....	22
Dr. Shadrack J. Ulomi	
Nurturing knowledge and memories: 20 years at Kunduchi .....	23
Dr. Lydia G. Kanyairita	
SoAF Leadership .....	26
Photo Gallery .....	27



## Message from the Vice Chancellor

### Prof. William A. L. Anangisyé

I am pleased to be invited to write this message in this first issue of the *SoAF News*, the Newsletter of the School of Aquatic Sciences and Fisheries Technology (SoAF) of University of Dar es Salaam (UDSM). It is the latest addition of newsletters by academic units and projects, joining a league of new and old newsletters at the University. SoAF, being a new School, needs to prioritise its visibility and reputation while also maintaining strong connections with its stakeholders. *SoAF News* provides an avenue for connecting with stakeholders, complementing the School's website and its social media channels. The establishment of a newsletter, which will serve as an effective platform for dissemination of research and innovation findings, informing the public about its academic programs, as well as showcasing School's news and activities, is in line with the UDSM Communication Policy of 2019. I wish to congratulate SoAF on launching this newsletter, an endeavor that will broaden SoAF's visibility.

Although part of Kunduchi premises belonged to the UDSM since 1970s, and that more premises were acquired after the integration of the Kunduchi Marine Fisheries Research and Training Institute (KMFRTI) into UDSM in 2002, it became a fully-fledged campus in 2020 after the formal establishment of SoAF. The Campus has a rich and interesting history that involved different actors such as the then East African Community, the then Ministry of Natural Resources and Tourism and more recently the Ministry of Livestock and Fisheries of the United Republic of Tanzania. The decision of the School to feature the history of Kunduchi Campus in this first edition of the Newsletter is both timely and relevant, considering that the Campus's history is not widely known within and beyond the UDSM. The Kunduchi Campus also serves as basis for a strategic collaboration between UDSM and the Ministry of Livestock and Fisheries, first through a Memorandum of Understanding (MoU) signed in 2021 for the establishment and operation of a

National Mariculture Resource Centre (NMRC) being built on campus, and second, through the establishment of diploma programmes in fisheries-related fields at the University, which will also be offered on campus.

Kunduchi Campus is undoubtedly an ideal base for SoAF to further its academic and research programmes. The Campus sits on 86.9 acres of land. To guide the ongoing and future physical development of the Campus, a land use master plan was established in 2021. UDSM acknowledges the need to improve and expand the infrastructure at Kunduchi Campus to accommodate the increasing number of students, staff and activities. While a major rehabilitation of the existing buildings is currently underway, a state-of-the-art building with lecture rooms, laboratories and staff offices will be constructed through the World Bank funded Higher Education for Economic Transformation (HEET) Project. Further efforts are underway to enhance infrastructure development at the Campus. In line with the adoption of blue economy as one of the strategic economic models by the United Republic of Tanzania, UDSM has prioritised climate change and aquatic sciences (both marine and freshwater) as priority disciplines. In this respect, the University using the development of Kunduchi Campus as a launching pad, has embarked into strategic expansions in other parts of the country, including acquiring land for establishment of a multi-disciplinary research centre at Chato, Geita, and an inclusion of an aquaculture facility in Lindi Campus. These new facilities together with Kunduchi Campus will not only be available for academic and research activities to SoAF staff and students, but also to other units of the UDSM and visiting scientists and students.

To conclude, I have the honour to invite you all to read this first issue of *SoAF News*, which offers an intriguing history of Kunduchi Campus. This issue, hopefully, will inspire other academic units to document their history as well ■



## Message from the Dean

**Dr. Blandina R. Lugendo**

**T**he School of Aquatic Sciences and Fisheries Technology (SoAF) of the University of Dar es Salaam (UDSM) is committed to advancing the economic, social, and technological development of Tanzania and beyond, achieved through outstanding teaching, research, and knowledge exchange in fisheries, aquaculture, and aquatic environment related fields. Since its establishment in September 2020, SoAF has realized a significant increase in research projects and publications, particularly in peer-reviewed journals. This growth is attributed to dedicated staff and students, committed partners, and other stakeholders.

The School's research and training activities, while highly innovative, have not gained the recognition they deserve within and outside the University. This lack of awareness could potentially lead to a perception that the School is not achieving the desired impact on society and the public.

Currently, the School shares information about its activities and interacts with its partners and the general public through its website and active presence on social media platforms such as X (formerly Twitter), Facebook, and Instagram. As a new School, enhancing the range of its communication channels is crucial in boosting its reputation and visibility, as well as in connecting with various target groups, hence the establishment of this Newsletter, which goes by the name 'SoAF News'.

*SoAF News* will showcase the latest news and activities of the School, highlighting the research endeavours of our committed staff, students, and partners. In addition, *SoAF News* will keep our readers informed about the School's academic programmes, short term trainings, and outreach activities. *SoAF News* will also include summaries of the published papers in a more accessible language, making them available to a wider audience. Additionally, *SoAF News* will offer a platform to SoAF staff and students to share their personal perspectives, opinions, and expert insights on significant national and international matters related to fisheries, aquaculture, and aquatic sciences. The views expressed in the Newsletter will be solely those of the authors and will not reflect UDSM's opinion or its official policies.

This first issue of *SoAF News* is dedicated to the Kunduchi Campus, the base of SoAF. It will take our reader through the long and intriguing history of the Campus. Articles in this issue were written by individuals who know Kunduchi well as they either worked at Kunduchi Campus or they were students. Together they have been able to provide the first comprehensive history of Kunduchi Campus. We are grateful to them for their willingness to write their articles and to provide some of the photos used in this issue.

From this issue, it will become evident that Kunduchi Campus is the perfect home for SoAF, as it symbolizes a return to where it all began ■



## Message from the Chief Editor

**Dr. Samwel M. Limbu**

Dear Readers,

**T**his is one of the greatest honours of my academic career to serve as the Newsletter Chief Editor for the School of Aquatic Sciences and Fisheries Technology (SoAF) at the University of Dar es Salaam (UDSM). I am immensely pleased to launch the first edition of the SoAF Newsletter for 2023 titled *“Kunduchi Campus: Its captivating journey through time.”*

The first edition of the SoAF Newsletter features special content. In this edition, we have compiled valuable information from scientists in Tanzania and abroad, showcasing their experiences of Kunduchi Campus during their academic journeys. The gathered information is presented in a user-friendly format that is both well-organized and easy to comprehend. The content flows in a clear and straightforward manner, ensuring a smooth reading experience for our audience. To achieve this, our first step is to enlighten readers and help them grasp an understanding of SoAF. This is followed by a dedicated message from the Vice Chancellor of the University of Dar es Salaam, Prof. William A. L. Anangisye, who provides his insights and perspectives on the significance of SoAF within the university community. Additionally, we have included a message from the Dean of the School of Aquatic Sciences and Fisheries Technology, Dr. Blandina R. Lugendo. Dr. Lugendo's message offers valuable insights into the vision, achievements, and future initiatives of SoAF.

We proceed to highlight the significant contribution of Kunduchi Campus as the birthplace of marine science in Tanzania. We emphasize its role in nurturing and developing talented aquatic scientists by providing them with a conducive academic environment and access to research facilities. Furthermore, to enhance readers' engagement, we furnish five testimonies from experts who

share their memorable experiences of their academic journey at Kunduchi Campus. These testimonials provide first-hand accounts of the valuable lessons learned and personal growth that have been cultivated within this remarkable academic environment.

By sharing these fascinating and heartfelt stories, we aim to offer readers a fresh and enlightening perspective on the Kunduchi Campus and its profound impact on the development of marine science in Tanzania. Through the lens of history, readers will gain a deeper understanding of the significant milestones, challenges, and triumphs that have shaped the campus into what it is today.

Furthermore, SoAF is well known for the hard work, dedication and scholarship of its members, which have enabled the School to perform beyond expectations in teaching, research, knowledge exchange, and consultancy at the UDSM.

I cannot complete this message without recognizing the contribution of all the dedicated scientists who wrote the wonderful and inspiring articles. I greatly recognize and applaud their contributions, without which this Newsletter edition would not have been possible.

Last but not least, I would like to thank the Dean - SoAF and the SoAF Newsletter editorial board members for their unwavering support throughout the preparation and production of this edition. The publication of this Newsletter is a testament to their determination, commitment and ability to work tirelessly to serve the SoAF, the University and the entire Tanzanian community.

On behalf of the Dean of SoAF, the SoAF Newsletter editorial board members, and myself, I would like to extend our heartfelt wishes to you and everyone involved in SoAF, the University, and the Tanzanian community for a Merry Christmas and a Happy New Year 2024 ■



## Kunduchi: A birthplace of marine sciences in Tanzania

**Prof. Philip O. J. Bwathondi**

Retired Associate Professor (UDSM), Retired Director General - Tanzania Fisheries Research Institute (TAFIRI) & Part-time Instructor at SoAF

**S**tudies in marine sciences at the University of Dar es Salaam (UDSM) officially started in the Department of Zoology and Marine Biology in 1965. Before this time, there were studies carried out by individuals mainly as reports on major sightings, such as stranded whales in Banda Beach in Dar es Salaam, or by scientists carrying out oceanographic surveys in the South West Indian Ocean, or carrying out research on fisheries and related sciences under the East African Common Services Organization and later the East African Community.

### Field work for undergraduate students

During the earlier days of the establishment of the UDSM at the main campus, both the Departments of Botany and Zoology and Marine Biology were housed in the same building and collaborating in most field activities at the Kunduchi station. In Zoology and Botany Departments, students were mainly studying algae and fungi (mainly taxonomy and classification and some ecology), vertebrate and invertebrate taxonomy, classification and ecology. The marine science studied at the University was taught by lecturers at the main campus while the practical work was done at the Marine Biology Station, Kunduchi. A one-week field course was done during the long vacation. It covered, among other things, the type of beaches (sandy, muddy and rocky) and their ecology. Samples collected were preserved, analyzed, labeled and kept as spirit collection for future studies.

Currently there are estimated more than 200 species of fish and other marine organisms in bottles filled with formalin solution, stored at SoAF, at the Kunduchi Campus and a few in Zoology and Wildlife Department at the Mwalimu Julius Nyerere Mlimani Campus. These spirit collections need to be cared for since they contain valuable records.

### Study site for postgraduate students and scientists

Besides undergraduate teaching, a number of postgraduate researches were carried out by members

of staff during the period between 1965 and 1980. Some of these researches included; PhD in fisheries by Prof. Wazir Okera, PhD in mangroves by Prof. Alison McCusker, PhD in plankton by Prof. Ian Bryceson, and PhD in prawns (crustaceans) by Dr. S.P. Subramaniam. During the same period both Prof. Philip O.J. Bwathondi (on lobsters) and Dr. Boniface Mwaiseje (benthic ecology) completed their Master's degrees in Tanzania before pursuing their PhD studies in the United Kingdom.

Other works done by both graduates and expatriates during the same period include those of Mr. Yason E.S. Mndeme (oyster biology and culture), Mr. Winfried V. Haule (prawn biology in a mangrove creek), Mr. Nobert A. Kayombo (*Anadara*, Mollusca), Prof. Kamazima M.M. Lwiza (oceanography, tidal and ocean currents movements), Prof. Richard G. Hartnoll (crustaceans, mainly crabs), Dr. C. Sankarankutty (zooplankton), Dr. G.M. Bernacsek (fauna of sandy beach at Kunduchi), and several other graduate researches.

### Research vessels operated from Kunduchi

Researches carried out by staff and students of the Department of Zoology and Marine Biology were facilitated by a research boat R.V. Pomboo (this vessel later ran aground at Kunduchi) and a 5.2 m outboard boat, R.V. Nguru. The two vessels were assisted by a fisheries vessel, R.V. Mbudya. One of the most outstanding researches in 1978-1979 includes the trials and development of cage farming in marine waters in Tanzania.

Cage farming in marine waters was conducted both at Kunduchi and Zanzibar and involved rabbitfish (*Siganus sutor*). The findings were significant and resulted in adopting the technology to the cage farming in Tanga for Silver pompano (*Trachinotus blochii*). This was extended to Lake Victoria.

### The collapse of the East African Community

The collapse of the East African Community in 1977 posed a big challenge both to the country and the



## Kunduchi: A birthplace of marine sciences in Tanzania

UDSM. All fisheries and fisheries related activities were handed over to the Department of Fisheries in Ministry of Natural Resources and Tourism, which then assigned the UDSM the responsibility of care-taking them while arrangements were being made to institute a body (Tanzania Fisheries Research Institute) as final custodian of fisheries research. Thus marine fisheries researches on the mainland were temporarily centred at the Kunduchi Marine Biology Station (the current seat of SoAF). The UDSM, through the Department of Zoology and Marine Biology, was given the mandate to draft and manage the East African Marine Fisheries Research Organization (EAMFRO)

in Zanzibar. This assignment was well completed and the first Director, Prof. Abdulrahman Msangi from the Department of Zoology and Marine Biology took office in Zanzibar. The EAMFRO institute in Zanzibar was then given a new name, the Institute of Marine Sciences (IMS) under the UDSM. The UDSM through the Department of Zoology and Marine Biology built a strong foundation for marine science at IMS, Zanzibar.

In conclusion, it is obvious that Kunduchi Marine Biology Station has played a major role in the development of marine sciences in Tanzania since the time Tanzania attained her independence from Britain ■



Aerial photograph of Kunduchi taken in 1979. ©Ian Bryceson



## Kunduchi: An ideal setting to begin a career in marine sciences

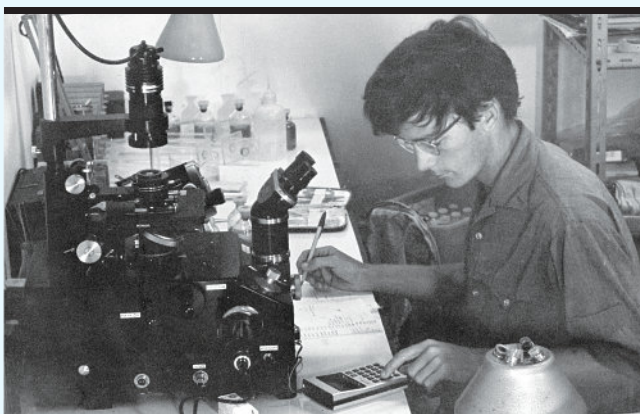
**Prof. Ian Bryceson**

**Emeritus Professor - Norwegian University of Life Sciences**

**S**ince the 1960s, Kunduchi was the location for the University of Dar es Salaam's Marine Biology Station and the adjacent Kunduchi Marine Fisheries Research and Training Institute, whose facilities are now combined to form the university's School of Aquatic Sciences and Fisheries Technology (SoAF).

### An ideal place for multidisciplinary research

The location of Kunduchi's facilities is ideal for marine science research and training. The buildings are situated a few metres from a beautiful long white siliceous sandy beach, below which there are sandy intertidal flats, and seawards from these lie extensive seagrass beds with clear depth-related zonation. Just 450 metres southwards, flows a tidal creek, which fills and drains a mangrove forest with the rising and falling tides. The mangrove forest contains a diverse flora and fauna typical of mangroves. Seaward to the east, just three kilometres offshore, is Mbudya Island, which is now part of the Dar es Salaam Marine Reserve System, encircled by a magnificent coral reef, rocky intertidal platform, white coralline sandy beaches, and limestone cliffs. Further to the south lies Msasani Bay, which contains multiple coral reefs and seagrass beds. The continental shelf offshore from Kunduchi is quite narrow, so that truly oceanic waters of the Western Indian Ocean flow nearby.



Ian using an inverted microscope in one of the laboratories at Kunduchi (1973). ©Ian Bryceson

From a social science perspective for marine and coastal research, Kunduchi is ideally located to Kunduchi fishing village, with a community of small-scale fishers who have extensive and profound traditional knowledge of marine ecosystems and traditional coastal and fisheries management systems. Adjacent to Kunduchi is also a large tourist hotel, where one can observe both the positive benefits and the negative impacts of the tourism industry on the coastal environment and neighbouring communities.

The close proximity to Kunduchi of these social and ecological processes makes it a perfect site for multidisciplinary and transdisciplinary studies. Kunduchi is also an attractive setting for regional and international scientific collaborations.

### Personal story: where it all began

My own personal passion for marine ecology started at the young age of eleven in 1961, when my family moved to Dar es Salaam from Kilimanjaro. Our home was quite close to Kunduchi, located adjacent to Msasani and Kawe fishing villages, where the fishers were enormously kind to me, and invited me to accompany them on fishing trips in their *ngalawa* (outrigger canoes) across the bay and out to nearby islands, all close to Kunduchi too. The fishers' profound knowledge of marine species, ecosystems and oceanographic processes inspired me to wish to study marine sciences. After completing school, I was fortunate to be awarded a Fulbright scholarship to study marine sciences at the University of Washington in Seattle.

### As a staff of the Kunduchi Marine Fisheries Research and Training Institute

I completed my studies quickly, and in 1971, aged twenty-one, immediately returned to Tanzania and applied for a position at the Kunduchi Marine Fisheries Research and Training Institute from January 1972. I was appointed Head of Training, but I was surprised to find that the fisheries syllabus was simply a copy of a Canadian syllabus, and I promptly requested to introduce changes in the syllabus to make it more relevant to Tanzania's coastal resources, fishing

## Kunduchi: An ideal setting to begin a career in marine sciences



Aerial photograph of Kunduchi. ©Ian Bryceson

technologies, and fisherfolks' livelihoods, but the Principal and Canadian and Dutch 'experts' considered my suggestions to be irrelevant, and my wish to invite knowledgeable fishers to give lectures about small-scale fisheries to be contravening civil service regulations. I therefore chose to seek employment at the University of Dar es Salaam, and was fortunate to start work as a Tutorial Assistant from January 1973, with access to the wonderful facilities of the Kunduchi Marine Biology Station in its ideal setting for marine research and field visits for university students.

### As a PhD student at Kunduchi

In 1973, I submitted a research proposal to study phytoplankton ecology in the coastal waters of Dar es Salaam, and commenced my PhD research.

My choice to focus my PhD research on phytoplankton ecology was because I considered this to be the largest gap in marine science knowledge in Tanzanian and East African coastal waters. Phytoplankton are the main primary producers of the world's oceans, and very little was known about them for the Western Indian Ocean, apart from a few sporadic short-term international observations.

The textbooks that I had studied at the University of Washington asserted that there was no clear seasonality in tropical marine systems, but the lessons that I had learned from small-scale fishers and coastal villagers did not agree with this, and there were names for the seasons (*Kaskazi*, *Masika*, *Kusi*, and *Vuli*). I set about measuring seawater temperature, salinity, dissolved oxygen, phosphate, nitrate and chlorophyll levels regularly throughout the year, and took samples of phytoplankton.

Kunduchi Marine Biology Station had fairly modest but good-quality facilities, including wet labs, large aquaria, and an inverted microscope (ideal for phytoplankton studies). The technical staff of the station, including Kacholima (a boat driver, who was also chairperson of Kunduchi village), Mshamu (a cleaner, who was also renowned traditional doctor), Nguzo, Evans, Mkombachepa, Mulyutu and Biringi, all of whom were immensely kind and helpful. Academic staff included Rudman (New Zealand), Rosen (USA), Sankarankutty (India) and Menon (India). At this time, Boniface Mwaiseje and Philip Bwathondi were studying for their PhDs in Britain, and they subsequently returned to join the Kunduchi Marine Biology Station staff.

We did not have a spectrophotometer at Kunduchi, or even at the main campus, at that time, so I requested Prof. Nhonoli of the Central Pathology Laboratory at Muhimbili Hospital to allow me to use their spectrophotometer once a week, and he kindly agreed. Later, I was also kindly assisted by Prof. Fay of the University of London for access to gas chromatograph and mass spectrometer.

My research confirmed the clear seasonality of physical and chemical oceanographic conditions, which verified the traditional knowledge of the fishers and villagers, while disproving the text books and conventional science. The seasonality of Tanzanian coastal waters is influenced by the monsoon winds, whereby the northern monsoon (*Kaskazi*) is characterised by lower wind speeds, less waves and vertical mixing, clearer water visibility, and higher temperatures, whereas the southern monsoon (*Kusi*) exhibits stronger winds, bigger waves, deeper mixing, greater turbidity, and lower temperatures. The inter-monsoonal periods of *Masika* and *Vuli* coincide with

**Kunduchi: An ideal setting to begin a career in marine sciences**

the longer and shorter rainy seasons, which are characterised by lower inshore salinities. Phytoplankton ecology is accordingly heavily influenced by this seasonality, and in particular, I found that the phytoplanktonic cyanobacterium *Trichodesmium erythraeum* is dominant in the water column throughout the northern monsoon, but absent during the southern monsoon, due to strong mixing of the water column in the latter period, causing it to be inhibited by low light intensities. This seasonality of phytoplankton productivity strongly affects the seasonality of zooplankton (confirmed by Okera's thesis), and then small fishes and finally larger fishes at all trophic levels of the pelagic food chain, including migrations of tuna and other large species. This seasonality also influences benthic ecosystems to a considerable extent. I defended my PhD in 1977, and then continued to work in more detail on nitrogen fixation by planktonic cyanophytes, which constitutes crucial enrichment of Indian Ocean waters with biologically assimilable nitrogen, the principle limiting factor for productivity.

While studying phytoplankton from a base at Kunduchi Marine Biology Station, I also observed other marine ecosystem processes, and was able to bring University of Dar es Salaam students to Kunduchi to experience beaches, seagrasses, mangroves and coral reefs. Students cannot comprehend marine science without spending considerable time in these ecosystems, and they cannot appreciate the myriad of underwater life with incredible biodiversity without swimming and



*Tubastrea aurea* at Mbudya island.  
©Ian Bryceson

snorkelling to watch them for themselves. Similarly, students cannot learn about fisheries technology from books alone, so it is crucial to spend adequate time sailing and fishing with local fisherfolk in their traditional vessels using traditional gears. The combination of traditional knowledge together with modern science and technology is what all aspiring marine scientists should strive to learn from.

From Kunduchi, I was fortunate to experience many positive lessons, but there were also some negative issues. One of the issues was the destruction of coral reefs by dynamite fishing, which was the subject of my first scientific publication. Contrary to other claims, I realised that the small-scale fishers were not to blame, but that corrupt bureaucrats were the real organisers and perpetrators of dynamite-fishing.

**After Kunduchi**

The late Boniface Mwaieseje and I both sought postdoc fellowship elsewhere in 1980, and he moved to France and I to Norway. From Norway, I have continued my research in marine sciences, now as Professor Emeritus at the Norwegian University of Life Sciences, and all along I have strived to promote a series of marine science collaboration projects with the University of Dar es Salaam. Currently, I feel privileged to be part of two major six-year NORHED-funded projects, including the School of Aquatic Science and Fisheries Technology at Kunduchi as a key actor ■



*Rhizophora mucronata* prop-roots, Kunduchi mangroves.  
©Ian Bryceson



## History of marine science training at the University of Dar es Salaam

**Prof. Yunus D. Mgaya**

**Former Dean - Faculty of Aquatic Sciences and Technology (FAST), Former DVC - PFA (UDSM), Retired Director General - National Institute for Medical Research (NIMR), Chancellor - Kampala International University in Uganda**

**T**he Faculty of Science (FoS) at the University College Dar es Salaam, part of the University of East Africa, recognized the importance of fostering a strong focus on marine biology in both undergraduate and postgraduate teaching programmes and research. This realization came soon after the establishment of the FoS in 1965. The history of marine science education at the University of Dar es Salaam (UDSM) traces back to the creation of the Marine Biology Laboratory in 1967 at Kunduchi Campus, under the auspices of the University College Dar es Salaam. The administration of the Laboratory was under the purview of the Department of Zoology.

### Construction of the Station

The construction of the laboratory consisted of two distinct phases as described by Hartnoll (1974): Phase One, financed by the University, comprised a large, well-equipped laboratory with all the necessary facilities. These facilities included utilities such as electricity and gas. Along the sides of the laboratory were ten 1800-litre aquarium tanks, which were supplied with seawater and compressed air. The seawater supply operated through an open circulation system that revolved around a tidal well-constructed between the laboratory and the shore, as outlined by Hartnoll in 1974. Furthermore, according to Hartnoll (1974), the tidal well was approximately 4 meters deep and received seawater through a plastic pipe that opened near the mean low water springs. Water from the well was then pumped to the aquarium tanks using a centrifugal pump with a capacity of 5500 liters per hour (Hartnoll, 1974). The elaborate seawater supply system has disappeared due to the rise in sea level and subsequent erosion of the beach.

Phase Two, which was completed later in 1967, after the University received a generous donation from the British Nuffield Foundation, introduced an extensive lecture theatre attached to the northern end of phase one, and a new one-storey building on the seaward side of the facility, for housing both students and staff (Hartnoll, 1974). This new building, which hosted living quarters on the top floor and storerooms and workshops on the ground floor was used as a rest

house. The facilities of phase two were for the joint use of the University and the neighbouring Kunduchi Marine Fisheries Research and Training Institute (KMFRTI), which was under the Ministry of Agriculture, Forests and Wildlife. Subsequently, in 1970 the University made some structural modifications to phase one, to accommodate their resident research staff. According to Hartnoll (1974), the watchman's quarters were repurposed to create a small library and offices for the lead scientist and a typist. Additionally, the general store was transformed into a compact, air-conditioned laboratory. As for the large laboratory, it was divided into three smaller laboratories and a dedicated workroom for the technician.

### Introduction of marine biology in UDSM programmes

The station underwent further development and was upgraded to a Marine Biology Station in 1970. The Kunduchi Marine Biology Station (KMBS) played a significant role in facilitating undergraduate training, postgraduate research, and collaborative studies between departments in the FoS and the Institute of Marine Sciences (IMS).

The significant scientific contributions made by the station led to a proposal by the FoS and subsequent agreement by the UDSM to rename the Department of Zoology as the Department of Zoology and Marine Biology. This change aimed to consolidate the marine biology expertise within the FoS, encompassing both the Department of Zoology and the Department of Botany.

Once all the necessary infrastructure was constructed, the UDSM introduced a Marine Biology major. Additionally, in 1987, the establishment of the Applied Microbiology Unit in the Department of Botany allowed for the introduction of an Applied Microbiology major. As a result, Marine Biology students had the opportunity to pursue a double major in Marine Biology and Applied Microbiology. These developments made it possible for students who were doing a general Bachelor of Science degree to do the following combinations:

## History of marine science training at the University of Dar es Salaam

- 1) Marine Biology and Chemistry
- 2) Marine Biology and Zoology
- 3) Marine Biology and Botany
- 4) Marine Biology and Applied Microbiology

### Associated training institutions

Since its establishment, the Marine Biology programme at the UDSM had a bias towards producing graduates, focusing on marine resources conservation and management in general. In order to develop experts in fisheries management at local, district, and regional levels, and to enhance understanding of both freshwater and marine resources, the Fisheries Division of the then Ministry of Agriculture, Forests, and Wildlife recognized the necessity of establishing several institutions, namely the KMFRTI, Nyegezi Freshwater Fisheries Institute, Mbegani Fisheries Development Centre, and Tanzania Fisheries Research Institute (TAFIRI). The KMFRTI, founded in 1967, aimed to provide training for fisheries managers at the district and regional levels, initially involving experts from both the UDSM and the Fisheries Division.

The established KMFRTI under the Fisheries Division of the Ministry of Agriculture, Forests, and Wildlife shared certain facilities with KMBS. KMFRTI primarily offered a Diploma Course in Fisheries, enabling its graduates to assume middle-level positions in fisheries management at both regional and district levels. Teaching at KMFRTI was supported by five departments, namely, Fisheries Management and Administration, Fisheries Biology, Marine Engineering, Nautical Science, and Food Technology.

### Integration of KMFRTI into the UDSM

In response to the absence of a degree programme in fisheries science in Tanzania, the Ministry of Natural Resources and Tourism introduced a proposal for post-graduate diplomas in fisheries and advanced diplomas in fisheries management, aquaculture, food technology, and nautical science. After considering the demands for implementing these programmes, the Ministry recognized its lack of sufficient human resources. As a result, the UDSM was approached to explore the possibility of integrating the KMFRTI into the university, with the aim of developing the proposed programmes into degree programmes. Additionally, the request was made for UDSM to continue offering the existing Diploma programme provided by KMFRTI.

Consequently, discussions regarding the integration of KMFRTI with UDSM began at a time when the UDSM community was contemplating ways to restructure both administrative and academic units, aiming to achieve academic excellence. This restructuring was driven by the UDSM Corporate Strategic Plan, which received approval from the University Council in

1994, and further supported by the outcomes of a university-wide academic audit conducted in 1998.

Drawing upon the expertise available at the time within the UDSM, specifically the Marine Biology Section of the Department of Zoology and Marine Biology, the Department of Botany and the IMS, the UDSM accepted and agreed to the proposal. To this end, on 23<sup>rd</sup> November 2000, the proposal for integrating the KMFRTI into UDSM was submitted to the Government for approval. Subsequently, on 3<sup>rd</sup> September 2001, the late Benjamin William Mkapa, the former President of the United Republic of Tanzania, assented to the integration proposal.

In light of the Government's approval of the integration between KMFRTI and UDSM, the Chief Academic Officer (CACO) at the time appointed a Committee, which I served as the Chairman. Through a letter dated October 12<sup>th</sup>, 2001, the Committee was tasked with collaborating closely with the Ministry of Natural Resources and Tourism to oversee the implementation of the proposed integration.

During its deliberations, the Committee examined three scenarios regarding the integration of KMFRTI into UDSM. These scenarios are as follows: Scenario 1 involved clustering IMS, select units of FoS, and KMFRTI into either a School or Campus College mode. However, this option could not be considered at that time due to the requirement of new flexible University Act for establishing the proposed Colleges and Schools.

In Scenario 2, which involved a Department mode integration, the objective was to protect academic and professional accomplishments, as well as the mission of establishing the marine sections of FoS, IMS, and KMFRTI. However, clustering them into a department, potentially under the FoS, could jeopardize the proposed expansion of aquatic sciences academic programmes. Additionally, this mode may not adequately address the interests of the Ministry of Natural Resources and Tourism in transferring KMFRTI to UDSM. Therefore, a higher organizational unit than a department was deemed more suitable for the envisioned integration of KMFRTI into UDSM.

In Scenario 3, referred to as the Faculty mode, the Committee suggested that the integration of KMFRTI and the Marine Biology section within the FoS should form the foundation of the proposed faculty, closely collaborating with IMS. The recommended name for this faculty was "Faculty of Aquatic Sciences and Technology" (FAST). This scenario was chosen based on the existing UDSM legal framework, which allowed for units within the university to cluster and establish faculties. The rationale behind this decision

## History of marine science training at the University of Dar es Salaam

was the anticipation of increased student enrolment resulting from the introduction of new academic programmes. These programmes would include the Diploma programme that was already being offered at KMFRTI. Consequently, the Committee deemed this scenario suitable for integrating KMFRTI into UDSM and expanding aquatic sciences education in the country.

### Establishment of FAST

The Faculty of Aquatic Sciences and Technology (FAST) was established on October 25<sup>th</sup>, 2002, as outlined in Government Notice No. 486, published on the same date. I had the honour of being appointed as the founding Dean of FAST. I served in this capacity from October 2002 until December 4<sup>th</sup>, 2006, following my appointment as the Deputy Vice Chancellor responsible for Planning, Finance, and Administration. Subsequently, the late Prof. John Ferdinand Machiwa was appointed as the Dean of FAST from 2006 to 2008.

The Faculty was established following the integration of the then KMFRTI formerly under the Ministry of Natural Resources and Tourism, and the former Marine Biology Section of the then Department of Zoology and Marine Biology, UDSM. FAST was operating from Kunduchi, in the premises of the former KMFRTI and the KMBS of the UDSM. The objectives of FAST were to undertake training, research and to provide advisory and consultancy services in all aspects of aquatic sciences, fisheries, coastal management and conservation issues to government, public and private sector.

To enhance cooperation and collaboration among the former faculties, the FAST, the FoS, and the IMS - a concerted effort was made to consolidate their partnership. As a result, each unit nominated a representative to serve on the respective boards, including the Faculty Boards and the Institute Board. This strategic arrangement aimed to ensure that academic and research programmes within these three entities were well-coordinated and mutually reinforcing. By having common membership on these boards, the units were able to articulate their academic goals effectively and foster synergy among their programmes.

The FAST consisted of two academic departments: the Department of Aquatic Environment and Conservation, and the Department of Fisheries Science and Aquaculture.

The FAST offered four academic programmes during its establishment. These programmes were as follows:

1. Bachelor of Science (B.Sc.) in Fisheries and Aquaculture
2. B.Sc. in Aquatic Environmental Science and Conservation
3. Two-year Diploma in Fisheries
4. Postgraduate programmes leading to M.Sc. and Ph.D. in Aquatic Sciences

After the establishment of the FAST, several buildings previously belonging to the KMFRTI became part of the FAST infrastructure. These buildings included: Main administration block, Engineering and Nautical Science building, TAFIRI building; UDSM building, Kitchen and dining building, Boys' dormitory, Estates building, Garage, Social club building, Residential buildings (grades A and B; total: 33 units). The integration of these buildings into FAST provided the necessary infrastructure to support the academic and administrative activities of the faculty and further strengthen its operations.

The existence of FAST was short-lived, as it underwent integration with the FoS in 2008 as part of a university-wide reorganization programme. This programme established a three-tier management structure for academic units at the Mwalimu Nyerere Mlimani Campus: Department, College/School/Institute, and Central Administration. Through this integration, the College of Natural and Applied Sciences (CoNAS) was formed, incorporating the FAST as a department. Consequently, the former FAST was renamed as the Department of Aquatic Sciences and Fisheries (DASF). In summary, the history of marine science training at the UDSM has been a long journey, resulting in the production of numerous experts who hold various positions both within the country and abroad ■



One of the classrooms at Kunduchi Campus that belonged to KMFRTI. ©Rashidi Bilali



## SoAF at Kunduchi Campus: Embracing the origins

**Dr. Blandina R. Lugendo**

Dean & Senior Lecturer, SoAF

**T**he School of Aquatic Sciences and Fisheries Technology (SoAF) of the University of Dar es Salaam (UDSM) has such a long and complex history that I hardly know where to begin. The preceding articles offer insights into its origins, which can be traced back to the 1960s. I will start my account by focusing on what transpired in the recent past.

### From a Department to a School

In 2015, the Department of Aquatic Sciences and Fisheries (DASF) that was formed through the merging of two departments that belonged to the Faculty of Aquatic Sciences and Technology (FAST) and included in the establishment of the College of Natural and Applied Sciences (CoNAS), was subsequently relocated from CoNAS and served as a foundation for the establishment of the College of Agricultural Sciences and Fisheries Technology (CoAF). The new college was housed in the CoAF building, which was formerly known as FAST building. While in CoAF, all staff that belonged to DASF were placed in one department, which was renamed, the Department of Aquatic Sciences and Fisheries Technology (DASFT). It is this department that was later upgraded to become the SoAF.

### Staff scattered within and outside the Campus

It would be remiss of me if I did not say anything about the amazing FAST building located at UDSM Mwalimu Julius Nyerere Mlimani Campus. The FAST was established in 2002 and at that time, did not have its own building. As a result, staff were housed in various buildings of the university including the Department of Zoology and Wildlife Conservation, UDSM (Old) Library, Dar es Salaam University Press (DUP) building, and near the DARUSO offices at Mwalimu Julius Nyerere Mlimani Campus. In addition, a few other staff members, were located at Kunduchi Campus. This situation gave rise to the need for a single building that would house offices for staff, laboratories and lecturer rooms, and possibly enhance a sense of togetherness among the faculty staff. The opportunity presented itself during the World Bank (WB) funded project under the Science, Technology and Higher Education Project (STHEP), which provided different types of support to the Faculty including the construction of the faculty building and scientific equipment. The construction of the FAST building started in 2012. However, shortly before construction was completed, CoAF was established, and since DASFT was part of this new bigger unit, the name of the building was changed from FAST building to CoAF building. If you were to ask me whether the



The building that hosted DAFST. ©CoAF



The building that hosted the Marine Biology Section, FAST and DASF. ©Rashidi Bilali



## SoAF at Kunduchi Campus: Embracing the origins

initial goal of having a building to bring all staff together and foster a sense of togetherness was achieved, I would definitely say yes. This is because the building housed not only members of the then FAST, but also several other departments under CoAF. Additionally, until today its lecture rooms continue to be used by students from various programmes at the Mwalimu Julius Nyerere Mlimani Campus.

### Kunduchi Campus: Why now?

The need to re-establish a unit similar to the FAST that was envisioned in 2002 still remained. This was necessary in taking care of all the ambitions that the government of Tanzania through the Ministry of Natural Resources and Tourism had, and which, in turn, led to the transfer of the Kunduchi Marine Fisheries Research and Training Institute (KMFRTI) to the UDSM. Therefore, the process of establishing an academic unit bigger than a Department started in late 2019 and on September 22<sup>nd</sup>, 2020, the SoAF was established through the upgrading of DASFT, with its headquarters at Kunduchi Campus. If you believe in fate, then it is obvious that this event was a blessing in disguise because it would not have occurred at that particular moment, if a series of other events did not take place.

In his article, Prof. Yunus D. Mgaya provides a detailed account of the integration of the KMFRTI into the UDSM in 2002. However, sometimes in 2019, there was a strong move to return part of the Kunduchi Campus (that belonged to KMFRTI) to the Ministry of Livestock and Fisheries. This led to a protracted dispute between the Ministry of Education, Science and Technology on behalf of the UDSM, and the Ministry of Livestock and Fisheries, which had to be mediated by the Prime Minister's Office. In the end the Prime Minister Hon. Kassim Majaliwa Majaliwa (MP) got personally involved and, after being appraised with all facts, he directed that the Campus should continue to be under the UDSM.

To this end, I would like to express my sincere gratitude to the Ministry of Education, Science and Technology, and the UDSM Management, particularly the Deputy Vice Chancellor - Academic, Prof. Bonaventure S. Rutinwa, who had to relocate and set up an office at Kunduchi Campus, Prof. Yunus D. Mgaya, who accompanied us in all negotiation meetings in Dar es Salaam and Dodoma, and former Chairperson of the UDSM Council, Hon. Judge Damian Z. Lubuva (Retired), who attended in person during the Prime Minister's meeting, held at Kunduchi Campus. Their efforts finally paid off by ensuring that, the Kunduchi Campus remains under the custodianship of the UDSM.



Visit by the Prime Minister, Hon. Kassim Majaliwa Majaliwa (second from the left), at Kunduchi. Others in the front line, from left, are former Minister of Livestock and Fisheries, Hon. Luhaga Mpina (MP), former Chairperson of the University of Dar es Salaam Council, Rtd Judge Damian Lubuva, Vice Chancellor of UDSM Prof. William A.L. Anangisyse, and Deputy Vice Chancellor Academic at UDSM Prof. Bonaventure Rutinwa. ©SoAF

### The shift to Kunduchi Campus

As SoAF staff, we were happy and excited about the new achievement (that is, the establishment of SoAF), but the immediate move from the main campus and preparations to operate from the Kunduchi Campus was not an easy one. This is because we had to move from our newly constructed building (CoAF) to a new Campus where the buildings were not only dilapidated and insufficient to accommodate all staff, but also inadequate to support undergraduate and postgraduate teaching and research activities. In order to offer our degree programmes efficiently, the School has to operate from both the Mwalimu Julius Nyerere Mlimani Campus and Kunduchi Campus. On the positive side, we saw the move to the Kunduchi Campus as an opportunity for growth, in terms of infrastructure, programmes and research, as well as in the pursuit of new collaborations with other institutions within and outside the country. As of now, the condition of the buildings has improved considerably, thanks to major refurbishment work that is currently ongoing at the Campus. However, the buildings and spaces remain the same, necessitating the delivery of our programmes from both Campuses, a situation which is not only inconvenient to staff and challenging in time-tabling, but also costly.

### Programmes offered at the School

The SoAF currently offers one three-year undergraduate programme, the Bachelor of Science (BSc) in Aquatic Sciences and Fisheries, which currently has between 50 and 70 students enrolled. The

### SoAF at Kunduchi Campus: Embracing the origins

School also offers four postgraduate programmes (two each for Master of Science, MSc and Doctor of Philosophy, PhD). The two MSc programmes both running for 24 months, are the MSc in Fisheries and Aquaculture (by Coursework and Dissertation) and the MSc in Aquatic Sciences (by thesis). The two PhD programmes have the same name, that is, PhD in Aquatic Sciences, with differences in the way they are being offered: A three-year PhD in Aquatic Sciences (by thesis), and a four-year PhD in Aquatic Sciences (through Coursework and Dissertation).

We currently have an agreement with Fisheries Education and Training Agency (FETA) to offer a Diploma in Aquaculture pending infrastructure and staff availability.

We are currently reviewing our curricula, with a goal to increasing the number of programmes available to meet the market's demand for various experts, a situation that would further complicate things if the infrastructure remains the same. It is worth noting that, offering all academic programmes from Kunduchi Campus will not only make the Campus vibrant, but also be convenient to staff and students alike. It is expected that through the World Bank funded Higher Education for Economic Transformation (HEET) Project, one block that will host three lecture rooms and one laboratory will be built at Kunduchi Campus. We are optimistic that the construction of more buildings in the Campus to support teaching and research, will remain a priority for the University and the Government as a whole.

#### Where will SoAF be 10, 20 and 50 years from now?

Where would I like to see the SoAF in the next 10, 20 or 50 years? This is an important question, considering our important role in producing professionals in the fields of aquatic sciences, fisheries and aquaculture. Tanzania is blessed with abundant Blue Economy resources from both marine and freshwater environments. The country is now earnestly determined to fully harness its blue economy potential, especially through the fisheries and aquaculture sectors. This requires skilled professionals in various areas along the value chain, including increased but sustainable exploitation, enhanced aquaculture production, processing and value addition, marketing, etc. I would like to see the SoAF offering diversified programmes that produce skilled professionals to cater for this need, in our country and beyond. I would like to see the SoAF carrying out solution-based research and bring solutions to numerous challenges currently faced in the fisheries and aquaculture sectors, and those related to the aquatic environment. While the Kunduchi Campus will continue to serve as the School's base and a hub for marine-related training and

research, the development and establishment of a strategically located Freshwater Research Centre at Chato in Geita Region, along the shores of Lake Victoria is on the horizon and will serve as the School's main training and research hub for freshwater-related fields. It is my conviction that having strong marine and freshwater bases will strengthen the School's training and research capabilities and thus attract more students as well as new and more lucrative collaborations. I can see the SoAF embracing more technological, innovative, interdisciplinary and multidisciplinary academic programmes and research projects. In 10 years to come, I can see the SoAF supporting the production, maintenance, and expansion of fisheries and aquaculture in Tanzania and the strategic impact in key specialized areas of aquatic environmental conservation, fisheries, aquaculture and beyond.

#### Who made it possible?

SoAF was established with 29 staff (21 academic, 6 technical and 2 administrative), and within a short period of time its staff has grown to 46 (30 academic, 6 technical and 10 administrative). The history of SoAF would not be complete without remembering two senior academic staff: Prof. John Machiwa and Dr. Paul Onyango who passed in 2022. Their contributions to the discipline of aquatic and fisheries science in Tanzania, and their efforts towards the establishment of SoAF were enormous and will be honoured and cherished forever. It is also worth recognizing the contribution of three retired senior technical staff: Dr. Shadrack Ulomi, Mr. Martin Loth, and Mr. Yukundus Mhonda, who were present during the establishment of SoAF.

I am honoured to write this article, as the founding Dean of this new and prestigious School. I remember being appointed as the Acting Dean of the School, one month after its establishment. It is a great honour for me to have worked alongside Dr. Prosper Mfilinge, who was appointed as the Associate Dean, a few months later. SoAF was established with only two departments, namely, the Department of Aquatic Sciences and Fisheries Technology, which carries exactly the same name as the original department that was upgraded to SoAF. This department is led by Dr. Sijali P. Zegge as its first Head. The second is the Department of Aquaculture Technology, which is led by Dr. Samwel M. Limbu.

All of the above mentioned plans will be possible with the strong backing of the University Management working hand in hand with SoAF and partners towards advancing the economic, social and technological development of Tanzania and beyond ■



## My memories of Kunduchi

**Mr. Guard L. Mziray**

Retired Chief Laboratory Scientist, UDSM

**I** first came to know about Kunduchi in 1977 when I was employed by the University of Dar es Salaam (UDSM) as a Tutorial Assistant in the then Department of Zoology and Marine Biology in the then Faculty of Science (FoS).

### Recruited at UDSM as a Marine Biology staff

When I reported for duty the then Head of Department Professor Abdulrahman Msangi informed me that I was going to join the Marine Biology Staff that included Prof. Philip Bwathondi, the Late Dr. Boniface Mwaieseje, Dr. Ian Bryceson and others. At that time, most of teaching was done in the Department's Laboratories and FoS's lecture theaters. It was at this time that I learned about another facility known as Kunduchi Marine Biology Station (KMBS) located on the shore of the Indian Ocean a few kilometers from the main campus. This was administratively part of the Department of Zoology and Marine Biology. It was headed by an Officer in Charge who was an Academic member of Staff appointed by the respective Head of Department.

The KMBS had only one building with one-storey annex and it was sandwiched between Kunduchi Beach Hotel and Kunduchi Marine Fisheries Research and Training Institute (KMFRTI). The building was used to offer a Diploma Course in Fisheries under the Fisheries Department of the then Ministry of Natural Resources and Tourism of the United Republic of Tanzania. The station was mainly used for research activities, collection of teaching materials and conducting field practicals. Beside the basic laboratory glassware and equipment, the station had outboard engines for a rubber dinghy and a fiberglass boat. There was also a relatively big wooden boat named "Pomboo" which was fitted with an inboard engine. There were technical staff like Messrs Chania, Mkombachepa, Evans and Kacholema who were capable of driving and repairing boats and engines, respectively.

### Kunduchi experiencing erosional problems

The site where the KMBS is built was probably not the best because it is exposed to sea waves and prone to

beach erosion. Word has it that the initial chosen site for the station was at the fish landing area at Msasani, which is relatively well sheltered. The beach erosion at Kunduchi has cut back the coastline to the extent that it posed a threat to structures built on the beach. In fact, there was a period in the late 1990s when the Station's one-storey annex building was on the verge of collapsing as the sea had extended to less than 5 meters from the building. Owing to the threat posed by wave erosion to the beach properties around Kunduchi, owners of the Kunduchi Beach Hotel, which borders KMBS to the north, decided to reclaim the eroded part using stones aimed at limiting the movement of waves and sand particles. Fortunately, this move changed the shore wave movement dynamics that resulted in sand accretion (instead of erosion) near the station and the hotel. This process contributed to what eventually saved the annex building from collapsing. To date, the annex building sits comfortably at the distance of more than 50 meters from the seashore.

### Exposed to direct effects of waves

In addition to threatening beach structures, exposed shore at Kunduchi experiences big waves during strong wind conditions, which presents a problem of safe mooring of boats and other sea going vessels. Sadly, this is what happened when "Pomboo", the Station's wooden boat was damaged beyond repair in the fateful day after the staff including myself, had left for home after working hours. The strong winds caused the boat to drift to the beach, where it was battered by waves and broke into pieces. When we went to the station the next morning, we found pieces of wood strewn on the beach and half of the boat buried in sand. It was a sad day for the UDSM and KMBS staff.

### Lost part of UDSM land

The other sad moment for the KMBS came when it lost a piece of land to a privately owned hotel named Kunduchi Beach Hotel. The station shares a border with the hotel and for many years a wire fence marked the boundary between the two facilities. One day when we reported for work at the station we were surprised by seeing heaps of stone aggregates dumped outside

## My memories of Kunduchi

the building. An enquiry into this situation revealed that the owner of the aggregate was our neighbor, the Kunduchi Beach Hotel. The hotel was going to build a new concrete boundary several meters inside a piece of land that for many years had been known to belong to the UDSM. Surprisingly, it was made evident that the Government through Lands Division had offered a private hotel a piece of land that belonged to its own academic institution. This conflict landed at the Office of the Commissioner of Lands who called for a joint meeting between the hotel and the University. I happened to be a member of the University team, which was led by the then Chief Administrative Officer, Prof. Daniel Mkude. What happened in that Office was an embarrassment to the UDSM. It came to be known that the piece of land in contention was not legally owned by the University. This is because although the University had an offer for the land, dating many years back, it did not process for the issuance of a respective Title Deed. This conflict became an eye opener for the University and from that day onwards it made sure that any land belonging to the University was surveyed and Title Deed offered for it.

### Special visitor

The KMBS has had a fair share of visitors. However, the most prominent one was Prince Akihito, the son of the Emperor of Japan. He visited the Station when he was on a state visit to our Country. During his visit to Tanzania, it came to our knowledge that Prince Akihito had an interest in studying fish and had published several papers on the subject. He was considered an expert in gobies and one species of goby (*Exyrias akihito*) has been named after him. This piece of information guided us in deciding that it would be a nice gesture if there was a display of mud skippers, the mangrove gobies, when Prince Akihito visited the station. A collection of live specimens of fishes was made and kept in the aquarium. On the day of his visit to the Station, Prince Akihito spent quite some time observing the fishes on display and was appreciative of the effort made to collect the specimens. In 1989 Prince Akihito became the Emperor of Japan. I may continue providing more stories about Kunduchi Campus. I could continue to provide more stories about Kunduchi Campus, but suffice it to say I have deep memories of the place which I will forever cherish ■



Buildings of the former Kunduchi Marine Biology Station. ©Rashidi Bilali



## Forty-five years at Kunduchi as a student, resident, instructor, and laboratory scientist

**Dr. Albogast T. Kamukuru**

Retired Chief Laboratory Scientist and Part-time Lecturer, SoAF

**M**y memories regarding Kunduchi Campus span for forty-five years (July 1978 – July 2023) in different phases including as a student in the Fisheries Diploma, B.Sc., M.Sc. and Ph.D. degree programmes. Moreover, I have been a resident and worked as an instructor at Kunduchi Campus engaging in teaching and supervising students in the undergraduate and graduate programmes. Though retired since 2015, my involvement with the School of Aquatic Sciences and Fisheries Technology (SoAF) of the University of Dar es Salaam (UDSM) has continued to date as a part-time instructor.

### Student in the Diploma in Fisheries programme

From July 1978 – July 1980, I attended a two-year Fisheries Diploma programme at Kunduchi Marine Fisheries Research and Training Institute (KMFRTI) under the Fisheries Division in the Ministry of Natural Resources and Tourism of the United Republic of Tanzania. This programme exposed me to a full package of fisheries aspects offered in five academic departments namely, Fisheries Biology, Food Technology, Marine Engineering, Nautical Sciences and Fisheries Management and Extension. Besides the taught theoretical and practical classes at KMFRTI, I had an opportunity to attend practical trainings and excursions at various places within the country including a three-month freshwater fisheries studies exchange programme at Nyegezi Freshwater Fisheries Institute. Such kinds of diversity exposure was of an immense value to fisheries aspects. For the planned revival of the Fisheries Diploma Course, the former programme offered by KMFRTI, should be the basis of the new programme.

### Undergraduate student

From July 1982 – March 1985, I attended a B.Sc. Degree (General) majoring in Zoology and Marine Biology subjects in the Department of Zoology and Marine Biology of the UDSM. Under this programme fisheries aspects received an insignificant contribution. However, aquatic science practical classes relevant to

fisheries were conducted at the Kunduchi Marine Biology Station (KMBS) of the UDSM. This programme also gave me another opportunity of visiting KMBS regularly.

### MSc student

From October 1989 – February 1992, I attended a M.Sc. Degree programme by coursework and dissertation in the Department of Applied Zoology of the University of Kuopio, Finland. During my studies, the fieldwork of the dissertation titled “Costs and earnings of basket trap and handline fishery in the Dar es Salaam Region, Tanzania” was carried out in Dar es Salaam while based at KMFRTI between May 1991 and August 1991 from which, I received the logistical support.

### PhD student

From July 1999 – November 2003, I attended a Ph.D. Degree programme by thesis in the Department of Zoology and Wildlife Conservation of the UDSM. During my Ph.D. thesis research titled “Effects of fishing on growth and reproduction of the blackspot snapper, *Lutjanus fulviflamma* (Pisces: Lutjanidae) in shallow waters of Mafia Island, Tanzania”, laboratory analysis of fish samples was conducted at KMBS of the UDSM.

### Resident and UDSM staff

During my time residing, working and studying at Kunduchi Campus, I have witnessed major changes that are highlighted below:

*Emergence of institutions:* Four public institutions namely, KMFRTI, KMBS, Kunduchi Beach Hotel and Kunduchi Ruins Antiquity existed at Kunduchi area by 1978 with the former having a lion's share of the land and seafront area. To date, six new institutions have emerged namely, Tanzania Fisheries Research Institute - TAFIRI (both the Headquarters and Dar es Salaam Centre), the African Minerals and Geosciences Centre (formerly known as SADC Mineral Centre), Kunduchi Islamic Girls Secondary School, Kunduchi Police

## Forty-five years at Kunduchi Campus as a student, resident, instructor, and laboratory scientist

Station, Kunduchi Wet-in-Wild Water Park and of recent, the National Mariculture Resource Centre (NMRC) of the Ministry of Livestock and Fisheries.

*Beach erosion:* Beach erosion changed the shoreline at Kunduchi area with the significant loss of some beach structures. Notably, the radio-call house of KMFRTI that was formerly located at 60 m from the shoreline was less than a meter by 1995.



Radio-call house of KMFRTI as it appeared being threatened by the beach erosion in December 1995. ©Albogast T. Kamukuru

The seawater pumping station and a watchtower of the Kunduchi Marine Biology Station that were formerly land-based had been decreased by 6 m from the shoreline by December 1995.



Seawater pumping station and a watchtower of the Kunduchi Marine Biology Station as they appeared being threatened by the beach erosion in December 1995 and current situation (the insert). ©Albogast T. Kamukuru

Other observations were the seawater that flooded into the nautical science building of KMFRTI, the current administration building of SoAF and the swimming pool of Kunduchi Beach Hotel in 1995. Seawater intrusion was a red flag to take action by our neighbours particularly, Kunduchi Beach Hotel, former Africana Hotel, Silversands Hotel and Bahari Beach Hotel. They installed groynes for protecting their properties in January 1996.



Land reclamation using stones at Kunduchi Beach Hotel in January 1996. ©Albogast T. Kamukuru

*Fisheries supporting infrastructure:* KMFRTI was endowed with infrastructure that supported fishing activities including flake ice making machine, cold room, fish canning machine, small to medium-sized fishing boats, fish smoking kilns, fishing gear of various categories (ringnets, sharknets, gillnets, beach seines, hook and line and fish traps) and boat and engine repair facilities. The entire setup exposed students to fisheries practical oriented aspects.

*Kunduchi fish landing site:* The public fish landing site was relocated to the beach at KMFRTI between the nautical science and Block A residential buildings in 1987/1988. The fish landing site immediately attracted a lot of stakeholders (fishers, fish traders/mongers/processors, pet-business and the like). The impact of beach trampling led to the disappearance of *Ipomoea pes-caprae*, a famous beach creeping plant that formed tangled mats to hold tight sand particles. Consequently, the resulting loose sand particles over the entire area of KMFRTI and KMBS together with increased intensity of dynamite fishing activities within the vicinity were considered to have contributed to severe beach erosion observed in mid-1990s.

Today the Kunduchi fish landing site has been relocated to Kunduchi Pwani village. Moreover, the blasts from dynamite fishing are no longer frequently heard at Kunduchi area. Consequently, the positive changes at the Kunduchi Campus include the retreat of shoreline to its previous 1978 mark and the entire beach area is densely covered by *Ipomoea pes-caprae* ■



## ‘Going back to where it all started’ – a personal story

**Dr. Rashid A. Tamatamah**

Former Director General - Tanzania Fisheries Research Institute (TAFIRI),  
Retired Permanent Secretary (MLF-Fisheries) & Senior Lecturer, SoAF

**T**his article summarizes my personal story during a 42-year career in the fisheries sector. My career began by enrolling into a two-year Fisheries Diploma Programme at Kunduchi Marine Fisheries Research and Training Institute (KMFRTI) in 1981, working as a Tutor at the same institution, a Lecturer at the University of Dar es Salaam (UDSM), managing Tanzania Fisheries Research Institute, serving as Permanent Secretary of Fisheries in the Ministry of Livestock and Fisheries of the United Republic of Tanzania, and finally returning back to UDSM to continue teaching until retirement.

### **Kunduchi Marine Fisheries Research and Training Institute (KMFRTI)**

In this article, I have tried to focus on the first few years of my career that I spent at Kunduchi as a Fisheries Diploma student and a faculty member (Tutor) at the then Kunduchi Marine Fisheries Research and Training Institute (KMFRTI) under the Ministry of Natural Resources and Tourism. That is where I believe my journey truly began. Today, when I celebrate an accomplishment, I dedicate it to the younger version of me for the training and mentorship that I received at the KMFRTI.

The post-independence efforts of developing the fisheries sector and increasing the production of fish and fish products witnessed the establishment of fisheries Educational Institutions and Programs at Certificate and Diploma levels in the late sixties. KMFRTI was one of the Educational Institutions established in 1967 to train fisheries diploma graduates for an actively developing industry. Until 2003 when fully fledged fisheries degree programmes were established by UDSM following the establishment of the Faculty of Aquatic Sciences and Technology (FAST), the majority of fisheries employees at the district and regional levels were graduates from Certificate and Diploma programmes offered at KMFRTI, Mbegani Fisheries Development Centre and Nyegezi Freshwater Fisheries Institute (NFFI) under the then Ministry of Agriculture, Forests and Wildlife and

later transferred to the Ministry of Natural Resources and Tourism.

My entry into fisheries sector began as a student in a two-year Fisheries Diploma Programme (cohort of 1981-1983) who thought that it would be nice to work in fisheries and enjoy the great outdoor activities related to the sector. Little did I know where my career would take me, the great experiences that would be enjoyed, and that so much of the work would involve, sitting behind a desk in offices and standing in front of students in lecture halls! In retrospect, my career was an evolving adventure and continuous learning experience.

Former alumni and staff of KMFRTI, fisheries managers and employers alike would agree with me that Fisheries Diploma training at Kunduchi was one of the most popular and successful programmes in imparting professional competences that were consistent with the requirements of the fisheries sector in Tanzania and the region. The programme was quite successful in imparting general fisheries knowledge to students in fields of Fisheries Biology, Fish Processing, Marine Engineering, Nautical Science and Fisheries Management. Such knowledge enabled graduates to appraise, establish and manage fisheries enterprises as well as fisheries development projects especially in rural areas. The programme also provided basic knowledge to prospective students who aspired for a degree in biological sciences or other tertiary training programmes in fisheries and related sectors.

### **Practical fishing and field programmes**

The success of this programme owes largely to the way in which its curriculum was crafted. In addition to classroom lectures and practicals, nearly 50% of the programme was conducted outside classrooms in practical fishing and field extension programmes. I remember one of the induction practical arrangement we attended in the first three months of joining the programme was boat driftnetting (popularly known as *Kurambaza*) conducted in student rotations on every

**‘Going back to where it all started’ – a personal story**

Friday and Saturday nights. These were conducted close to the institute in the seashore areas between Mbudya Island and Fungu Yasin mainly targeting kingfish (*Scomberomorus commersoni*). In those good old days typical catch would be between 15 and 70 fish a night. This programme was also popular in the sense that it made new students who felt they could not cope with seasickness associated with fishing to quit the Fisheries Diploma programme and find a career elsewhere in very early days of their enrolment. In my cohort, three students quit the programme because they could not endure with the rigors of night fishing.

The other field practical course was a 3-month intensive fishing in which students were attached to commercial fishing companies where they spent time onboard commercial trawlers and purse seiners operating in the coastal area of Tanzania. Personally, I spent time at sea with three different trawlers belonging to Tanzania Fishing Corporation (TAFICO). The largest of these trawlers was Mama TAFICO which, in a single fishing trip, it stayed at sea for a period of 20 days. Other medium sized trawlers I spent time in were MV Mchungu, MV Shangani and MV Nangalu, which were sea-bound for seven days in a fishing trip. For purse seining, I spent 10 days of fishing with MV ‘Giriki’, which was owned by a private fishing company in Dar es Salaam. Similarly, there was a 3-month field extension practical session in which, students were attached to work with local fishing communities in different water bodies in Tanzania. Between 1<sup>st</sup> October and 24<sup>th</sup> December 1982, I was privileged to spend my field extension attachment at Lang’ata Bora Fishing Community in Nyumba ya Mungu Dam. It is here where I learned, among other things, to go out in a night fishing using local dugout canoes.

These field practicals allowed students like myself to learn about what it means to be at sea for days on end as well as what it is like to be a fisherman. It was a privilege to be able to work and discuss the concepts we have learned in class with some local fishermen to gain insight that cannot be attained or taught in an academic setting. Meeting fishermen in a variety of local settings allowed roots to be established early on between most of us who were just about to enter a fisheries career and those who have acquired a wealth of knowledge over the years, further bridging the gap that can occur between academia and industry.

Class and laboratory practicals equipped us with skills to handling a live fish and learned how to identify, measure, tag, and release fish. Other practical skills included net mending and repair, troubleshooting an outboard engine, fish canning and managing fish in an aquaculture setting. Canned fish from our fish processing laboratory had a shelf life of up to 12 months.

**From Tutor at Kunduchi to Lecturer at UDSM**

Following successful completion of the Fisheries Diploma Programme in July 1983, I was employed at KMFRTI where I started teaching the first year Diploma course “Fish Handling and Processing” offered in the Department of Food Technology. Two years into the teaching career I got an advice from one of my Teachers and Mentor - Mr. W.A. Sichone, that a degree would be desirable for subsequent career advancement and employment. Five years later from 1985 (3 years taking undergraduate biology and fisheries-related courses followed by 2 years in graduate school), I emerged with the MSc in Aquaculture and Fisheries Management and returned to KMFRTI to continue teaching biology and fisheries-related courses. Apart from teaching, it is during this period that I was assigned administrative duties following my appointment as the Institute Training Officer.

In the process of career advancement in 1992, I left KMFRTI and joined the UDSM where I was employed as an Assistant Lecturer in the Department of Zoology and Marine Biology. In the next several years I taught, obtained a PhD and rose to the rank of Senior Lecturer in 2006. However, one important event during this period was the integration of KMFRTI into UDSM, which led to the establishment of the Faculty of Aquatic Sciences and Technology (FAST) of UDSM in August 2002. Following the establishment of FAST, I was appointed to serve as the first Head of Department of Fisheries Science and Aquaculture, which was entrusted by the UDSM to continue running Fisheries Diploma programme inherited from KMFRTI. Against this background, I had to establish a counterpart office at Kunduchi Campus that allowed me to closely attend to matters related to running of the Fisheries Diploma Programme. Once again, I looked at this event as a blessing in disguise as it gave me the opportunity to reunite with the Kunduchi Campus.

**Working at management and policy arena**

On account of the wide industrial insight and experience in fisheries sector, I suspect that there came a time when I entered a pool of senior fisheries scientists that can invariably contribute to the knowledge needed to sustainably manage the country’s fisheries resources. In that reflection, in December 2016, I was appointed to the position of Director General of the Tanzania Fisheries Research Institute (TAFIRI). The tenure at TAFIRI lasted for 18 months before my next appointment as the Permanent Secretary of Fisheries in the Ministry of Livestock and Fisheries in June 2018, the position that I served until March 2023 when I returned to UDSM to continue with a teaching career. Having benefited from experiences in fisheries science and administration and lessons learned therein, my advise to young scientists contemplating potential paths to pursue in their careers is that “if you love what you do, you will dive in and accomplish what is needed, and you will do it well”.



## ‘Going back to where it all started’ – a personal story

### Back to my roots

During the period 2016 – 2020 UDSM continued with the process of restructuring its administrative and academic units with a view to attaining academic excellence. One output of these transformations in September, 2020 was the elevation of the Department of Aquatic Sciences and Fisheries Technology (DASFT) of the College of Agricultural Sciences and Fisheries Technology (CoAF) to become the new School of Aquatic Sciences and Fisheries Technology (SoAF).

This move also came with the directive that relocated SoAF from Mwalimu Nyerere Mlimani Campus and start operating from Kunduchi Campus. For this reason, my return to UDSM has led into another re-union with the Kunduchi Campus, the very place where the long journey to follow my teenage-hood dreams truly began. It looks like wherever I have been in the noble duty of serving the sector, I always find myself **going back to where it all started: Kunduchi Campus** ■



Laboratory building at Kunduchi Campus after rehabilitation. ©Rashidi Bilali



## Kunduchi: A stepping stone towards development of my career

**Dr. Shadrack J. Ulomi**

Retired Chief Laboratory Scientist, SoAF

**T**he period from 1985 to 1987 was very special to my academic and professional life as it set the foundation for who I am today. It was in this period when I joined a training programme at the Kunduchi Marine Fisheries Research and Training Institute (KMFRTI), which resulted in the award of a Diploma in Fisheries Sciences. This programme was a stepping stone towards the development of my career and indeed of what I am proud of today. I developed my career as a Marine Biologist after completing a Bachelor of Science (B.Sc. Gen.) in 1994 majoring in Marine Biology and Applied Microbiology, following a strong background in related sciences that I received at KMFRTI.

### As a student at KMFRTI and UDSM

Though fisheries was quite a new field of study to me, I found it interesting and was able to easily follow the Diploma Curriculum. As a KMFRTI graduate, I can still recall the training methods, as well as the theoretical and practical classes, which were quite comprehensive. When I joined the University of Dar es Salaam (UDSM) for my B.Sc. programme, I found that most of the courses taught, though advanced, were related to those taught in KMFRTI Diploma Programme, which allowed me to easily follow my B.Sc. programme. Such courses included Fisheries Biology, Limnology, Ichthyology, Phycology and Swimming, to mention a few. For example, during my studies at KMFRTI, swimming was a compulsory course, when I joined my B.Sc. programme at UDSM, I found that the same course was compulsory for students majoring in marine biology. As a result, it was easier for me to pursue a career as a marine biologist because I had already acquired basic knowledge on many courses before joining UDSM.

### As a staff at KMFRTI and UDSM

With the same enthusiasm, I returned to my job as an instructor at KMFRTI after completing my B.Sc. programme. I was allocated to the Fisheries Biology Department, where I was assigned to teach Limnology, Ichthyology, Phycology and Basic Aquaculture to Diploma students. I served in that position for two years (from 1995 to 1997), before receiving a scholarship to pursue an M.Sc. in Ecological Marine Management (ECOMAMA) at the Free University of Brussels (VUB) in Belgium. This was a two-year programme, which I successfully completed in October 1999. Immediately after the completion of my Master's degree, I returned to my previous working place as a Tutor, until 2002, when the KMFRTI was merged with UDSM. Again, I

had an opportunity to join UDSM as a technical staff, where I served for the rest of my public service until retirement in 2020.

At UDSM, I was selected to join a project titled Peri-urban Mangrove Forests as Filters and Phytoremediators of Domestic Sewage in East Africa (PUMPSEA) based on my performance and hands-on experience gained from KMFRTI and developed in a number of other courses I took. I am grateful to the PUMPSEA Project because it was through it I managed to get my Doctor of Philosophy (Ph.D.) in Aquatic Science in 2017.

### Importance of KMFRTI in fisheries science training

Although formal training in fisheries science had not received much attention compared to other sectors such as agriculture and forestry, graduates from KMFRTI were known to be the best in almost all aspects related to fisheries and aquatic sciences, ranging from harvesting of the fisheries resources, processing, marketing and conservation of the aquatic environment. KMFRTI, played a significant role in the fisheries sector by producing managers, desk officers and patrol officers, although it is not well documented.

Fisheries training at KMFRTI started in 1967 after completion of the Institute's buildings, and by then KMFRTI was the only institute in Eastern and Southern Africa providing training in fisheries. I recall that among the students enrolled at KMFRTI at the time included those who came from Malawi and Zambia. Among the KMFRTI graduates who have made significant contributions to the development of the fisheries sector by either working directly in the sector, either directly or through training of other students, include Prof. Amelia Kajumulo Kivaisi, the late Prof. John Machiwa, Dr. Rashid A. Tamatamah, Dr. Willian Kudoja and the late Dr. Boniface Mwaiseje.

The training at KMFRTI was provided by diligent tutors, who were practical oriented and serious about the profession, yet humble and easy to associate with. I can still remember the fieldworks and practical training courses where we had to accompany the local fishermen in their canoes and dhows to gain hands-on experiences and endurance on working at sea, fishing gear settings, and night fishing experience. Indeed, it goes without saying that Kunduchi was a stepping stone towards the development of my career and the person I am today ■



## Nurturing knowledge and memories: 20 years at Kunduchi

**Dr. Lydia G. Kanyairita**  
Lecturer, SoAF

**I**n the field of scientific research and education, the passage of time often reflects depth of experience, growth and impact. As I reflect on my experience of working and living at Kunduchi, I am reminded of the immense joy and fulfillment that my passion for marine sciences has brought me over the past twenty years. Kunduchi has played a significant role in shaping my professional interests and career aspirations. Over the past twenty years, my life has been greatly influenced by the environment of Kunduchi, the institution which has not only played a key role in my professional direction but also holds many cherished memories in my heart. As I reflect on this incredible journey, I realize that its impact has extended far beyond its walls, leaving a lasting impression on my understanding of ocean science, education, and conservation as a whole.

### As a tutor in Fisheries Diploma programme

When I started working at the University of Dar es Salaam (UDSM) in 2003, I was assigned to Kunduchi as a Tutor for the Fisheries Diploma programme. My responsibilities included teaching second-year students about Food Science and Applied Nutrition, Chemical Oceanography and Swimming. With a diploma in Pharmaceutical Sciences and a Bachelor's degree in General Sciences, majoring in Chemistry and Marine Biology along with well-functioning teaching facilities at Kunduchi, I was well-prepared to educate the next generation of young people in my country and worldwide. I am proud that my former students are now working for the country in various fields, both in the private sector, and government institutions. It is unfortunate that the Diploma programme at Kunduchi has been inactive for a long period of time. Now, it is the perfect time for the university to revive it and give young Tanzanians the opportunity to improve their technical skills, especially as we emphasize practical skills. The topic of food science and applied nutrition is crucial and should continue to be taught at higher levels, given the significant changes in our lifestyle and eating habits. Educating people about the different types of food and nutrition is crucial to avoid health problems caused by poor diet.



Dr. Lydia and Diploma students during a swimming test at sea 2006 . ©Lydia Kanyairita

### Personal growth

During my extended stay at Kunduchi, I witnessed significant changes in the institution, including academic, leadership, environmental, and technical developments. These changes have led to top growth on various levels, not only for the institution, but also for its employees. For example, I have personally experienced professional growth and advancement during my time here. Kunduchi has become a hub for developing various professions, with highly competent teachers in the fields of aquatic sciences and fisheries technology. Despite these positive developments, it is important to acknowledge that there have been some challenges. Specifically, it concerns certain infrastructure, such as the ship yard fishing equipment, a small boat for student training, and a kitchen for fish processing, have deteriorated due to a lack of resources for maintenance and development.

## Nurturing Knowledge and Memories: 20 Years at Kunduchi Campus



Dr. Lydia, Mr. George Chindandi (in water) and Diploma students embarking on a boat for field trip to Mbudya island. ©Lydia Kanyairita

Despite numerous challenges, Kunduchi Campus has continued to excel as an institution for teaching at all academic levels, from bachelor's to doctoral degrees, as well as for conducting research and community services. As a part of our research efforts, we have addressed a range of issues related to aquatic and fisheries resources, including the development of aquaculture facilities. Personally, I oversaw the first project in Tanzania that focused on the Eel fish (Samaki Mkunga), which is highly valued worldwide, but has not received enough attention in Tanzania's fisheries and environmental conservation sectors. In collaboration with the Tanzania Fisheries Research Institute (TAFIRI) and the Thünen Institute of Fisheries Ecology, we are using this video (<https://www.youtube.com/watch?v=xG5QM6aQlzY&t=29s>) to educate the community about preserving the eel fish.

The influence of Kunduchi Campus extends beyond the academic world, thanks to its location close to the Kunduchi fish landing and marketing site, fishing communities, tourist hotels, primary and secondary schools and the wider community. This strategic positioning allows staff at Kunduchi Campus to collaborate with these groups through its education and community involvement programmes. By educating and raising awareness about the environment, Kunduchi Campus has become a beacon of environmental responsibility. We have produced a generation of environmentally conscious citizens who understand the importance of balancing coastal ecosystems. With climate change, environmental degradation, and overfishing becoming increasingly problematic, Kunduchi Campus role has expanded to include innovative conservation strategies. These include seagrass restoration projects, advocating for marine protected areas, and campaigns to reduce plastic waste. Through these efforts, Kunduchi Campus has demonstrated its ability to adapt to the changing marine science and conservation landscape.



Ship yard at Kunduchi 25/08/2023. ©Lydia Kanyairita

### What is the future of the Kunduchi Campus?

As I reflect on my twenty years at Kunduchi, I am grateful for the experiences, skills and connections I have gained here in Tanzania and abroad. The centre is not just an institution, but a testament to the power of education, research, nature conservation and community involvement. As the country focuses on developing the blue economy, I urge the government to consider Kunduchi Campus with a new perspective. The programmes offered by the School of Aquatic

## Nurturing knowledge and memories: 20 years at Kunduchi Campus

Sciences and Fisheries Technology (SoAF) are vital to the well-being of Tanzanian communities and beyond. However, in order for us to continue expanding and growing, we need financial resources to keep with the pace of technological advancements. Looking to the

future, I envision Kunduchi Campus as a centre of excellence in aquatic sciences and fisheries technology in the region, with a positive attitude towards investing in research and education ■



Renovated walkways at Kunduchi Campus. ©Rashidi Bilali



# SoAF Leadership



**Dr. Blandina Robert Lugendo**  
Dean



**Mrs. Simphorosa Mchallo**  
Principal Administrative Officer



**Dr. Siajali Pamba Zegge**  
Head, Department of Aquatic  
Sciences and Fisheries Technology



**Dr. Samwel Mchele Limbu**  
Head, Department of Aquaculture  
Technology

# Photo Gallery



Kunduchi Campus Master Plan



MoU signing for NMRC between UDSM and MLF



A visit by the Prime Minister at Kunduchi Campus



Some of the staff at KMBS: From left - Philip Bwathondi, Ian Bryceson, Steven Biringi and Guard Mziray



A visit by Mtakuja Sec. School students at Kunduchi Campus



Celebrating World Ocean Day 2022 through beach cleanup



First batch of Kunduchi Campus BSc. ASF graduates



Model of the HEET building for Kunduchi Campus



**School of Aquatic Sciences and Fisheries Technology**  
**University of Dar es Salaam**  
**P.O. Box 60091, Kunduchi Campus**  
**Dar es Salaam, Tanzania**  
**Email: [soaf@udsm.ac.tz](mailto:soaf@udsm.ac.tz)**  
**Tel.: +255 22 2923849**  
**Website: [www.udsm.ac.tz](http://www.udsm.ac.tz)**