

# Mtafiti Monthly

BY DAVID MWOMA & MARY ALUOCH

Edits: Jane Kiguta

## KMFRI co-hosts GMES & Africa southern regional stakeholder workshop

The Kenya Marine and Fisheries Research Institute co-hosted the Southern regional stakeholder workshop on earth observation technologies that took place at Pride Inn Paradise in Mombasa, Kenya, from 4<sup>th</sup> to 6<sup>th</sup> September, 2024.

State Department for Blue Economy and Fisheries Deputy Director Mr Rashid Iman, representing Principal Secretary Madam Betsy Njagi, officially opened the forum.

The workshop was held in collaboration with the Council for Scientific and Industrial Research (CSIR) and the Southern African Science Service Center for Climate Change and Adaptive Land Management (SASSCAL) under the auspices of the Global Monitoring for Environment and Security and Africa (GMES and Africa).

CSIR anchors the Marine and Coastal Operations for Southern Africa and Indian Ocean (MarCOSIO) consortium, under which KMFRI is a partner. The project is co-funded by the African Union Commission (AUC) and the European Commission.



*Regional stakeholders gather for a group photo*

Running under the theme “Enabling sustainable development and inclusive growth using Earth Observation technologies towards Agenda 2063” the event was attended by regional partners and stakeholders from Southern Africa and Eastern Africa countries.



*SDBEF Deputy Director Mr Rashid Iman delivers speech on behalf of Blue Economy and Fisheries PS.*

# Mtafiti Monthly

In his remarks, Mr Rashid highlighted the forum's critical role in fostering discussions on the sustainability of various services implemented under the GMES & Africa project.

He also affirmed KMFRI's analytical capacity to deal with big data sets, that can further be translated into information and knowledge which can address the challenges in different sectors of the economy.

"Through KMFRI we have technical experts with specialized training and capacity to generate real-time data on temperature, current, primary productivity, wave height, among other key oceanographic parameters," he said.



*KMFRI DG Dr. James Mwaluma gives his opening remarks*

KMFRI Ag Director General Dr. James Mwaluma, gave introductory remarks and welcomed attendees. He expressed his gratitude for their participation in this landmark program exchange initiative, held in Mombasa, which brought together students and stakeholders from Southern and Eastern African countries.

He anticipated that the initiative would foster meaningful interactions and learning about Earth

observation, emphasizing its crucial role in shaping policy development and promoting the growth of mariculture farming along Kenya's coastline. Additionally, he highlighted how the program will contribute to improving the blue economy.

GMES & Africa Thematic Leader-Kenyan Chapter Dr. Emmanuel Mbaru chaired the opening session, emphasizing the critical role of Earth Observation (EO) technologies in advancing Africa's sustainable development and their pivotal role in environmental monitoring.



*KMFRI Senior Research Scientist and GMES & Africa thematic leader- Kenyan Chapter Dr. Emmanuel Mbaru co-chairing the stakeholder workshop opening session*

By sharing best research practices and developing EO applications, the workshop aimed to improve community livelihoods and strengthen stakeholders' capacity to leverage EO data and services, ensuring Africa is well-equipped for future challenges. Participants from various regions reached a consensus on the importance of leveraging EO technologies to monitor marine ecosystems and sustainably manage the blue economy, providing crucial data for informed decision-making and policy development.

# Mtafiti Monthly

Other notable speakers from KMFRI included Senior Research Scientist Morine Mukami, who emphasized the pivotal role of Earth observation technology in advancing the mariculture sector, especially in identifying optimal sites for sustainable mariculture practices.



*KMFRI Senior Research Scientist Morine Mukami delivers her presentation on the role of Earth Observation data in mariculture.*

KMFRI Senior Research Scientist Dr. Juliet Karisa also presented her work in coral reef restoration, highlighting the importance of developing site suitability maps to identify and establish areas favourable for coral restoration.

She also encouraged active engagement to enhance coral restoration efforts across the region.



*KMFRI Senior Research Scientist Dr. Juliet Karisa makes her presentation on coral reefs restoration.*



*Ag. AD Strategic Communications Ms Jane Kiguta delivering a presentation*

# Mtafiti Monthly

Ag. Assistant Director Strategic Communications Ms Jane Kiguta, delivered a compelling presentation, emphasizing the importance of a strong communication strategy to enhance outreach, information uptake, and dissemination.

She stressed that communication bridges the gap between science and its audience, ensuring that scientific data not only raises awareness but also secures commitment, influences policy, and provides valuable insights to researchers, stakeholders, and the public. Ms. Kiguta urged the use of diverse communication channels, along with images, interviews, and audiovisuals, to effectively share key messages and foster strong ties between scientists and communication professionals.

## GMES & Africa Student Exchange



*Trainees on student exchange program pose for a family photo after the training.*

The workshop was preceded by the GMES & Africa two-day student exchange facilitated by MarCOSIO

and SASSCAL experts from 2nd to 3<sup>rd</sup> September 2024 at the same venue. It was primarily intended for postgraduate students in earth observation science, marine biology, oceanography, environmental science, and related subjects.

The participants were introduced to the Copernicus program and its marine-related data streams, showcasing the role of Earth Observation in the agenda 2063 and the GMES & Africa program.



*Students tour the Kenya Marine Park Mombasa.*

They also had the rare opportunity to visit the Kenya Marine Park, where they learned about environmental conservation from the park's marine warden. She emphasized key issues affecting the marine protected areas and marine ecosystems, such as pollution, coral bleaching, land encroachment and much more.

# Mtafiti Monthly



*Participants at the fourth GMES & Africa and Southern Africa regional stakeholder workshop*

The session offered a chance to support and foster a mutual exchange of best practices, information, and experiences on cutting-edge EO technologies created.

The program covered important subjects such as coastal development, scientific policy integration, and marine spatial planning and how they relate to the area's sustainable development plans.

Understanding and monitoring the marine environment of our globe is made possible in large part by Earth observation (EO) technologies, which have gained prominence due to their ability to promote equitable and sustainable growth.

The workshop brought together participants from various regions who have reached a consensus on the importance of leveraging technology through Earth observation tools.



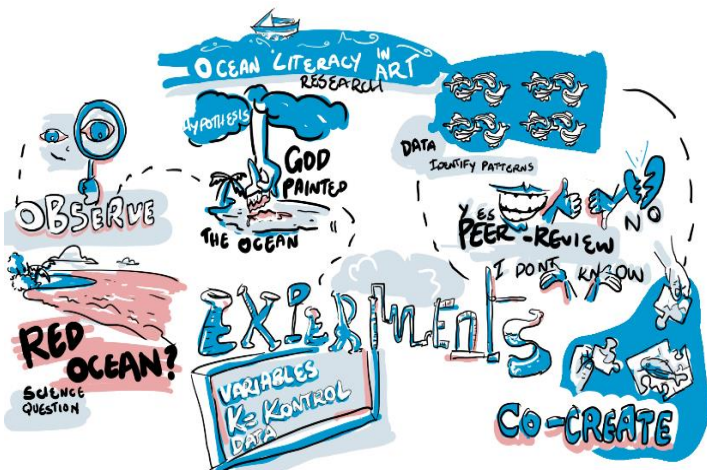
*Regional stakeholders convened at the Fourth GMES & Africa Southern Africa Regional Stakeholder Workshop pose for a photo at the sidelines of the conference.*

These tools are essential for monitoring progress across all marine scales, enabling the sustainable management of the blue economy. Such efforts are crucial in providing the data needed for informed decision-making and the formulation of effective policy frameworks.

# Mtafiti Monthly

BY PHIONALORNA NZIKWA, DR JACQUELINE UKU, SUSANNA KIHIA, & SARAH ATER

## From scientific papers to ocean art: Empowering creativity through hands-on science art workshop



Graphic Recording of activities conducted on day two of the workshop

Scientific findings play a critical role in addressing critical societal challenges and driving innovation. However, the impact of these research findings are mostly limited by lack of engagement with the non-research stakeholders. Scientific papers are presented in ways that are too technical therefore making it difficult for the layman to conceptualize.

This results in the creation of a barrier to efficiently engaging the public and even rallying their support in coastal conservation initiatives and pro – environmental innovation.

Ocean scientists world over, at KMFRI, have been exploring how to effectively translate complex scientific concepts and information into easily comprehensible information for a wide range of audiences, in order to create awareness and enhance visibility of their findings.

To bridge this gap, KMFRI led by the Ag. Director,



Artists and scientists collaborating in a storytelling through art session

Oceans, Coastal Systems and Blue Economy, Dr. Jacqueline Uku hosted its first-ever Ocean Literacy Training Workshop at its Headquarters in Mombasa from the 23<sup>rd</sup> to 26<sup>th</sup> of July 2024.

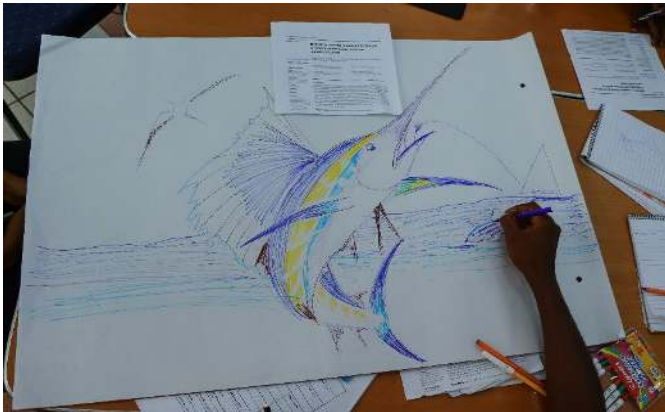
This one of a kind workshop brought together over 40 participants from across the Kenyan Coast and the Western Indian Ocean region who included; scientists, journalists, communicators, policy makers and artists all under one roof. Together, they deliberated on leveraging artistic mediums like painting, sculptures, performance art, and digital media to present ocean science in a manner that transcends technical jargon and resonates with the public in a meaningful and profound way.

The workshop was funded by Western Indian Ocean Marine Scientists Association (WIOMSA) and held in

# Mtafiti Monthly

collaboration with Alliance Française Mombasa and Under the Microscope (UTM) who facilitated the sessions.

## Highlight of the workshop's discussions



*An Artist Translating an Abstract from a scientific paper into Art during the Sci – Art workshop*

The curtain raiser of the training was a presentation on artist inclusion into ocean science communication by Ms Susana W. Kihia on a [research paper](#) supported through Dr Nina Wambiji's Pew Trust Fellowship and spearheaded by Ms.

Sarah Ater and Dr. Nelly Kadagi from BILLFISH-WIO. The training also covered an overview of the scientific method and the pathways of artist collaboration for communication of research outputs to diverse audiences. The discussions were enhanced by engaging in group idea creation sessions where the multi-sectoral participants had first-hand experience with co-creating unique artistic products from a research paper.

It was also vital for participants to understand the policy development process and how artists can contribute; as well as protecting their work from infringement and ensuring ownership. Present at the training was Mrs.



*Mrs. Kawira Gikambi offering a presentation on policy development*

Kawira Gikambi, who is the Deputy Director of Education, from the State Department for Basic Education under the Directorate of Policy, Partnerships and East African Community Affairs (EACA). She who elaborated how artists and scientists can share Creative Arts, Blue Economy and Ocean Science inputs into the Science, Technology, Engineering and Mathematics (STEM) national curriculum policy development process.

She also underscored the opportunity to provide input from lessons learned at the training into the review of the Kenyan Grade 10 curriculum offered by the Kenya Institute of Curriculum Development (KICD).

Dr. Uku from KMFRI also shared insights with the participants on the need for collaboration between scientists and non-scientists in raising awareness of the ocean in public spaces, highlighting the critical role of sharing input in the policy development process.

# Mtafiti Monthly

She additionally urged participants to take an active role in influencing policies and activities that prioritize not just the ocean protection and conservation, but issues that affect them in their day to day life. The insights shared by Dr Uku helped the participants to understand the link between public participation, policy formulation, and sustainable ocean management.



*Dr Jacqueline Uku sharing insights on need for scientist-artist collaboration*

Advocates in the house: Mrs. Sharon Chahale Wata from the Kenya Copyright Board and Mr. James Mbugua representing UTM also shared insights on copyright in co-creation collaborations between ocean scientists, STEM practitioners and artists.



*Mrs Sharon Chahale*

They also enlightened participants on the significance of signing their work for ownership and having Memorandum of Agreements prior to engagements.



*Mr James Mbugua*

## Closing the Curtain through a Café Science



*Science event*

The workshop culminated in a vibrant Café Science event dubbed “Art Meets Ocean Science” that attracted over a hundred participants.

# Mtafiti Monthly

An interactive panel discussion composed of Dr. Omukoto from KMFRI, Dr. Tayba Hatima from Baus Taka, and Ms. Stephanie Okeyo from Under the Microscope highlighted the impact of integrating art in conservation messaging and the pathways to explore for co-creation. Participants were also engaged in an intriguing performance by artists from Mchongo Creatives Group based in Kwale and an actress from UTM.

## A Way Ahead for Ocean Science and Art



*Ms. Ater and Ms. Kihia developing a storyboard during the storytelling session*

The training created linkages across the artist, policy, education, and ocean science community that have the potential to transform the communication of marine research for all facets of society. One of the key avenues identified for enhanced engagement was the integration of artists into coastal research proposals from conceptualization stages through co-creation collaborations.

This has the potential to develop communication outputs from the scientific research processes that can be packaged for policy consideration, community awareness, and curriculum integration. Additionally, the intellectual property, gender lens, and science communication themes covered during the training focused on some of the elements necessary for exploring such collaborations.

The workshop was a step forward in paving the way for innovation in communicating ocean science at national and regional levels. Similar engagements that can creatively explore communication for pressing coastal environmental issues such as plastic pollution, overfishing, and ocean acidification, have a world of potential in enhancing ocean awareness and stewardship for a broad range of stakeholders. The collaboration will continue through different platforms.

# Mtafiti Monthly

BY BRIAN ISOE

## KMFRI bags awards at Mombasa International Show, maintaining a winning streak

Kenya Marine and Fisheries Research Institute (KMFRI) recorded a big win in this year's Mombasa International Show, after scooping six awards in competitive categories, emerging number one in research and development. In a consistent winning streak, KMFRI showed her prowess in cutting-edge scientific innovations, edging out giants in research and Blue Economy sector, and maintaining her show performance track record.



*KMFRI Board Chair Hon John Mumba, Ag DG Dr James Mwaluma and Principal Research Scientist Dr Peter Odote appreciating the awards*

KMFRI emerged number two under the category of the Best Medium Trade Stand (Commercial and Industrial), number two under The Best Innovation and Invention Stand and The Best Stand Exhibiting the Most Blue Economy Innovations, and came third under the category of Best Organization/ Association that Supports or Promotes Community Projects or Services.



*Awards scooped by KMFRI*

The Show which happens annually brought together different government ministries, parastatals, and non-government organizations as well as diverse communities to showcase their products, services, roles in different fields, and technological advancements made throughout the years and their direct impact on the masses.

# Mtafiti Monthly



*KMFRI showcasing her work*

"Promoting climate-smart agriculture and trade initiatives for sustainable economic growth was the theme for this year amplifying the critical role in promoting sustainable use of our aquatic resources as our institute has always championed sustainably developing the blue economy space, information exchange, community engagement and economic expansion.

The institute leveraged the top-notch exhibitions to prove to the judges and the public why we deserved the awards, by showcasing and clearly articulating our mandate in support of innovation, community empowerment, and food security through different projects we have been engaging in.

Our core mandate is to conduct research in aquatic space, ecological studies, and marine research including chemical and physical oceanography" to supply empirical data and knowledge for the Blue Economy's long-term, sustainable growth. With this, we can influence decision making as well as policy development thus the very deserved win in this category.



*KMFRI Board Chair on a tour of the Institute's stand*

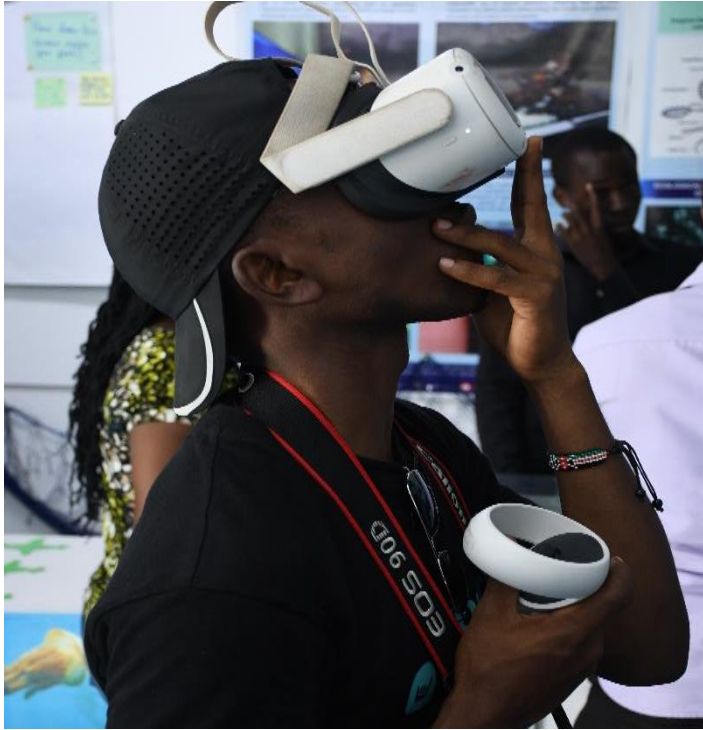
## RESEARCH

Dr. Juliet Karisa a coral specialist in KMFRI took the opportunity to showcase developments from her research on the critical role corals play in protecting our coastlines from storms and erosion, providing jobs for local communities through ecotourism, and offering opportunities for recreation where tourists and even domestic tourist can go for snorkeling to view beautiful corals in our oceans.

The ocean is vast and many individuals are yet to explore the vastness of it and its beauty. Through virtual reality, Dr. Karisa's team was able to give visitors an experience worth remembering by showing them a snippet of ocean beauty without them

# Mtafiti Monthly

necessarily going into the deep waters.



*A student gets virtual reality experience*

Interactive sessions between the coral team saw students from various schools get to observe the immersive experiences of the underwater environments, thus allowing them to explore and interact with the ocean in ways that would otherwise be difficult or impossible. This is one big memento for the students to remember and motivate them to keep our oceans clean to protect the beautiful corals.

Children are the future of protecting our oceans and thus there is a dire need to give them the necessary education through art to protect our marine biodiversity. Children Corner has been at the heart of Dr Uku and this drives her to mentor and see more children incorporated into the art of protecting our precious ecosystem by setting up a special dedicated place where she interacts with the children effectively

often. Children got an opportunity to interact with different species of seagrass and fish and their correlation as Seagrass wetlands provide a vital role as juvenile fish habitats for numerous fish species.

## INNOVATION



*KMFRI's innovations*

The post-harvest and value addition section wasn't left behind in showing their advancements in technology by developing improved processing/production systems for fish products to control post-harvest losses using climate-smart technologies and produce higher quality products. The department has developed new techniques for preserving fish by constructing a mama karanga box which will aid the women selling fish in the evening by keeping their fish fresh and free from contamination.

The Mama Karanga Box is an invention that replaces tin wick lamps that burn kerosene and produce smoke, which causes respiratory illnesses in women and increases carbon emissions. It also replaces newspapers at the base of the shelves with food-grade aluminum for easier cleaning.

Solcool dry is another innovation that the institute elaborated on as one of the methods to preserve fish through the use of solar energy through cooling and drying of the fish. With this invention in place, ice

# Mtafiti Monthly

production increases, and fishermen can get access to this and use it to preserve their fish even during transportation thus cutting down on post-harvest losses.

## COMMUNITY ENGAGEMENT

KMFRI has always partnered with communities in the research we conduct because it believes in empowering and building bridges between the institute and the communities. Partnering with the communities leads to them gaining trust in your work, and appreciating and respecting the distinct abilities and viewpoints of each participant in the process.

The Dabaso Creek Conservation Group constructed the boardwalk and crab shack to encourage environmentally conscious behavior, safeguard mangrove forests, and give the impoverished fishing community around Mida Creek access to education. Dining here is a great way to support the community, and all proceeds benefit the community with conservation programs and education.

Seaweed farmers in Shimoni, Kwale County also were present to showcase their products ranging from shampoo, soap, and creams to all products of seaweed farmed in the ocean. Women from these communities in Kwale have been at the forefront of farming seaweed diversifying from fishing which is now dominated by men. The proceeds they get from selling these products go into sorting their bills back at home and even developing bigger processing plants to manufacture more of the seaweed.



*Value added sea weed products*



*Judges visit KMFRI stand*

The chairman of the KMFRI show committee, Dr. Odote, praised the team during the trophy presentation for their outstanding contributions that led to their victory and urged them to maintain their composure as they prepared for the next show. Through the management of initiatives that sustainably exploit the blue economy space and are aimed at positively impacting and benefiting the communities at large, KMFRI is dedicated to fulfilling its core purpose and contributing to the development of the national economy.

# Mtafiti Monthly

## Mtafiti Pictorials



*KMFRI Senior Research Scientist and GMES & Africa thematic leader-Kenyan Chapter Dr. Emmanuel Mbaru at the regional stakeholders meeting*



*KMFRI Ag DG Dr. Mwaluma James at the GMES & Africa Southern regional workshop.*



*Stakeholders follow proceedings at the GMES & Africa Southern regional workshop held in Mombasa.*



*From Left: Deputy Director Rashid Iman, KMFRI CEO Dr. James Mwaluma during a press conference.*

# Mtafiti Monthly



*KMFRI Senior Research Scientist Ms Morine Mukami engaging in a discussion at the GMES & Africa workshop.*



*Ag Director OCS & BE Dr. Jacqueline Uku giving her opening remarks at the 'empowering creativity through hands-on science' art workshop.*



*Participants share their work at the sidelines of the Art workshop.*



*KMFRI communications officer Phiona Nzikwa participating in the Empowering Creativity Through a Hands-on Science Art Workshop.*

# Mtafiti Monthly



*KMFRI officers and partners pose for a photo outside the KMFRI stand at the Mombasa show.*



*A KMFRI diver during a coral monitoring exercise at Wesa in Kilifi county.*



*Seaweed farmers from Shimoni showcase their products at the International Mombasa Show.*



*KMFRI officer conducts water quality sampling at Kilifi county.*