

Mtafiti Monthly

By: BRIAN ISOE | Photos: MALIKI FUMBWE | Layout: FAITH MBOKA

KMFRI Board Chair and Director General grace the official opening of the 13th Scientific WIOMSA Symposium in Mombasa

The 13th Western Indian Ocean Marine Science Association (WIOMSA) Scientific Symposium officially on 29th September, 2025, at PridelInn Paradise Hotel in Mombasa, Kenya.

The week-long triennial event, held under the theme “One Ocean, One Future: Connecting People, Policy, and Science for a Thriving Western Indian Ocean,” has drawn together researchers, policymakers, early-career ocean professionals, and stakeholders to deliberate on the sustainable management of marine and coastal resources across the Western Indian Ocean (WIO) region.

In her welcoming remarks, Amb. Dr. Wenwa Akinyi Oranga, Chair of the Kenya Marine and Fisheries Research Institute (KMFRI) Board of Management, underscored that the symposium is not only an academic forum but also a space where science informs policy, evidence drives investment, and partnerships shape solutions for both people and ecosystems. “This symposium resonates deeply with our mission. It is not just an academic gathering, but a platform where science meets policy, where evidence informs investment, and where partnerships shape

solutions for the benefit of both people and ecosystems,” she said.



KMFRI Board Chair Amb. Dr. Wenwa Akinyi Oranga delivers her welcoming remarks.

The meeting aligns with the United Nations Decade of Ocean Science for Sustainable Development, serving as a platform to foster collaboration, innovation, and impactful action towards a thriving blue economy in the WIO region. It also provides a stage for institutions to showcase contributions in areas such as fisheries management, climate change adaptation, ocean governance, and marine biodiversity conservation.

Dr. Oranga further reaffirmed KMFRI’s commitment to offering leadership, research infrastructure, and institutional support to ensure Kenya and the region remain at the forefront of marine and coastal science. “As we begin this week of deliberations, let us remember that our task is not only to exchange ideas, but also to build partnerships, mentor the next generation of ocean scientists, and chart a course for sustainable blue economies that work for people and for nature.”

In his address, KMFRI Director General Dr. Paul S. Orina thanked WIOMSA and partners for convening the forum, highlighting its importance in advancing science, innovation, and collaboration across the WIO.

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“As KMFRI, we are proud to join the WIOMSA symposium, which provides a vital platform for advancing science, innovation, and collaboration in the region.”



KMFRI Director General Dr. Paul S. Orina gives his remarks

This gathering reaffirms our shared commitment to safeguarding aquatic ecosystems while sustainably harnessing marine and fisheries resources for food security, livelihoods, and economic growth. The WIOMSA symposium is a unique opportunity to share knowledge and strengthen partnerships for a healthier ocean and a more food-secure future for our region.”

The symposium was officially opened by Principal Secretary, State Department for Blue Economy and Fisheries, Madam Betsy Njagi, who also presided over the launch of The Kenya Exclusive Economic Zone Fisheries and Environment Report—a milestone for the fisheries sector. “The task before us is clear: we must act boldly, with urgency, and with unity. Let us ensure that Africa’s Ocean becomes not a story of loss, but a beacon of hope for the world,” she urged.



Participants of the 13th Scientific WIOMSA Symposium.

The event was also graced by Prof. Abdulrazak Shaukat, Principal Secretary for the State Department for Science, Research, and Innovation, as well as KMFRI board members and other dignitaries.

By: Brian Isoe | Photo: Maliki Fumbwe | Layout: Faith Mboka

KMFRI and National Bank of Kenya champion sustainable blue economy investments

The Kenya Marine and Fisheries Research Institute in partnership with the National Bank of Kenya (NBK), convened a high-level side event on the sidelines of the recently concluded **WIOMSA** (Western Indian Ocean Marine Science Association) Scientific Symposium in Mombasa to explore

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innovative pathways for unlocking Kenya's blue economy potential.

Held on October 3, 2025, the session brought together key stakeholders from the Blue Economy sector, including Kenya's State Department for Blue Economy and Fisheries (SDBEF), to discuss how sustainable financing can accelerate growth, enhance resilience, and promote the responsible use of ocean-based resources.

Officially opening the session themed *"Unlocking the Blue Potential,"* KMFRI Director General Dr. Paul Orina, EGS, underscored the importance of research-driven investment in the sector.

"The Blue Economy remains underfunded, and there is a lack of adequate knowledge about existing ocean resources. This forum provides a timely platform to review the business case for investing in the Blue Economy," he noted.

SDBEF, commended the government's efforts to improve the livelihoods of fisher communities. She lauded the forum as a unique platform that brought together like-minded organizations to explore innovative blue financing mechanisms.



Panel Discussion

The event attracted delegates from the research, finance, and insurance sectors, who deliberated on how innovative financing models can drive sustainable growth, create jobs, and safeguard ocean health. Through a series of engaging panel sessions, participants examined the business case for investing in the Blue Economy, challenges and opportunities in sustainable financing, and the policy, regulatory, and institutional frameworks required to attract and sustain capital flows.

Delivering a presentation on behalf of the NBK Managing Director, Mr. Ken Ouko, NBK Director of Corporate Banking, emphasized the importance of understanding the scope of the Blue Economy to identify viable investment opportunities.

"It is critical to address potential regulatory and policy barriers to Blue Economy financing and ensure the availability of sufficient data," he said.



KMFRI Director General Dr Paul S. Orina delivers his opening remarks.

Contributing to the panel discussions, Ms. Susan Otieno, Deputy Project Coordinator for the Kenya Marine Fisheries and Socio-Economic Development (KEMFSED) Project and Aquaculture Director at

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Discussions also explored the potential of blue bonds and blended finance models as catalytic tools for advancing sustainable marine and coastal initiatives. Participants emphasized the importance of strong partnerships among financial institutions, government agencies, and the private sector to foster long-term collaboration and impact. By aligning strategies and resources, they noted, responsible investments can unlock opportunities that benefit both people and the planet.

The event was graced by KMFRI Board Chair, Amb. Dr. Wenwa Akinyi Oranga, alongside other Board Members and senior managers from NBK. Also in attendance was WIOMSA President Ms. Marie May Jeremie, who also serves as CEO of SeyCCAT, and shared valuable insights from the Seychelles Blue Bond experience.

NBK's delegation included Mr. Samuel Mukiti (Manager, Public Sector), Mr. Dennis Pius (Coast Regional Business Manager), Mr. Dennis Ndong'a (Senior Relationship Manager, WASH), Ms. Doreen Janga (Nyali Branch Manager), and Ms. Cathrine Murithi (Manager, Communications & Sustainability). Sote Hub was also represented.



Participants pose for a group photo.

Participants called for continued collaboration and innovative financing approaches to fully harness the potential of Kenya's Blue Economy for a sustainable and prosperous future for communities, the nation, and generations to come.

By: Faith Mboka | Photos: John Small | Edits: Jane Kiguta

KMFRI celebrates World Maritime Day 2025: Protecting our oceans, unlocking opportunities

The Kenya Marine and Fisheries Research Institute, led by Director General Dr. Paul S. Orina, joined key stakeholders in marking World Maritime Day 2025 at the Kenya Maritime Authority Headquarters in Mombasa. The event, held under the global theme "Our Ocean, Our Obligation, Our Opportunity," brought together representatives from government, research institutions, academia, and industry to reaffirm their shared commitment to sustainable ocean management and blue economy growth.



KMFRI Director General Dr. Paul S. Orina at the World maritime day celebrations.

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Graced by Cabinet Secretary for Education Hon. Julius Ogamba, representing the Ministry of Mining, Blue Economy and Maritime Affairs, the celebrations emphasized the need to protect the ocean as a lifeline for biodiversity, livelihoods, and economic development. Participants explored Kenya's role in advancing sustainable shipping, with a special focus on the development of clean fuel solutions as part of efforts to build a greener and safer maritime sector.

As part of the exhibition, KMFRI showcased its wide range of Information, Education, and Communication materials highlighting ongoing research, innovations in aquaculture, marine conservation initiatives, and climate resilience programs. The display reflected KMFRI's vital role in generating scientific knowledge and offering evidence-based solutions that guide national maritime and fisheries policies.



Cabinet Secretary for Education Hon. Julius Ogamba visits KMFRI exhibition booth.

Through its active participation, KMFRI reaffirmed its commitment to supporting Kenya's blue economy agenda through science, innovation, and partnerships. The Institute continues to champion sustainable use of aquatic resources, ensuring that Kenya's ocean and

inland waters remain healthy, productive, and resilient for generations to come.

By: Dr Johnstone Omukoto & John Small Edits: Jane Kiguta

New study uncovers nutritional power of dried fish in feeding Africa's populations

For many African households, dried fish is a familiar presence in kitchens and markets. But a new international study has revealed that this humble food is far more important than most of us realize- it is a vital superfood helping to nourish millions, especially women and children.



Smoked fish arranged on a rack for drying as part of post-harvest value addition and preservation.

The research, recently published in the *Proceedings of the National Academy of Sciences (PNAS)*, shows that dried fish provides widespread access to critical

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nutrients across Africa. An analysis of 19 species, including Lake Victoria's sardine (*dagaa/omena/mukene*), West Africa's sardinella, and Indian Ocean rabbitfish, found that even small portions of dried fish supply essential vitamins and minerals in significant amounts.

For instance, a child eating just 9 grams of dried fish receives over half of their daily needs for calcium, selenium, and vitamin B12. For women, a 41-gram portion provides more than half the recommended intake of calcium, iodine, selenium, vitamin D, and B12. These nutrients are crucial for healthy growth, strong bones, brain development, and overall well-being.

Beyond its nutritional value, dried fish is widely accessible. Household surveys in six African countries (Côte d'Ivoire, Nigeria, Malawi, Tanzania, Uganda, and Senegal) revealed that one in three households consumes dried fish weekly. That translates to about 144 million people, 54 per cent more than those who eat fresh fish regularly. Dried fish is particularly important for poorer families and communities distant from fishing grounds, thanks to its affordability, storability, and ease of transport.

However, challenges remain. Overfishing, competition from international markets, and environmental changes threaten supply, while traditional smoking methods can sometimes introduce health risks. Researchers stress the need for policies that protect dried fish for local consumption, improve processing methods, and support women processors who play a key role in these value chains.



Women inspecting fish being dried in a solar dryer.

Importantly, the Kenya Marine and Fisheries Research Institute (KMFRI) played a central role in the study. KMFRI scientists, including Dr. Johnstone Omukoto, Dr. Christopher Aura, and Naftaly Mwirigi, worked alongside international researchers to collect and analyze fish samples from Kenyan waters. Their contribution was key in showcasing the nutritional richness of species like *dagaa* from Lake Victoria, a staple in Kenyan markets and households.



Traditional fish smoking and drying to improve fish shelf life and reduce post-harvest losses.

“Until now, the role and scale of dried fish in supporting food security and nutrition has often been undervalued and hidden,” says Dr. James Robinson of Lancaster University, who led the study.

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“This research highlights that dried fish is not just a dietary supplement; it is a cornerstone of nutrition and food security across Africa.”

For Kenya and the wider region, these findings reinforce the importance of safeguarding small fish stocks like *dagaa* and promoting their inclusion in national nutrition programs. From school meals to complementary feeding for young children, dried fish could play a central role in tackling malnutrition and achieving food security.

The study was supported by the *Royal Society and the European Research Council*. Researchers include: James Robinson, Antonio Allegretti, Rucha Karkarey, Tim Lamont, Sarah Martin, Sophie Standen, Nicholas Graham and Christina Hicks of Lancaster University; Eva Maire of Lancaster University and the University of Montpellier; Johnstone Omukoto, Christopher Aura, and Naftaly Mwirigi of Kenya Marine and Fisheries Research Institute; Richard Ansong of the University of Ghana, Kendra Byrd of the University of Greenwich; Kathryn Fiorella and Lydia O'Meara of Cornell University; Marian Kjellevold of the Institute of Marine Research, Bergen; Jessica Gephart of the University of Washington, and Shakuntala Thilsted of CGIAR.

By: John Small Edits: Jane Kiguta | Layout: Faith Mboka

KMFRI marks International Coastal Cleanup Day

Every third Saturday of September, the world unites to observe International Coastal Cleanup Day, a global event dedicated to restoring oceans and shorelines. This year, the day falls on September 20, 2025, bringing together millions of volunteers across more than 100 countries to tackle the growing problem of marine litter. A growing problem that KMFRI's researchers are deeply working on in combating the growing threat.

For Kenya, the commemoration is especially significant. With a coastline stretching over 600 kilometers, the marine environment underpins fisheries, tourism, and the livelihoods of coastal communities. Safeguarding the ocean from pollution is therefore central to sustainable development and the growth of the Blue Economy.

The challenge of marine litter

Marine litter, particularly plastics, is one of the most urgent environmental threats worldwide. Studies show that up to 80 percent of debris originates from land-based sources, carried into the ocean through rivers, storm drains, and direct dumping. Once it reaches the sea, plastic waste persists for centuries, endangering fish, coral reefs, marine mammals, and even human health through seafood contamination.

Kenya's beaches in Mombasa, Kilifi, Lamu, and Kwale continue to bear the brunt of this problem. Discarded plastic bottles, sachets, fishing nets, and polythene bags accumulate along the shoreline, reducing the aesthetic appeal of coastal areas while disrupting

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marine ecosystems and harming the tourism and fisheries sectors.

KMFRI's role

The Kenya Marine and Fisheries Research Institute (KMFRI) plays a leading role in understanding and addressing the impacts of marine litter. Through regular field surveys, researchers record the types and volumes of waste washing up on beaches, providing crucial data for conservation efforts and policy interventions.

Findings from past cleanups have shown plastics to be the most common pollutant, underscoring the urgency of reducing single-use items. KMFRI also works with youth groups and civil society organizations to organize cleanup exercises that combine environmental restoration with public awareness.

Building a cleaner ocean future

International Coastal Cleanup Day is more than a one-day event; it is a reminder of our shared responsibility to safeguard marine resources. Every piece of litter collected is a step toward healthier oceans and resilient livelihoods.

As the country continues to embrace the Blue Economy, reducing marine pollution remains a key pillar for sustainable growth. Through research, public awareness, and community action, KMFRI is committed to ensuring that Kenya's oceans remain productive, clean, and safe for generations to come.

On this International Coastal Cleanup Day, KMFRI's vision of becoming a world-class center of excellence in innovative research for sustainable blue economy and fisheries development can be achieved by the little steps. Therefore, we invite Kenyans from all walks of life to join in safeguarding our coasts. Whether by taking part in a cleanup, reducing personal plastic use, or supporting policies that protect the environment,

every effort counts. Together, we can build a cleaner ocean future.

By: John Small Edits: Jane Kiguta Layout: Faith Mboka

African catfish: From farm ponds to nutritious products

The African catfish (*Clarias gariepinus*) is steadily gaining recognition as one of Kenya's most important aquaculture species. Known for its hardiness and fast growth, this freshwater fish has become a cornerstone of research and innovation at the Kenya Marine and Fisheries Research Institute (KMFRI).

Why Catfish?

Unlike many other cultured fish, catfish thrives under a wide range of conditions. It can survive in low-oxygen water, tolerate fluctuating temperatures, and grow quickly to market size. These qualities make it a favorite among farmers looking for a reliable source of income and protein.

Beyond the pond

At KMFRI, catfish is not only studied for farming but also for its potential in value addition. Researchers are transforming fish into nutritious products, including fish powder, soups, and gelatin. These innovations are designed to reduce post-harvest losses while providing affordable, protein-rich foods that can help tackle malnutrition.

For instance, catfish powder can be added to porridge or meals for children, pregnant women, and the elderly, ensuring they receive essential nutrients. Fish soup

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and gelatin products also utilize parts of the fish that are often discarded, demonstrating KMFRI's commitment to reducing waste and promoting the sustainable use of resources.

Opportunities for farmers and communities

Value addition also opens up new markets. Instead of relying only on fresh sales, farmers and processors can benefit from products that have longer shelf lives and higher market value. This means better income for farmers and greater food security for communities.

A fish for the future

As Kenya continues to strengthen its Blue Economy, African catfish offers exciting opportunities. With continued research on feeds, hatchery development, and processing methods, catfish could play an even bigger role in meeting the country's nutritional and economic needs.

For KMFRI, the story of catfish is a story of innovation: transforming a hardy freshwater fish into a vehicle for healthier diets, stronger livelihoods, and a more sustainable future.

By: Olilo Casianes, Omire Nicanor, Obiero Maurice, Malala John & Eugene Praise Edits: Jane Kiguta

Empowering Turkana fishers: Kanamkuny BMU receives new fish drying racks to enhance fish quality and improve livelihoods in Turkana County

In the heart of Turkana County, change is drying under the sun, quite literally. Along the shores where fisher folk once relied on traditional methods, a quiet revolution is helping transform livelihoods and improve fish quality for the Kanamkuny Beach Management Unit (BMU) community.

For years, local fishers dried their catch on bare stones, acacia branches, and leaves, a method that often led to contamination, fish spoilage, and significant losses. The resulting poor-quality fish fetched low prices in the market, making it difficult for families who depend on fishing to sustain their income. Additionally, the practice of cutting down trees for drying racks contributed to environmental degradation, further threatening local livelihoods.

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they introduced modern raised fish dryers, a cleaner, faster, and more sustainable alternative designed to improve post-harvest processing, enhance fish quality, and boost incomes among Turkana's fisher communities.

The impact has been profound. Drying time has reduced from three days to just twelve hours, helping fishers increase productivity while preserving trees and reducing contamination. Fish dryers improve community benefits by reducing fish spoilage and microbial contamination, and preserving fish quality for increased shelf life. This ensures improved market access, and empowering communities through higher income and better food security, while also creating opportunities for training in hygiene and business management.



Tree branches and leaves, cut to dry fish before the introduction of the raised racks at Lokuprat, Kanamkuny BMU, Turkana County, Kenya.



Traditional method of drying fish on tree branches and leaves, and on stones at Kanamkuny Beach Management Unit (BMU).

Recognizing these challenges, the Kenya Marine and Fisheries Research Institute (KMFRI), in partnership with the Samburu Women Trust (SWT), stepped in with support from the Indigenous People's Assistance Facility (IPAF) through funding by the International Fund for Agricultural Development (IFAD). Together,



A fisher lady living with disability turning fish on the new drying racks to ensure the fish dries efficiently.

The environmental and economic benefits have also extended to women and people living with disabilities. Mrs. Logario, for example, shared how her monthly income rose from KSh 20,000 to KSh 55,000 after adopting the new dryers; a 175% increase due to the

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improved fish quality fetching higher values in the Lodwar Nadoto, Kitale and Kakuma dry fish markets, which collect and buy their fish supplied to Lowarengak fish stores in the Lake zone, Turkana County.

“I’ll be able to look and take care of my family because the business has changed its course from bad to good. The high racks also will prevent us from having to bend down continually to turn over the fish which sometimes causes back pain.” Mzee Logairo.

and how adopting this new technology can improve health outcomes and expand market opportunities. It also focuses on proper fish handling practices alongside the use of fish dryers to ensure that every stage, from gutting to processing, is clean and safe. These programs aim to equip the community with essential skills in fish processing, business management, market linkages, and savings, empowering them to improve their livelihoods and build a more sustainable future.



Inspection of new fish drying racks by the Samburu Women Trust (SWT) Finance Officer, Alice Mwangi together with Kenya Marine and Fisheries Research Institute (KMFRI) staff before they are distributed to Kanamkuny Beach Management Unit (BMU) fisher communities at KMFRI offices, Turkana County, Kenya.

Beyond distributing the equipment, KMFRI, through the assistance of IPAF and coordination by SWT, is conducting community sensitization and training on hygienic fish handling, business management, and market linkages. After receiving the fish dryers, the community was trained on their hygienic use, with emphasis on the nutritional and economic benefits of producing higher-quality dried fish. The sensitization process helps community members understand the importance of the dryers, how to use them effectively,



Fisher community at Lokuprat, Kanamkuny BMU being sensitized on the good use of raised fish drying racks.

The raised fish dryers have become more than just tools. They represent empowerment, sustainability, and resilience for Turkana’s fishing families. With cleaner, higher-quality fish and better access to markets, these communities are not only improving their livelihoods but also paving the way for long-term growth and food security.