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Kenya Marine and Fisheries Research Institute

Mtafiti Monthly

ISSUE 57
April, 2025
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BY: Dr Jonathan Munguti, Jimmy Mboya, James Kirimi, Dr Domitila Kyule, Dr Jacob Iteba, Dr Esther Magondu, Dr Kevin Obiero, Dr Elick Otachi, Dr Florence Thiakunu, Dr Kevin Ouko and Dr Mary Opiyo ***Edits: Jane Kiguta***

Dr Munguti among research experts calling for urgent action as deadly fish diseases wreak havoc

Kenya's rapidly growing aquaculture industry is under increasing threat from rising outbreaks of fish diseases, a review by seasoned aquaculture scientists reveals. While the sector has become a key source of food, income, and jobs, especially in rural communities, fish farmers are now grappling with massive losses linked to infections, putting both livelihoods and food security at risk.

Over the last decade, fish farming in Kenya has grown significantly. Production rose from 12,000 tonnes in 2010 to more than 22,000 tonnes in 2022, according to the Kenya National Bureau of Statistics (KNBS). But as fish farms shift from traditional extensive methods to more intensive systems, where fish are stocked densely in ponds or cages, the risk of disease has surged.

According to Food and Agriculture Organization (FAO) report published in 2022, about 49 per cent of the world's fish production comes from aquaculture sector, which has been growing recently.

"Some farmers are losing 40 to 100 per cent of their stock due to infections," says Kenya Marine and Fisheries Research Institute (KMFRI) Aquaculture Director Dr. Jonathan Munguti, the lead aquaculture research scientist in the study. "That's devastating for small-scale farmers who depend on fish farming for survival."

KMFRI Aquaculture Director Dr Jonathan Munguti

According to the review, this situation deters aspiring farmers from entering the farming industry. Disease outbreaks can have an adverse effect on the economy because they cause significant losses for many fish farmers.

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Silent Crisis Below the Surface

The diseases affecting fish range from bacterial and fungal infections to parasitic outbreaks like white spot disease. Common culprits include *Aeromonas hydrophila*, *Streptococcus iniae*, and *Ichthyophthirius multifiliis*, which can kill large numbers of fish in just a few days.

Despite the seriousness of the issue, fish health is often overlooked. Most farmers lack access to diagnostic labs, and few are trained to spot or treat diseases. "There's still a widespread belief that fish don't get sick," says Dr. Munguti. "That myth is costing farmers dearly."

"Many small-scale farmers are facing huge losses. Unfortunately, few have access to diagnostic services or proper fish health management support," says the Aquaculture Director.The growing frequency of disease outbreaks is not only hurting individual farmers but also affecting the country's food supply and economy.


Fish meal ready for boiling

Fish is a major source of protein for many households, and disruptions in production could lead to shortages and higher market prices. Accordingly, Kenya cannot afford to overlook the aquaculture sector because it is a key contributor to food and nutritional security.

The most common fish diseases reported include bacterial infections such as *Streptococcus iniae* and *Aeromonas hydrophila*, fungal conditions like saprolegniasis, and parasitic infections such as white spot disease (*Ichthyophthirius multifiliis*).

Researchers say small-scale farmers often rely on informal consultation with universities or local fisheries officers who may lack adequate knowledge.

A major concern, experts note, is the lack of proper diagnostic laboratories and trained fish health professionals in the country. In addition, many fish farmers are unaware of basic disease prevention practices such as maintaining water quality, regulating stocking densities, or applying biosecurity measures.

The study reveals that Kenya currently lacks dedicated quarantine facilities, and few laboratories are equipped to test for fish pathogens. This makes it difficult to detect or contain disease outbreaks early, allowing them to spread rapidly across farms and even borders.

Economic & Food Security Impacts

Experts warn that beyond individual farmers, the ripple effects are being felt across the economy. They say when fish die, it is not just income that is lost. "We're also losing jobs in processing, distribution, and retail. Fish prices go up, and access to affordable protein goes down, especially for vulnerable groups like children and low-income families." The result is a sector under pressure: low investor confidence, fewer new entrants, and a growing burden on public health and nutrition programs.

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Solutions Within Reach

Despite the challenges, researchers say the crisis is solvable, with the right investment. Their recommendations include a raft of urgent investments to address the issue, including training more fish health experts and extension officers, establishing and equipping regional fish diagnostic labs.

“Well-equipped, accredited laboratories are essential for timely and accurate disease identification,” says Dr Opiyo.

The researchers also propose developing vaccines and safer treatments for fish diseases, setting up quarantine facilities for imported broodstock and fry, strengthening disease surveillance and reporting systems as well as enhancing collaboration between researchers, government, and farmers.

Regular disease monitoring supports early detection, mitigation, and resilience and strengthening policy and regulatory frameworks will help to address aquatic animal health and safe drug use.

In a region where fish farming is increasingly viewed as a solution to hunger and poverty, experts warn that the lack of disease control could reverse progress made over the past decade. “This is the time to act. If we don’t invest in fish health now, we risk losing not just fish, but also jobs, income, and a vital food source for millions of Kenyans,” says Dr. Munguti.

Freshly caught fish

“Proper nutrition, clean water, and responsible stocking levels can go a long way in preventing outbreaks,” says Dr. Syanya. “But we also need policies and infrastructure that support farmers in managing disease risks.”

Time for Action

The authors of the study are calling for stronger collaboration between government agencies, research institutions, and fish farmers. Improved communication and knowledge-sharing, they say, could help bridge the gap between science and practice, and give farmers the tools they need to succeed.

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"Improving communication between researchers, extension officers, and farmers will support knowledge transfer and adoption of best practices," says Dr Munguti. "Aquaculture is vital for Kenya's future," Dr. Munguti emphasizes. "But we can't build a sustainable industry if our fish keep dying. It's time to take fish health seriously."

Methodology

In order to produce a thorough review of the aquaculture fish diseases and fish health investment needs in Kenya, a narrative review approach was used which focused on the status of fish diseases in the Kenyan aquaculture sector, their socio-economic impact in the aquaculture sector, management challenges and solutions to fish diseases, and investment needs to improve fish health in the aquaculture sector in Kenya.

A wide range of phrases (closely related to fish diseases) were searched in the scholarly platforms of Science Direct, Research Gate, Google Scholar, and Web of Science. A literature review was done from 40 research publications that satisfied the requirements of this study.

The article was extracted from a publication titled *"Fish diseases and health investment needs for the aquaculture sector in Kenya"* whose lead author is Dr Jonathan Munguti. Co-authors include Jimmy Mboya, James Kirimi, Dr Domitila Kyule, Dr Jacob Iteba, Dr Esther Magondu, Dr Kevin Obiero, Dr Elick Otachi, Dr Florence Thiakunu, Dr Kevin Ouko and Dr Mary Opiyo

BY: **Dr Jonathan Munguti, Dr Mavindu Muthoka, Dr Mercy Chepkirui, Dr Domitila Kyule, Dr Kevin Obiero, Dr Erick Ogello, Dr Nazael Madalla and Dr Gerald Kwikiriza*Edits: Jane Kiguta***

East Africa's fish farmers struggle as costly feeds threaten aquaculture boom

As fish becomes an increasingly critical part of East Africa's food basket, the region's fish feed sector is emerging as a major bottleneck to aquaculture growth, threatening food security and income for thousands of smallholder farmers.

This emerged in a comprehensive review conducted by Kenya Marine and Fisheries Research Institute (KMFRI) researchers led by Aquaculture Director Dr Jonathan Munguti. In the study, experts propose that governments in Kenya, Uganda, Tanzania, and Rwanda should consider providing subsidies for raw materials and tax incentives to local fish feed producers.

KMFRI Aquaculture Director Dr Munguti samples fish feed

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From the shores of Lake Victoria to Rwanda's inland ponds, farmers are grappling with high prices, low-quality feeds, and unreliable supply chains. Research experts warn that unless bold investments and policies are implemented, the dream of a self-sustaining aquaculture industry may flounder.

"In Uganda, we produce about 75,000 tonnes of fish feed annually, yet we need close to 120 million tonnes to meet demand," said a fisheries specialist based in Kampala. "The gap is massive."

Aquafeed factory

Fish: Food for the Future

With Africa's population projected to hit 2.4 billion by 2050, sustainable sources of protein are urgently needed. Fish is already a lifeline for millions, especially women and children. But per capita fish consumption remains far below global averages; just between 5 and 6kg annually in East Africa compared to the world average of 20.5kg.

Rwanda consumes the least in the region, at just 2.3kg per person per year, highlighting how far the region still needs to go.

Aquaculture, which refers to farming fish in ponds and cages, has been growing rapidly to meet this demand. In Kenya and Uganda, governments are targeting ambitious production increases by 2030. But aquaculture relies heavily on quality feed, which is expensive and mostly imported.

The Cost of Feed is Sinking Farmers

Fish feed makes up about 70 per cent of a fish farmer's production costs**.** Most commercial feeds are too costly for small-scale farmers, many of whom resort to mixing their own, often with poor nutritional results.

In Kenya, high import duties, some as high as 50 per cent for key ingredients further drive up prices. Meanwhile, in Rwanda, farmers report that most feeds available are either home-made or low quality, stunting fish growth and profits.

"We can't afford to feed our fish properly," said a fish farmer in Kigali. "Sometimes we skip feed days or use maize flour and cassava instead. The yields are poor."

A Feed Industry Still in Its Infancy

While some local producers like *Ugachick* in Uganda and the *SamakGro Feed Factory* in Naivasha have emerged, Kenya regional feed production still falls short of demand. Many manufacturers rely on seasonal, volatile ingredients like sun-dried sardines ("*omena," "dagaa," or "mukene"*), which are also a staple food for low-income families.

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"We are competing with human food for ingredients," explained a feed processor in Mwanza, Tanzania. "It's neither sustainable nor affordable."

Climate change is adding pressure. Droughts, floods, and erratic seasons are reducing crop and fish yields, disrupting supply chains, and threatening storage infrastructure.

A variety of fish diets

A Path Forward: Regional Collaboration & Innovation

But there's hope. Experts point to successful partnerships like Tunga Nutrition, a joint venture by Unga Group and Dutch firm Nutreco, and the adoption of alternative protein sources like insect-based feeds as game-changers.

"We need to move beyond each country working alone," said an aquaculture policy advocate in Nairobi. "This is a regional challenge. We need a regional strategy."

KMFRI Aquaculture Director Dr Jonathan Munguti recommends tax reforms to lower feed import costs temporarily and leveraging public–private partnerships to boost local production. "We want farmers to embrace digital tools for farmer training and feed monitoring," he says

Dr Munguti added that gender empowerment programs will help more women participate in the sector, and consideration for investments in R&D should be given to develop affordable, locally tailored feed options

Governments are urged to support the sector through subsidies, infrastructure upgrades, policy harmonization, and quality control standards.

The Bottom Line

If East Africa hopes to meet its aquaculture potential and feed its growing population, fixing the fish feed problem is non-negotiable. The challenge is complex, but so are the opportunities. "With the right support, we can make fish farming profitable, sustainable, and equitable," "But we must act now."

***The article was extracted from the publication titled The Fish Feed Sector in Kenya, Uganda, Tanzania, and Rwanda: Current Status, Challenges, and Strategies for Improvement—A Comprehensive Review by Dr* Jonathan Munguti, Dr Mavindu Muthoka, Dr Mercy Chepkirui, Dr Domitila Kyule, Dr Kevin Obiero, Dr Erick Ogello, Dr Nazael A. Madalla, and Dr Gerald Kwikiriz**

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KMFRI launches major climate adaptation project to boost fisheries and livelihoods in Lake Turkana

Turkana County, Kenya – April 2025

As climate change continues to reshape ecosystems and livelihoods across Kenya, a new initiative is making waves in the Lake Turkana region. The Kenya Marine and Fisheries Research Institute (KMFRI), in collaboration with the International Fund for Agricultural Development (IFAD) and Samburu Women Trust, has launched a groundbreaking project aimed at transforming how indigenous fishing communities adapt to climate challenges.

Dubbed ***The Adaptation of Fisheries Practices to the Impact of Climate Change in Kenya (AFPICK)***, the project seeks to equip local communities with the tools, knowledge, and skills needed to sustain their traditional livelihoods while promoting sustainable resource use.

Running from 2024 to 2027, AFPICK is funded through IFAD's Indigenous Peoples Assistance Facility (IPAF) and focuses on strengthening the resilience of fishers, traders, and other stakeholders in the fish value chain, particularly the Beach Management Units (BMUs) surrounding Lake Turkana.

"This project is a critical step toward climate resilience, food security, and economic empowerment for indigenous communities," said a representative from KMFRI.

Fish from Lake Turkana

Empowering Indigenous Fishers and Protecting Lake Turkana

The core objectives of the project include enhancing the adaptive capacity of local fishers to respond to climate change impacts, promoting sustainable fishing

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practices to preserve Lake Turkana's productivity, improving post-harvest handling, processing, and marketing of fish to boost local incomes, as well as strengthening community governance through capacity building of BMUs and other grassroots organizations.

AFPICK also emphasizes the importance of indigenous knowledge, aiming to blend traditional practices with modern strategies in fisheries management. This is especially vital for the Turkana people, whose cultural identity is closely tied to fishing.

Training and Community Engagement

Since April 2024, the project has rolled out interactive training workshops covering topics such as fishing gear fabrication, resource mapping, and sustainable practices. These sessions are tailored to address the real-world challenges faced by over 24 BMUs in the region.

Participants have praised the inclusive, discussion-based format that encourages community engagement and knowledge sharing. The project also ensures information is widely disseminated across stakeholder forums held at the KMFRI Turkana station and within local communities.

Aligning with Government Agenda

AFPICK aligns closely with Kenya Kwanza's Bottom-up Economic Transformation Agenda (BETA), which prioritizes grassroots development and inclusive economic growth. By empowering BMUs, improving value chains, and promoting sustainable natural resource use, the project supports national goals of reducing poverty and strengthening rural economies.

A Vision for the Future

KMFRI's Turkana research station plays a leading role in translating scientific research into real-world solutions. By leveraging partnerships with IFAD and the Samburu Women Trust, the AFPICK project sets a precedent for inclusive development strategies that recognize and uplift indigenous communities.

Artisanal fishers using fishing crafts made from logs

As the project continues to unfold, its success may become a model for similar climate adaptation efforts across East Africa's lake regions.