



# POLICY PERSPECTIVES

Dr. Maggie G. Munthali      No. 04 – July 2021

## The Epizootic Ulcerative Syndrome outbreak in fish is a threat to Malawi's economy

The fisheries sector plays a crucial role in the livelihoods of many Malawians, providing direct employment to 153,084 fishers and 12,800 fish farmers. Nearly another two million Malawians are involved in ancillary activities such as fish trade, processing, marketing, net making, boat construction and maintenance, and boat engine repair. The sector contributes about 4 percent to the Gross Domestic Product (GDP) of Malawi.<sup>1</sup> For consumers, fish serves as an important source of animal protein and nutrients for most Malawians.

The management and control of disease stands as a primary challenge to the development of sustainable aquaculture and capture fisheries. Recently, some communities in Malawi have been overwhelmed by the outbreak of a particularly devastating transboundary aquatic disease, identified by the Department of Fisheries as Epizootic Ulcerative Syndrome (EUS). EUS is a fungal disease that can be found in rivers, lakes, ponds, and dams. It is also known as Mycotic granulomatosis (MG) in Japan, Red Spot Disease (RSD) in Australia, and Ulcerative Mycosis (UM) in the USA.<sup>2</sup> EUS is an invasive, aggressive, and destructive disease that affects both farmed and wild fish of freshwater and estuarine ecosystems. Prior to the initial EUS outbreak in Malawi, EUS had been reported elsewhere in the Southern African Development Community (SADC) region, including in Botswana (2006), Namibia (2007), Zambia (2008), and South Africa (2010).

The outbreak of EUS in Malawi was first reported in mid-July 2020 in Mchinji District, bordering the Zambian town of Chipata. At the time, local fishers and fish farmers observed that some fish species were dying off and others had lesions on their skin. Catfish, chambo (tilapia), and straight fin barb were all affected. The presence of EUS in Malawi was officially announced by the Ministry of Agriculture on 29 July 2020, and by October 2020, the disease had spread to other districts including Dowa, Kasungu, Lilongwe West, Nkhotakota, and Ntchisi.

---

<sup>1</sup> Government of Malawi. 2016. 2016 National Fisheries and Aquaculture Policy. Ministry of Agriculture, Irrigation and Water Development, Lilongwe, Malawi.

<sup>2</sup> Kamilya, D., & Baruah, A. 2014. Epizootic ulcerative syndrome (EUS) in fish: History and current status of understanding. *Reviews in Fish Biology and Fisheries*, 24: 369–380.



*Fish with lesions on their skin. Photos: [FAO](#) (left) and [ZaWARD](#) (right)*

If not identified and treated early, EUS is characterized by high morbidity and mass mortality in susceptible fish populations. The disease is most commonly spread through the movement or importation of live or frozen fish, abrasion, exposure to acidified water, and skin damage by parasites.<sup>3</sup> Control of EUS in natural waters such as lakes and rivers has proven impossible. In closed water bodies such as ponds, fish farms, and dams, the disease can be controlled by removing the infected fish or liming the water to increase the pH. Overall, the most effective way to control the spread of the disease is to restrict the movement of fish (and/or contaminated materials like fishing nets) between infected and uninfected areas.

Given the threat posed by EUS to the Zambezi River Basin, the SADC Secretariat (through their Regional Emergency Task Force on EUS) convened a meeting in August 2020 to address the outbreak. This task force encouraged countries within the SADC region to be on alert and report any suspected cases of EUS to national or regional authorities. The task force further emphasized the importance of coordinated efforts around intensive research on EUS, the establishment of surveillance programs, and trainings.

The Government of Malawi responded to this call by putting in place various preventive measures to contain the spread of the disease. The Government suspended fishing from areas where EUS was reported, and between January and June 2021, the Department of Fisheries trained their extension

---

<sup>3</sup> Lilley, J.H., Callinan, R.B., Chinabut, S., Kanchanakhan, S., MacRae, I.H., & Phillips, M.J. 1998. Epizootic Ulcerative Syndrome (EUS) Technical Handbook. Aquatic Animal Health Research Institute, Department of Fisheries, Kasetsart University, Bangkok.

staff, conducted sensitization and awareness campaigns on EUS in the affected districts, and networked with other stakeholders to solicit funds for managing EUS.

### **Social, economic, and ecological impacts of EUS in Malawi**

Despite the measures taken to prevent the spread of EUS, the disease has been reported in the South Rukuru River in Rumphi District in Northern Malawi. If it remains uncontrolled, the EUS outbreak has the potential to bring a wide range of negative impacts to Malawi's economy and ecology, with implications for biodiversity, incomes, food security, and international trade.

First, the EUS outbreak is likely to threaten aquatic biodiversity through a decline in fish biomass.<sup>4</sup> The mortality rate in fish farming can be 100 percent. By causing mass mortality, it is expected that the EUS outbreak will affect the population density and population structure of susceptible species, namely catfish, chambo/tilapia, and straight fin barb. These species may even disappear from the market in some areas.

Second, as the disease outbreak continues to have an impact on fish production, it is expected that the livelihoods of more than 70,000 fishers could be affected (per this [2020 SADC press release](#)). According to discussions with experts in the Department of Fisheries, the number of affected households could be five times greater when we consider the effect on fish traders, transporters, processors, and fish industry inputs and equipment suppliers. In addition to causing fish production/harvest losses, the EUS outbreak is expected to lead to higher rates of market rejection for fish and reduced fish consumption in the country. This is because the presence of unsightly lesions or ulcers may lower the retail price received for the fish, resulting in income losses for fisherfolk, traders, and others depending on fishing.

Significantly, fisheries and aquaculture have provided a particularly important source of income and financial independence for women, who are more likely to engage in small-scale fish trading or small-scale fish enterprises. Women will therefore be especially affected by the EUS outbreak and may have to seek alternative businesses or employment, including in low-return activities such as agricultural labor (ganyu).

Third, Malawi depends on capture fisheries, as well as pond, dam, and cage aquaculture for its fish consumption needs. Fish is regarded as a particularly affordable source of animal protein and other essential nutrients. The EUS outbreak will likely lead to a shortage of fish in the affected areas,

---

<sup>4</sup> Herbert, B., Jones, J.B., Mohan, C.V., & Perera, R.P. 2019. Impacts of epizootic ulcerative syndrome on subsistence fisheries and wildlife. *Revue Scientifique et Technique*, 38(2): 459–475.

potentially undermining the food security of the local population (especially among those who cannot afford more expensive sources of animal protein) and the sustainability of the fish value chain. According to the District Fisheries Officer for Mchinji District, the EUS outbreak has already affected the availability of fish in this district.

Fourth, while there is no evidence that EUS brings any direct health implications for humans (i.e., as consumers), fish with deep ulcerations and tissue decay can harbour secondary pathogens that may have health implications for humans. For this reason, people are advised not to eat EUS-infected fish unless the fish has been properly and thoroughly cooked. Given the safety concerns and the negative publicity around fish consumption, the EUS outbreak is likely to dampen consumer confidence and therefore reduce demand for fish and fish products.

Fifth, the EUS outbreak will have an impact on the import and/or export of fish in Malawi. According to the August 2020 SADC press release, Malawi suspended the transport and sale of live or dead fish around Bua catchment areas and surrounding fish farms. Citing the threat of EUS, Mozambique banned the import of fish from Malawi three months after the outbreak.<sup>5</sup> Further limits on trade may follow if the disease is not contained.

Finally, another impact of the EUS outbreak is the diversion of government resources to cover the necessary investment in EUS surveillance, control programs, and disease research. So far, the Department of Fisheries and various stakeholders (FAO, GIZ, SADC, and WorldFish) have contributed approximately MK17 million toward activities related to the EUS outbreak. These resources could have been allocated toward other priorities such as addressing the COVID-19 pandemic or promoting agricultural production.

## **Policy and research recommendations to address the EUS outbreak**

If it is not controlled, the EUS outbreak is likely to have a profound effect on rural livelihoods and food security in Malawi. To avoid this outcome, it is imperative to implement the following policy and research recommendations:

### ***Intensify trainings and public awareness campaigns***

There is a need for Government and other institutions to conduct trainings for fishers, fish farmers, and frontline staff on EUS. Public awareness campaigns should also target a wide range of

---

<sup>5</sup> The Chronicle. 2020. "Mozambique bans fish imports from Malawi." 3 September 2020. <https://www.chronicle.co.zw/mozambique-bans-fish-imports-from-malawi/>

stakeholders including policy makers, Civil Society Organizations (CSOs), NGOs, and representatives of the private sector. Such trainings should educate people on how they can identify/diagnose, prevent, and control EUS in Malawi.

### ***Implement the Malawi EUS Containment Plan and Surveillance Plan***

The Department of Fisheries has already developed these two plans. Now, there is a need for Government and other organizations/institutions to allocate financial resources toward their implementation.

### ***Develop the Malawi National Biosecurity Strategy for Aquatic Animal Health and the Malawi National Aquatic Animal Health Plan (NAAHP)***

The EUS outbreak has exposed serious biosecurity weaknesses at the farm level, district level, and national level in Malawi. Biosecurity measures are essential to prevent and control EUS. The National Biosecurity Strategy for Aquatic Animal Health will identify the most appropriate biosecurity measures and actions to be applied at all levels. These may include a restriction on the importation of fish stock until mechanisms are in place to control the spread of EUS; a requirement that all imported live fish should have a certification of EUS-free status; and a system for monitoring the implementation of biosecurity measures and compliance with EUS regulations in the affected areas. Thus, there is a need to ensure that diagnostic, inspection, and certification services are available.

### ***Develop a long-term EUS strategy***

The EUS is here to stay. The Department of Fisheries has developed a three-month Emergency EUS Strategy; however, there is still a need to develop a longer-term EUS Strategy that specifies what is required to manage EUS in the long-term.

### ***Improve the EUS surveillance, monitoring, and reporting program***

Surveillance, monitoring, and reporting are essential to the detection and control of EUS. These activities form the basis for early warning of any emerging disease outbreak. In addition, a robust surveillance and monitoring program will build the confidence of Malawi's neighbours in the quality and safety of Malawi's fish exports.

### ***Invest in research and development (R&D)***

There is a need for Government and other institutions to prioritize research in EUS, particularly related to:

- Socio-economic impacts of EUS to better understand how the disease has impacted the fishers, fish farmers, and the rural communities that depend on fish for their livelihoods, income, employment, and food and nutrition. This will help Government clarify its priorities and will inform the Department of Fisheries as it develops appropriate policies, regulatory frameworks, and implementation strategies to support and assist those who are negatively affected by EUS;
- Ecological impacts of EUS on the diversity, population structure, and population density of various fish species in affected ponds, lakes, dams, and rivers;
- An epidemiological investigation of EUS to characterize its distribution, patterns and channels of transmission, and the environmental conditions that enable its survival; and
- An economic assessment of losses to the Government of Malawi in terms of decreased export earnings.

***Dr. Maggie G. Munthali*** ([m.munthali@mwapata.mw](mailto:m.munthali@mwapata.mw)) is a Research Fellow at MwAPATA Institute. She holds a PhD in Geography from University of Pretoria, South Africa, and has extensive experience in natural resource management, forest management, agroforestry and integrated soil fertility management (ISFM). Her most recent research relates to small-scale aquaculture in Malawi.

*This research is made possible by the generous support of the Agricultural Transformation Initiative (ATI) through the Michigan State University (MSU) Food Security Group. The contents are the responsibility of study authors and do not necessarily reflect the views of ATI and/or MSU. The author would like to thank Dr Ayala Wineman and Dr. Milu Muyanga for reviewing this policy perspective before publishing. Vote of thanks to Director of Fisheries Dr. Friday Njaya for sharing some of the data used in this write-up.*

Copyright © 2021, MwAPATA Institute. All rights reserved. This material may be reproduced for personal and not-for-profit use without permission from but with acknowledgement to MwAPATA Institute and MSU.