



## FISH DISEASE INVESTIGATION INCREASES DISEASE AWARENESS AMONG SMALL-SCALE FISH FARMERS

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Miniver Kampamba, a young, female farmer in Zambia, experienced severe mortalities with her fish during the cool season of the year. She reported that she suspected disease to be the culprit as a result of a new batch of fingerlings being introduced in the cage next to hers. At the time when her neighbor stocked the new fingerlings in the cage close by, there was a total of 16,000 young fish, which were already two months at the site and were growing well. However, her fish started exhibiting wool-like growths around the head and fins, followed by bulging eyes and an extended abdomen. She lost over 1,500 out of the 16,000 in one month.

Another farmer, Passmore Simuzingili, expressed similar experiences of fish mortalities in cages; however, his losses were not as high as Kampamba's. When asked what they use to alleviate the problem, Simuzingili indicated they only used salt, which seemed to not have any effect. Therefore, they needed real-time solutions.

To address these challenges, a Feed the Future Innovation Lab for Fish team from the University of Zambia embarked on research to develop a local fish vaccine, which may improve productivity by reducing mortalities for fish farmers in Zambia.

As apparent in Kampamba's and Simuzingili's stories as well as several others, fish diseases have been affecting production on Lake Kariba in the Siavonga District of southern Zambia. In this region, small-scale fish farmers come together to form cooperatives where they combine resources to create cage platforms for growing fish. A single platform may have about eight cages with a holding capacity of 20,000 fish per cage. Despite this initiative to expand their businesses, the farmers have not seen much progress because they have had challenges with diseases, especially in the cooler months of the year from May to August.

During the Fish Innovation Lab team's visits to different fish farms on the lake, samples of sick or moribund fish were collected from the cages. The farmers were happy to learn about strategies being developed to address their problems, and the interactions with the team brought hope to the farmers who were not aware of vital interventions to prevent fish diseases. The team additionally presented talks on fish health and biosecurity, specifically discussing pathogen introduction on the farm and how the spread of pathogens and the conditions within the farm can increase susceptibility to infection and disease.

The farmers were eager to know the targeted measures they could use to control diseases in their cages. They were advised to disinfect their scoop nets before and after collecting dead fish, sanitize their hands, and change their cage nets to reduce net clogging with debris and allow free flow of water through nets. Additionally, a demonstration of varying water parameters inside and outside a cage helped to highlight the reason why the fish were stressed.



*Miniver Kampamba, one of the female fish farmers, is directing the research team to one of her cages that was experiencing fish mortalities. (Photo submitted by Hang'ombe Bernard)*



## PROJECT TEAM

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“I completely did not know that the cage needed to be maintained to allow oxygen and water exchange at the cage site,” Kampamba said.

With this feedback, the team has been encouraged to quicken vaccine testing. Currently the vaccine is undergoing laboratory trials to establish its efficacy. A cage has been secured on the lake for further trials. For the final utilization of the vaccine, the Zambia Medical Regulatory Authority has been engaged for vaccine registration, while 35 farmers on two cage platforms have been identified and consented to use the vaccine.

The Fish Innovation Lab activity studying fish vaccine development is continuing to work and interact with the farmers to educate them on how they can minimize the impact of diseases on their fish farms.

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## ABOUT THE FISH INNOVATION LAB

The Fish Innovation Lab supports the United States Agency for International Development's agricultural research and capacity building work under Feed the Future, the U.S. Government's global hunger and food security initiative. Mississippi State University is the program's management entity. The University of Rhode Island, Texas State University, Washington University in St. Louis, and RTI International serve as management partners.

[www.feedthefuture.gov](http://www.feedthefuture.gov)  
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