REPUBLIC OF UGANDA

MAAIF
Ministry of Agriculture
Animal Industry and Fisheries

STATEMENT BY

MR. PIUS WAKABI KASAJJA

THE PERMANENT SECRETARY,

MINISTRY OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES

ON THE LAB FINDINGS ON FISH KILLS ON LAKES VICTORIA AND KYOGA

DELIVERED ON JANUARY 13TH, 2021

AT THE UGANDA MEDIA CENTRE

FISH KILLS ON LAKES VICTORIA AND KYOGA

1.0 Introduction:

Fish kill is an annual phenomenon that usually occurs on Lake Victoria and is associated with weather patterns. However, due to severe weather patterns in 2020 and last week, the extent of fish kills reported this time is higher than the previous episodes. The current fish kills have been reported both on Lake Kyoga and Lake Victoria.

On Lake Kyoga, reports of fish kills were received from Nakasongola and Kayunga Districts. In Nakasongola, it started around September 2020 as isolated cases, but there were increased reports in November and December 2020. It has been reported in the 4 sub-counties of Nabiswera, Lwabiyata, Kalungi and Lwampanga. It has basically happened to one species and that is *Lates niloticus* (Mputa/Nile perch). The weight of dead fish has been ranging between 15 to 20 kg per head with the record of 100 kg as the biggest

2.0 Steps taken

On 5th January and 9th January, 2020, Fish Scientists from the Fisheries Directorate and the National Fisheries Resources Research Institute were dispatched to different landing sites to pick up fish and water samples for study

2.1 Laboratory Investigation:

Fish and Water samples were picked from different landing sites and taken for analysis at the THREE labs below:

1. **Directorate of Government Analytical laboratory (DGAL) – (for toxicology)**
2. **National Fisheries Resources Research Institute Laboratory – (for Algae analysis)**
3. **National Animal Disease diagnostics and Epidemiology Centre (NADDEC) – (for Pesticide Residue Analysis)**

2.2 Community Investigations:

From the community investigations, the observable factors were;

- Windy days and water getting turbid and as you may be aware Lake Kyoga is shallow.
- Significant floating vegetation covering the fishing grounds coupled with the floods.
- Some of such vegetation has been rooting in the water leading to a depleted supply of oxygen.

In Kayunga about 8 Nile perch of around 20 Kg were found dead and floating on the water. These were removed by fishers and buried.

3.0 Observations:

On Lake Victoria, investigations show that the fish kills that occurred were localized in Wakiso District resulting from a usual phenomenon called hypoxia (kaliro). Inquiries from Kenya report no significant fish kills observed on the Kenyan side with only one landing site (Nyandihiwa) reporting fish kills of about 200 kg in December 2020 which was a normal occurrence as such happens annually. On Tanzania side, fishers from Mwanza contacted reported no mass fish kills.

Results from the recent lake wide hydroacoustic indicate widespread thermal stratification patterns, most prominently in the North Western, South Western and North Eastern sectors of the lake. Dissolved oxygen profiles showed instances of anoxia or below critical levels of dissolved oxygen occurring at the bottom depth zones. Reports by Directorate of Water Resources indicate Dissolved Oxygen (DO) as low as 3m/l in some places reflecting anoxic conditions. A lot of algal blooms were observed along Entebbe Bay covering Kitubulu with a stench.

Last Monday 4th January 2021 there was a heavy storm in Entebbe. It is possible that the recent changes in weather conditions could have triggered mixing of the lake, an event that could lead to fish kills. The deaths are reported near the shores where waters are shallow and usually nursing

grounds for young Nile perch hence the high number of death among the young fish.

3.1 National Fisheries Resources Research Institute

According to our Scientists from NaFIRRI, Lake Victoria is known to get thermally stratified during the long dry season (December – March) and generally mix during the strong winds of the short dry season (July – September). However, in 2019 you will recall that the marked seasonality in the lake region disappeared, there were a lot of rains, water levels rose and we had no serious mixing in the July –September season. This could explain the prolonged thermal stratification observed in October –November during acoustics.

As observed from acoustics, the north western part of the lake was strongly stratified with sufficient Dissolved Oxygen in the upper layers and anoxia in the deeper layers. This means that the recent strong winds that dispersed rains last week could have led to rapid mixing bringing the anoxic waters into oxygenated waters inhabited by fish. Nile perch is generally highly susceptible to low Dissolved Oxygen and inhabits relatively deeper layers 15 – 20 meters. The sampling done by NaFIRRI was done 5 days after the storm and focused on algal compositions. Laboratory analysis found blue-green algae dominant, although Microcystis, the toxin producing genera were found in all sampled sites. The presence of Microcystis may not be related to the fish kills given the fact that no fish mortalities were reported in other parts of the lake where similar studies have been previously conducted.

3.2 National Animal Disease Diagnostic and Epidemiological Laboratories (NADDEC)

Lab analysis was carried out at National Animal Disease Diagnostic and Epidemiological Laboratories (NADDEC) from 06-01-2021 to 08-01-2021 for pesticide residue analysis of both water and fish samples. Samples that were analyzed were picked from Kasenyi landing site, Kigungu landing site, Bugonga Landing site and behind Wagagai flowers. Tests for

organophosphates, organochlorines and pyrethroids (Poisons) all turned out negative.

3.3 Directorate of Government Analytical Laboratories

Same samples that were sent to NADDEC were also sent to the Directorate of Government Analytical Laboratories, Wandegeya and results show no chemicals were found. However, the dissolved Oxygen levels was at only 0.12mg/l which was too low for the Nile perch to survive. Note that the staff of Directorate of Fisheries took samples on 5th January 2021 a day after the storm (4th January 2021).

4.0 Conclusion:

Based on the findings from the three different laboratories, we conclude that the cause of the fish deaths is NOT as a result of poisoning rather it can be attributed to environmental factors.

The General Public is further reminded that this is a normal phenomenon, that occurs almost every year. It also has no impact on the taste quality of the rest of the fish in the lake. This is to therefore reassure fish consumers that there is no harm in consumption of Fish from the lake.