January 2023

Aquatic Health Information Brief: Zambia

Summary information

Customs and borders

1. International airports (3):
a. Harry Mwanga Nkumbula International Airport
b. Kenneth Kaunda International Airport
c. Simon Mwansa Kapwepwe International Airport

2. Official land border crossing points (19):
Jimbe, Caripande/ Chavunna, Kazungula Ferry, Kasumbalesa (OSBP) Chipita/ Mchinji, Mqocha/ Mtyocha, Katumbi/ Hewe, Chipita/Kanyala, Chanida/Cassacatiza, Luangwa/Zumbo, Chimefusa, Wenela, Mbala, Tunduma/ Nakonde (OSBP), Chirundu (OSBP), Siavonga/Kariba, Kazungula Ferry, Kazangula Road, Livingstone/Victoria Falls.

3. Bordering countries (8): Angola, Botswana, RDC, Zimbabwe, Malawi, Mozambique Namibia, Tanzania

4. Coastal customs ports:
Not applicable

Key contacts supporting national aquatic health management

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Main fish pathogens and health conditions detected in Zambia

Bacterial: *Streptococcus spp.* (*Streptococcus agalactiae and Streptococcus iniae*); Aeromonas spp. (*hydrophila & veronii*); *Lactococcus garvieae*.

Parasitic: Likely to be a range of common ectoparasites on gills and externally for cultured tilapias and catfish, more commonly found in hatchery and nursery: Trichodinids, *Dactylogyrus sp, Gyrodactologyrus sp*.

Fungal: Epizootic Ulcerative Syndrome (EUS) - causative agent *Aphanomyces invadans* - detected in wild fish in Zambezi in Sesheke district, Kafue River (2010), Chongwe River (2011), Bangweulu swamps (2014), Chambeshi and Kalungu Rivers (2015), and Lake Itezhi-tezhi (2020); secondary infections of *Saprolegnia sp* found in more intensive systems especially tilapia hatchery and nursery.

Viral: No recorded detections of tilapia or other related viral pathogens at time of publication.

Private sector background

In the 1970s and 80s a number of donor-funded projects (including Peace Corps) tried to develop small-scale pond-based aquaculture through government extension and Fisheries Departments with mixed results. From the mid-80s several mid-level entrepreneurial pond-based farms began to develop. Two farms, using integrated business models are still in operation 40 years later. Commercial tilapia cage culture developed on Lake Kariba in the Siavonga area from 2008 onwards, with four significant scale start-ups in subsequent years. A steady increase in mid-level pond producers was also seen.

Private sector background

A new, specialised commercial feed mill was opened in Siavonga to serve the growing industry. Apart from the detection of EUS in several locations in wild fish, there has been no major disease issue identified in aquaculture production. The first specialist aquatic animal health diagnostic laboratory is being built at the Veterinary Department of the University of Zambia as part of a project collaborating with the Fish Innovation Lab, managed by Mississippi State University and funded by USAID. This infrastructure will support identification of pathogens associated with fish mortalities in aquaculture establishments of Lake Kariba and support sector resilience through the confirmation of pathogenicity and disease causation through the development of experimental infection methods in tilapia; developing and testing autogenous vaccines for the key bacterial pathogens (i.e. *Lactococcus garviae*, *Streptococcus iniae*, *Streptococcus agalactiae*); devising methods of administering autogenous vaccines to fish on farms; and improving the administration of an already developed *L. garviae vaccine*.

Infrastructure and Legislation: FAQs

1. Does the government have a specialised unit for aquatic health?

Yes, just recently established through USAID Fish Innovation Lab.

2. Are aquatic health diagnostics laboratories accessible and affordable to the majority of aquaculture farmers?

There are no private facilities, but the lab being developed at University of Zambia could provide services.

3. Does the government have any bans or limitation on introducing live fish into the country – or moving live fish within the country?
Yes. Historically there have been introduction and movement restrictions on certain non-native cichlids in parts of the country. The Fisheries Act 2011 empowers the Department of Fisheries to regulate exotic fish introductions. It also gives power to the Director of Fisheries to reject or approve applications made to their office for any possible introduction of exotic aquaculture species.

4. Does the government have any specialist legislation on aquatic health?
National Aquatic Animal Health Strategy (NAAHS) Part II 4 (1) Part II 4 (3) Part II 6 (1) Part II 6 (6) Part II 8 (2) Part III 19-25 Part VII 43, 48 has just been established.

Further reading

1. Hasimuna OJ, Maulu S, Mphande J, 2020. Aquaculture Health Management Practices in Zambia: Status, Challenges and Proposed Biosecurity Measures. J Aquac Res Development. 11: 3. doi: 10.35248/2155-9546.19.10.584.
https://www.walshmedicalmedia.com/open-access/aquaculture-health-management-practices-in-zambia-status-challenges-and-proposed-biosecurity-measures.pdf

2. Bondad - Reantaso MG, Songe M, Hang'ombe M B, 2019. National Strategies on Aquatic Animal Health (NSAAH) and/or Aquaculture Biosecurity. Project log.
https://www.researchgate.net/project/National-Strategies-on-Aquatic-Animal-Health-NSAAH-and-or-Aquaculture-Biosecurity

3. Dismukes Alaina, 2021. Reducing Tilapia Losses Through Vaccine Development in Zambia. Fish Innovation Lab Press Release. https://www.fishinnovationlab.msstate.edu/newsroom/2021/08/reducing-tilapia-losses-through-vaccine-development-zambia

4. Huchzermeyer CF, Huchzermeyer KDA, Christison KW, Macey BM, Colly PA, Hang'ombe BM, Songe MM, 2018. First record of epizootic ulcerative syndrome from the Upper Congo catchment: An outbreak in the Bangweulu swamps, Zambia. Journal of Fish Diseases.
https://pubmed.ncbi.nlm.nih.gov/28745838

This brief was produced as part of a series across a selection of sub-Saharan African countries. It was produced by a small team from ThinkAqua and Casammak Aquaculture and reviewed by local experts. Support for the data collection survey was provided by the Food and Agriculture Organization of the United Nations.

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