



World Organisation  
for Animal Health



# Regional Workshop on Antimicrobial Resistance in Aquaculture for English-Speaking African Countries



13 - 15 August 2025  
Harare, Zimbabwe



Funded by  
UK Government



# Lessons from the World Aquaculture Safari Opportunities for stakeholders and country collaboration in addressing AMR

J. K. Walakira, E. Hinrichsen, B. Mapfumo,





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# African Aquaculture

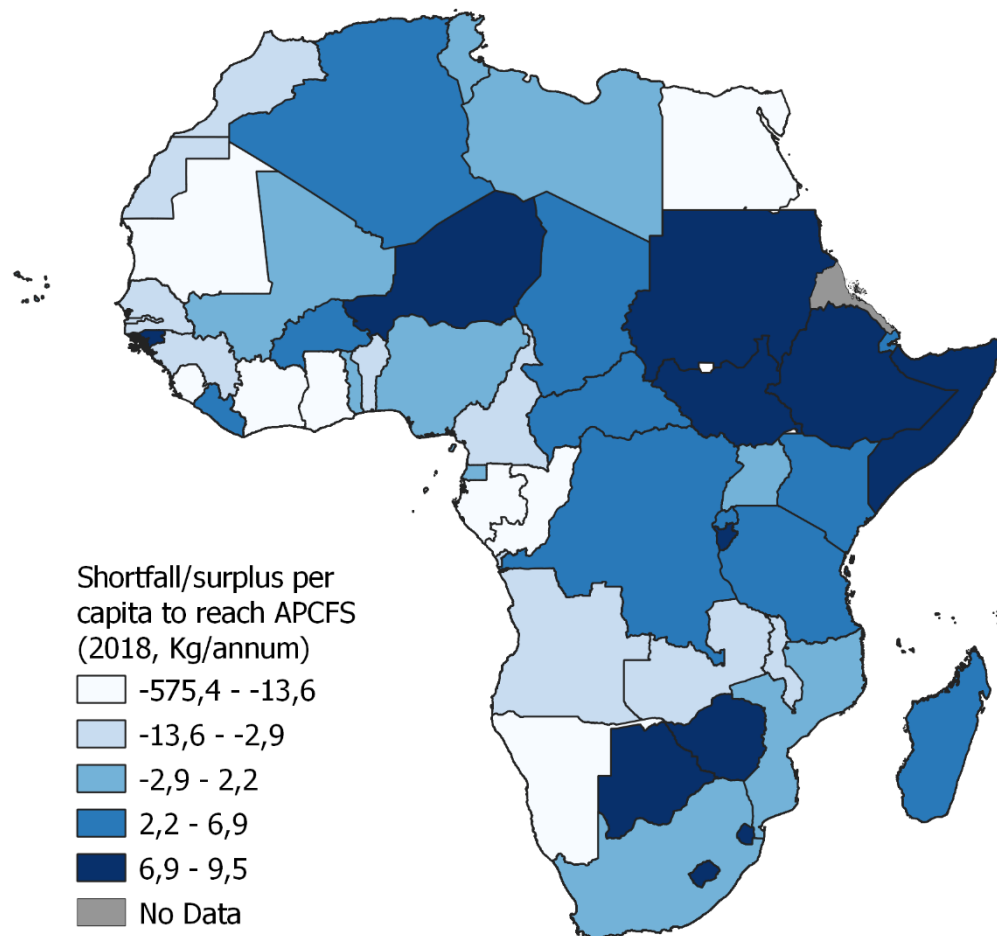
- Contribution to world aquaculture production = 2.7% (Halwart 2020),
- African Fisheries = 18%,
- Compound annual growth rate= 15.55% (FAO 2016; Halwart 2020),
- inland freshwater systems= 99% (FAO 2016, 2018),
- Major species=Tilapia and African Catfish,
- Production systems: Ponds, tanks and Cages



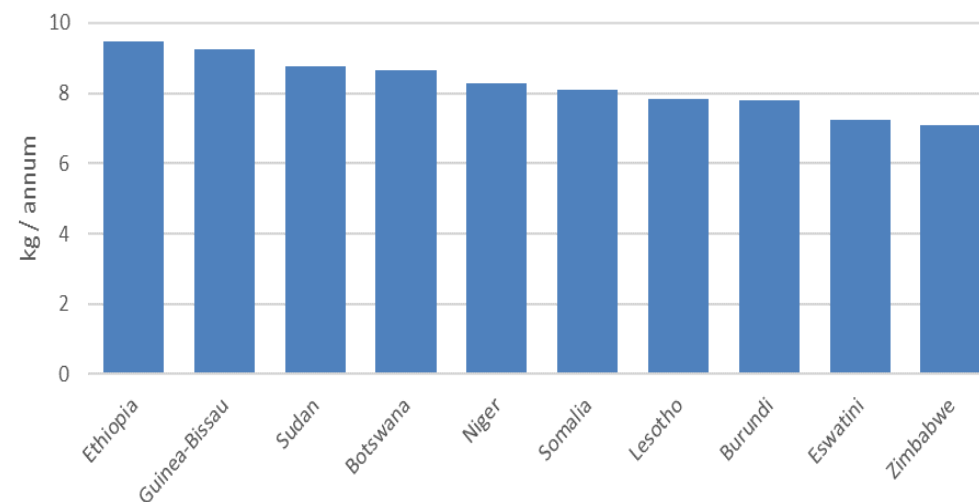
<https://www.gettyimages.com/detail/photo/seaweed-farming-in-zanzibar-tanzania-africa-royalty-free-image/523351682>



# Per capita shortfall to reach average African per capita fish consumption



Top 10 countries with the highest per capita shortfall to reach average African fish supply (2018)





# Food security: Prediction of fish production, seed and feed requirement

	YEAR							
	2015	2020	2025	2030	2035	2040	2045	2050
<b>Aquaculture (Million tonnes)</b>	1.82	2.11	2.31	2.44	2.57	2.68	2.77	2.86
<b>Per capita consumption (kg/person/year)</b>	10	9.5	8.9	8.5	8.0	7.7	7.7	7.7
<b>Estimated seed required, stocked at 2 g (billion)</b>	910	1055	1155	1220	1285	1340	1385	1430
<b>Feed required at FCR 1.3 (million tonnes)</b>	2.37	2.74	3.00	3.17	3.34	3.48	3.60	3.72

Source: Chan et al. (2019) Walakira et al. 2021





# Small-medium Scale Commercial Aquaculture



Community Fish Farming



Family Fish farming



# Increased Investments in Intensive Aquaculture



YALELO, Uganda & Zambia

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# Major Challenges/threats

- Diseases
- Climate Change
- Environmental pollution



MAPPING STUDY OF AQUATIC ANIMAL DISEASES -  
SOUTHERN AFRICA



# WORLD AQUACULTURE Society





World Organisation  
for Animal Health

Global Membership



# Over 3,000 Members



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## From over 100 countries



The Fleming  
Fund



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# Affiliated Chapters



**Asia-Pacific**



**Korea**



**Latin America and Caribbean**



**United States**

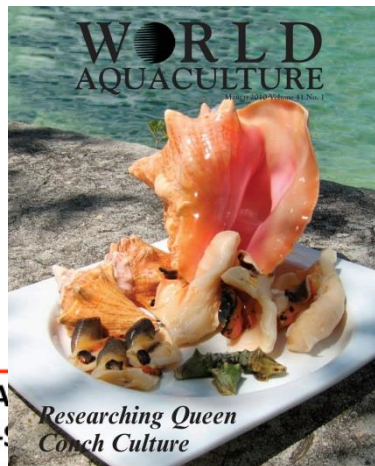


**AFRICA**

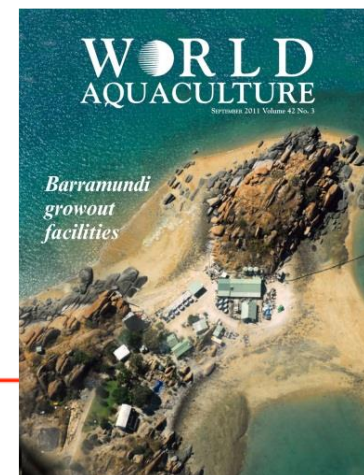
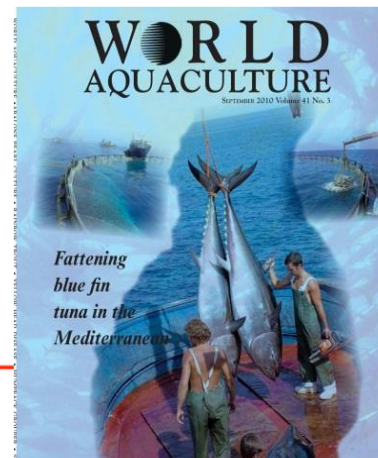


## World Aquaculture Magazine

Quarterly publication containing feature articles, updates, as well as timely popular and technical aquaculture articles along with news and current events of interest from around the globe.



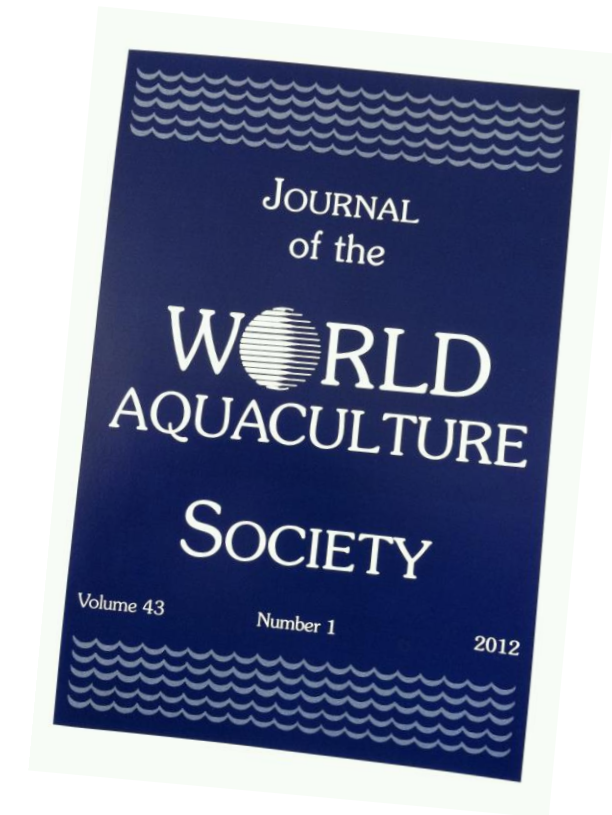
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## Journal of the World Aquaculture Society

Bi-monthly scientific journal containing high-quality, peer-reviewed, scientific papers covering the full range of aquaculture topics

**Available to members  
in hard copy or  
electronic format**





Over 300 delegates (including from 33 African countries)  
attended the WAS AC launch meeting (WAS 2017, Cape Town)









- ✓ **Launched** in June 2017 in conjunction with the World Aquaculture 2017
- ✓ **Formerly established in Nov-2018** with support from the Government of South Africa
- ✓ **Affiliated** to the Aquaculture Association of Southern Africa (AASA) and Egyptian Aquaculture Society (EgAS) and other organisations
- ✓ **Secretariat hosted** by the Africa Union Development Agency (AUDA-NEPAD) at its Headquarters in Midrand, South Africa
- ✓ **Governed by a Board of Directors** who are elected from the Chapter's membership in Africa, every two years

# Annual Aquaculture Africa Conferences (AFRAQs)



	<b>EGYPT – MARCH 2022</b>
	<b>ZAMBIA 2023</b>
	<b>GHANA 2024</b>
	<b>UGANDA 2025</b>



# Continental attendance



## REGISTRATIONS BY CONTINENT

	Number	%
AFRICA	1651	89.4%
EUROPE	99	5.4%
NORTH AMERICA	53	2.9%
ASIA	30	1.6%
SOUTH AMERICA	6	0.3%
MIDDLE EAST	4	0.2%
OCEANIA	4	0.2%
<b>TOTAL</b>	<b>1847</b>	<b>100.0%</b>

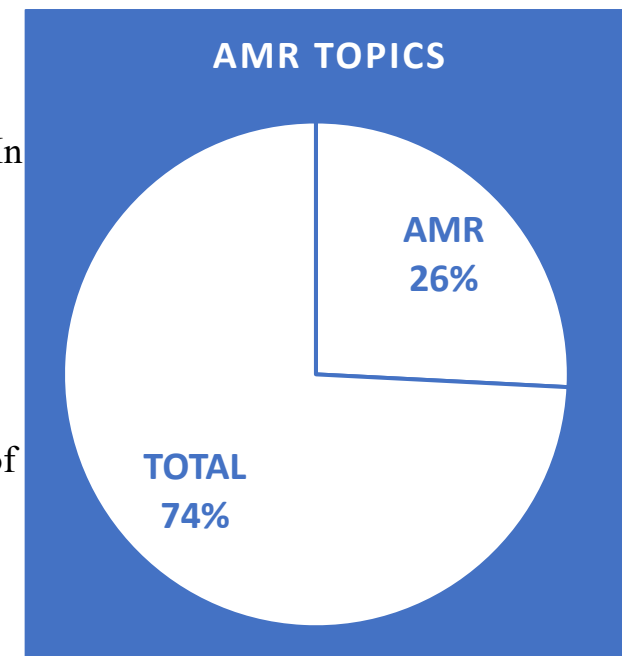
# Categories



CATEGORY	Uganda	Rest of Africa	Elsewhere	Total	%
Industry (Fish Farm)	155	128	14	297	16.1%
Other (Unspecified)	82	158	0	240	13.0%
Industry (Other)	33	122	48	203	11.0%
Government	73	83	4	160	8.7%
Student	38	94	15	147	8.0%
University	48	63	29	140	7.6%
Industry (Aquafeeds)	29	68	17	114	6.2%
Other Exhibit visit	56	45	0	101	5.5%
Association/Network	28	58	4	90	4.9%
Research Centre	26	45	10	81	4.4%
Development Partner/NGO	18	28	22	68	3.7%
Consulting	20	25	11	56	3.0%
Media	27	14	1	42	2.3%
African Union/REC	2	34	0	36	1.9%
Finance & Investment	2	12	9	23	1.2%
Regional Fishery Body (RFB)	19	3	0	22	1.2%
FAO/UN	2	10	8	20	1.1%
WAS Staff	0	3	4	7	0.4%
<b>TOTAL</b>	<b>658</b>	<b>993</b>	<b>196</b>	<b>1847</b>	<b>100.0%</b>

## Biosecurity

- Improving aquatic biosecurity management through a risk-based, collaborative and progressive approaches to safeguard human health, the environment and national economies in the face of a rapidly changing world
- Occurrence And Antibiotic Susceptibility Of Francisella And Vibrio Species Isolated From Tilapia From Selected Farms In The Lake Victoria Basin In Uganda
- When No News Is Good News: How Active Surveillance Con
- firms Disease Freedom In South African Abalone
- The Status And Prospects For Strengthening Aquatic Animal Laboratory Diagnostic Services In Africa
- The status of aquatic veterinary services in the region: opinions of farmers, sector and veterinary practitioners - the case of Uganda
- Assessment Of Factors Limiting Farmer's Adoption Of Methods For Prevention, Control And Treatment Of Fish Health Challenges On Their Farms In Wakiso District
- Does Cage Culture Influence Diseases, What Are Best Practices And Reflections For Sustainable Aquaculture On Lake Victoria, Kenyan Waters?
- Leveraging artificial intelligence for fish health and aquaculture advisory in Africa





## Policies/Strategies on AMR

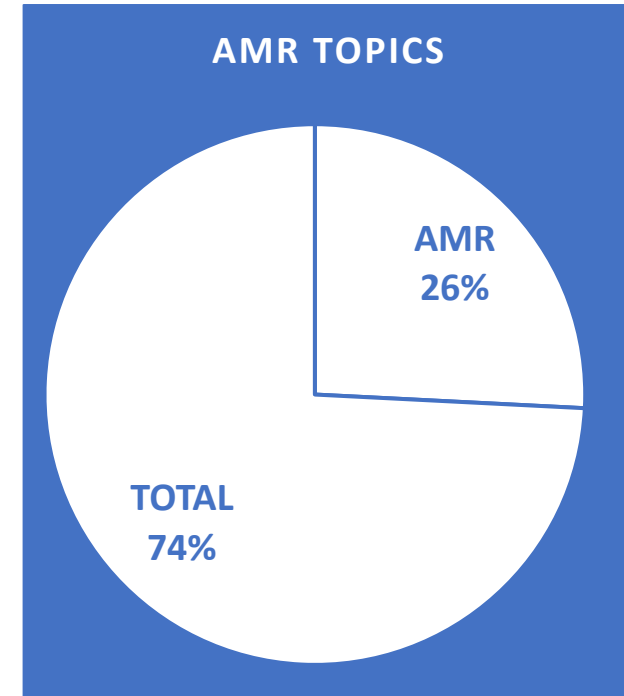
From Crisis To Control: How Data-driven Fish Health Management Is Transforming Nigeria's Aquaculture Industry

Interventions to Reduce Disease and Antimicrobial Use In Aquaculture

The Structural Variation Landscape In The European Seabass (*Dicentrarchus Labrax*) Genome And Its Potential Role In Disease Resistance

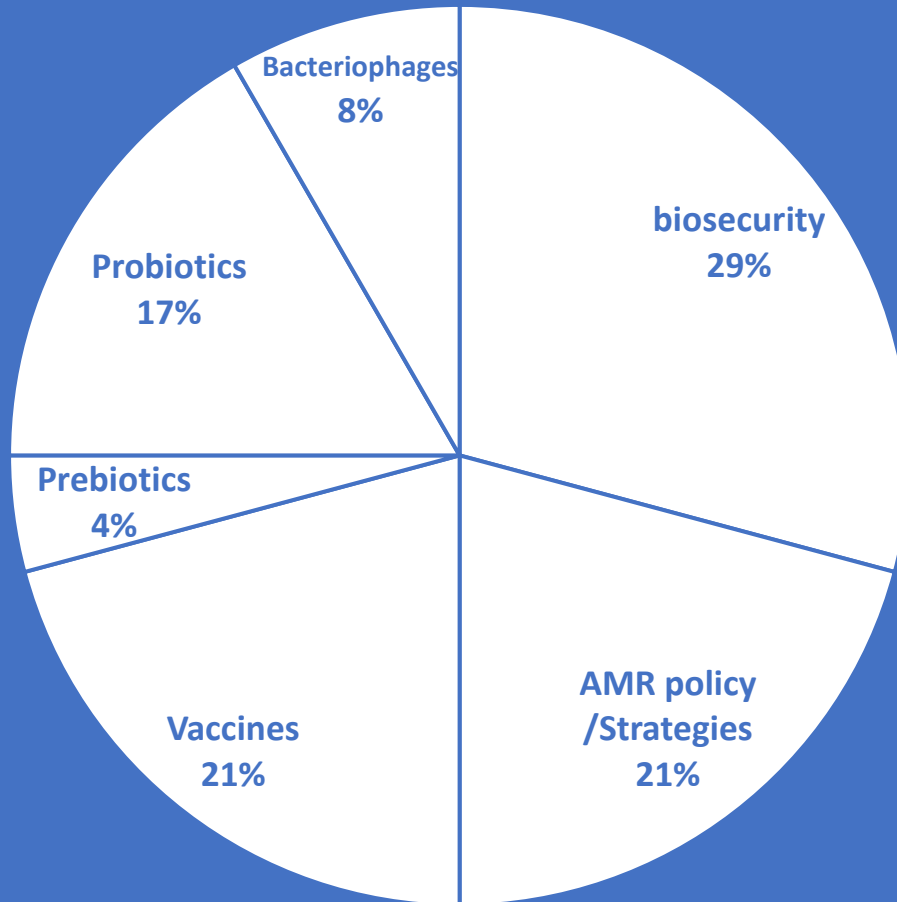
Advancing innovation for aquaculture on the rise: the global center for aquatic health and food security

*Escherichia coli* ANTIMICROBIAL SUSCEPTIBILITY PROFILE AND GUT MICROBIOME DYNAMICS IN FARMED NILE CROCODILE HATCHLINGS WITH ENTERITIS





## PAPERS PRESENTED



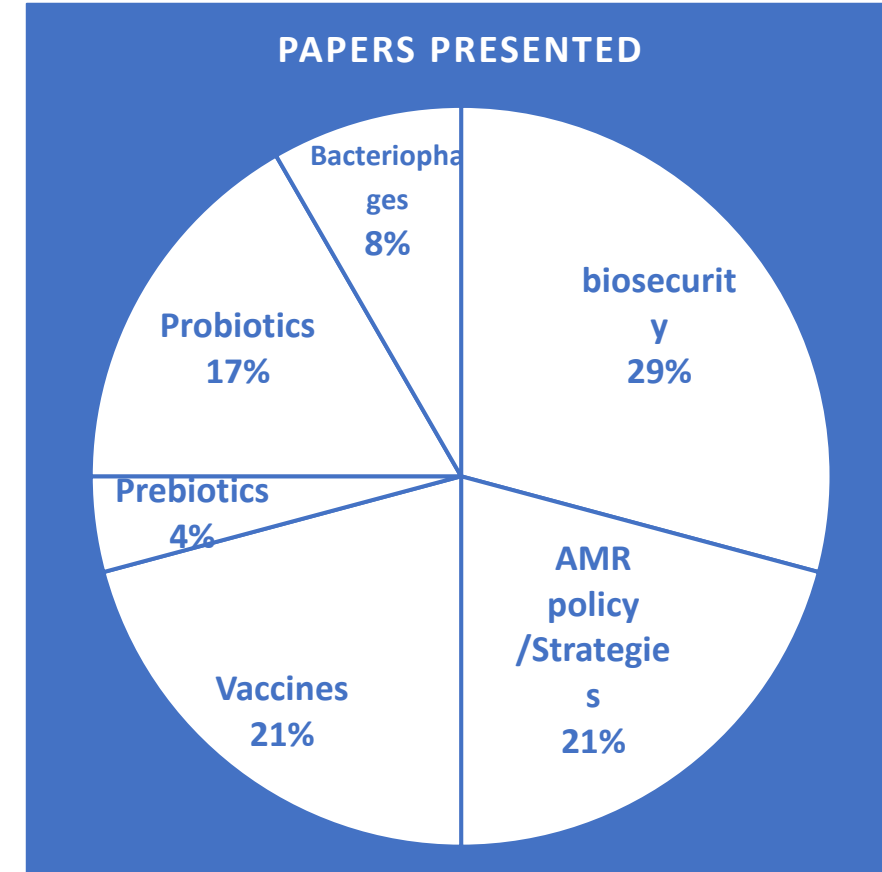
## Vaccines:

- Mapping The Production, Distribution And Use Of Aquatic Animal Vaccines In Africa
- Developing Effective Vaccines For Tilapia: A Case Study In Streptococcus Prevention
- Concept Of Independent Quality Control Of Veterinary Vaccines In Africa
- Developing Effective Vaccines For Tilapia: A Case Study In Streptococcus Prevention
- Bacteriocin-rich Extract From Engineered Lactic Acid Bacteria As An Antibiotic Alternative For Therapeutic And Prophylactic Use In Ruminants And Aquaculture (Bac4ruma)



## Probiotics

- Fish Probiotic Applications: Increase In Heterotroph Bacterial Populations And Decrease In Pathogenic Bacteria In Pond And Stomach Water Samples Of Catfish (*Clarias gariepinus*)
- The Effect Of Varying Molasses Concentration In Probiotic Preparation On The Growth Performance Of Nile Tilapia (*Oreochromis Niloticus*)
- Synergistic Effects Of Probiotics And Fish-oil On The Growth Performance, Immune Response, And Gut Health Of African Mud Catfish (*Clarias gariepinus*)
- Evaluation of the probiotic eco marine on water quality, pathogen inhibition, and performance of *Penaeus monodon* in aquaculture systems



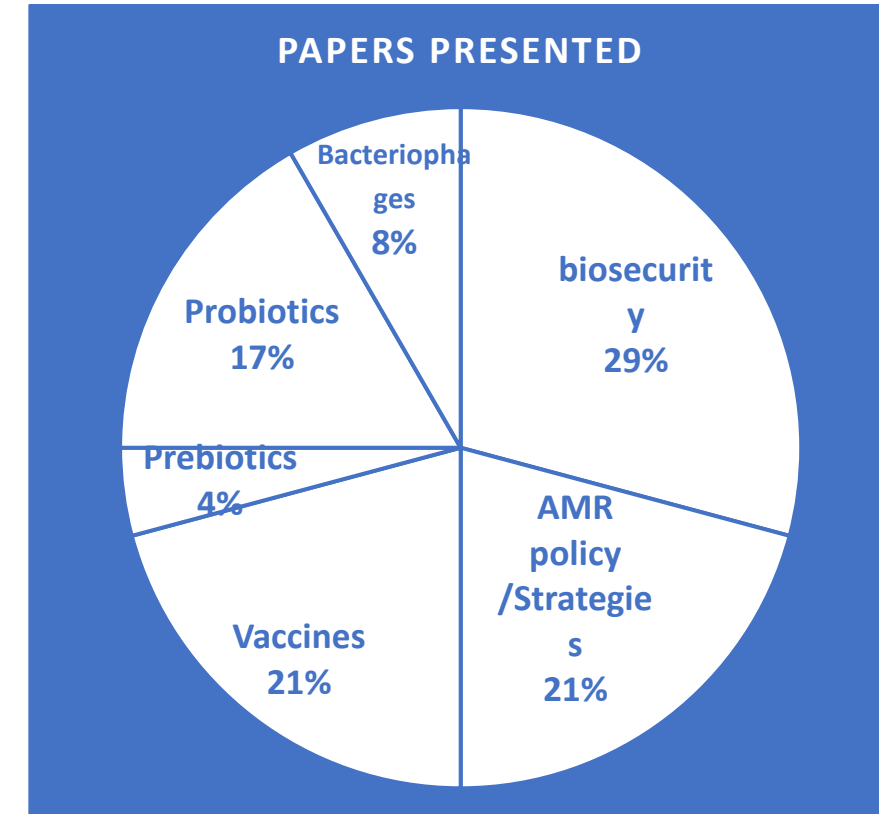


## Prebiotics

Curbing fish larval mortality and improving immunity; the inclusion of prebiotics in dietary feed for African catfish (*Clarias gariepinus*) and Nile Tilapia (*Oreochromis niloticus*)

## Bacteriophages

- Bacteriophage action against tilapia fish aeromonas in aquarium tanks in uganda
- Characterization of Edwardsiella tarda and selected bacteriophages for development of an alternative antimicrobial agent for use on fish farms in Uganda





- **Support the implementation of existing policies and initiatives**
  - African Blue Economy Strategy
  - Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRS)
- **Empower women in the aquaculture sectors**
  - Gender mainstreaming in aquaculture programs e.g. the African Women Fish Processors and Traders Network (AWFISHNET)
  - Further research needed on the role of women in African aquaculture and how to address the challenges they face
- **Reduce the environmental impact of the aquaculture sector**
  - Impacts on land, freshwater resources – incl. competition with other sectors
  - Special focus on water pollution and eutrophication





## Way forward



- **Implement measures to mitigate and adapt to climate change**
  - Further research needed on climate change impacts on African aquaculture
  - Identify and up scale suitable mitigation and adaptation measures in Africa
- **Policy recommendations**
  - Mainstream the production of aqua foods in African policies, incl. for food systems transformation
  - Recognize the important contribution of aqua foods to nutrition security
  - Strengthen small-scale actors in the aquaculture sectors







**JOIN WAS** and  
be part of the journey!!

**[www.was.org](http://www.was.org)**

For more information

**African Chapter of WAS Secretariat**

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# ACKNOWLEDGMENT



**zef**

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Development Research  
University of Bonn







# ASANTE SANA!

