



Charles Chege Ngugi PhD, EBS  
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Mwea AquaFish Farm - Kenya

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## EDUCATIONAL BACKGROUND

1995 – 1999	Doctorate Degree (PhD) Memorial University, Newfoundland, Canada, in Fish Biology
1985 – 1986	Master’s Degree (MTech) Rivers State University of Science and Technology, Nigeria, majoring in Tropical Mariculture systems and production units
1977 -1980	Bachelor’s Degree (BSc) University of Nairobi, Kenya majoring in Chemistry and Biochemistry
1985	Post Graduate Diploma, FAO Africa Regional Aquaculture Centre, Port Harcourt, Nigeria. Senior Aquaculture Management Programme
2012	Certificate in <b>Strategic Leadership Development Programme (SLDP)</b> , Kenya School of Government, Lower Kabete, Kenya
2010	Certificate in <b>Strategic Leadership and Change Management</b> for Directors of State Corporations, Kenya Institute of Administration (KIA), Nairobi, Kenya
1987	Certificate in <b>Project Development and Management (PDM)</b> , Kenya Institute of Administration (KIA), Lower Kabete, Nairobi, Kenya



## DISTINGUISHED HONOURS AND AWARDS

Awarded the **Elder of the Order of Burning Spear (EBS)** in 2012 by His Excellency the President of Republic of Kenya and Commander in Chief in recognition of outstanding and distinguished services rendered to the Nation

Awarded the **BIFAD International Award for Scientific Excellence in the Feed the Future** Innovation Lab in 2018 by The US Board for International Food and Agricultural Development

Awarded the **International Aquaculture 2020 Unsung Hero’s Award in Scotland in September 2020**. The award, recognizes and reward the excellence that is vital to the continuing development of a sustainable worldwide aquaculture industry – highlighting the impressive array of talents, achievements, and technical innovations on offer within the fast-growing sector.



## WORK EXPERIENCE

Administrative Position	Director, Board of Postgraduate Studies Since July 2022 to Jan 2024
Current Position (Academic)	Associate Professor – Fish Biology and Aquaculture since May 2018
Sept 2019 -Aug 2023	Dean, School of Natural Resources and Environmental Studies, Karatina University
Aug 2018 - Aug 2019	Director Quality Assurance and ISO Certification, Karatina University

Oct 2015 - Dec 2016	FAO consultancy on Promoting Agricultural Diversification to Reduce Poverty, fight Nutrition and enhance youth Employment opportunities in Eastern Africa
Oct 2014 - Oct 2015	Associate Professor - Kenyatta University
Aug 2011 - Jul 2014	Fisheries Secretary – Ministry of Agriculture, Livestock and Fisheries
Jan 2010 - July 2011	Chairman of Department - Kenyatta University
Apr 2003 - Dec 2009	Head of Department - Moi University
Jan 1991 - Aug 2008	Lecturer and Senior Lecturer: Fish Biology, Aquaculture, Stream Ecology, and Watershed Management – Moi University
1984 to 1990	Senior Fisheries Officer: Sagana Fisheries Research Centre, involved in advanced aquaculture research in Africa
1981 to 1984	District Fisheries Officer, Siaya County, Management of Lake Victoria

### Professional Experience

Jan 1991 – Present	Senior Academic and Administrative positions in Karatina, Kenyatta and Moi Universities
Aug 2011 - Jul 2014	Fisheries Secretary, Ministry of Fisheries Development
Nov 2004 - Jun 2011	Member of the Board of Kenya Marine and Fisheries Research Institute

### University Administrative Responsibilities

July 2022 – Jan 2024	Director Board of Postgraduate Studies, Karatina University
Sep 2019 to Aug 2023	Dean, School of Natural Resources and Environmental Studies
Aug 2018 to Aug 2019	Director Quality Assurance and ISO Certification Karatina University
Sep 2010 to July 2011	Chairman Department of Agricultural Resource Management (ARM) Kenyatta University
2003 to 2009	Chairman Department of Fisheries and Aquatic Sciences, Moi University
Various dates	Chairman of Post Graduate studies in Moi and Kenyatta Universities
Diverse dates	Member of Senate – Karatina, Kenyatta and Moi Universities

### Roles and functions of a Fisheries Secretary

- Served as Principal Technical Adviser to the Cabinet Secretary and Principal Secretary
- Developed and operationalized the National Oceans and Fisheries Policy
- Overseeing development of the Fisheries Bill into an Act of Parliament and operationalize it
- Developed Annual Budgets and Expenditure in line with Government set ceilings and regulations
- Developed and implement Ministerial Strategic Plan
- Ensured Strategic Plan is linked to Constitution of Kenya, National policy documents, Vision 2030, Medium Term Plan (MTP) and the Sector Performance Standards
- Facilitated all Fisheries Directorates and ensured they achieve agreed performance targets
- Developed comprehensive performance targets and assigned weights to performance indicators
- Coordinated development and dissemination of areas of cooperation between Ministry and other development agencies or international partners

### Roles and functions of a Fisheries Secretary, cont.

- Enforced and complied with the relevant legislations and regulations and ensured statutory obligations for Regional and International Fisheries Management Organizations (among them LVFO, IOTC, SWIOFC etc)
- Prepared employees for the desired changes in working styles, attitudes and work ethics in line with Devolved Government Functions as per the Constitution

### Roles and functions of a Director on the Board of Kenya Marine and Fisheries Research Institute (KMFRI)

- Advised the responsible Minister on the Management of the institute
- Administered the property and funds of the research institute
- Received fees and grants on behalf of the Institute
- Made regulations governing appointments, conduct and discipline of employees
- Reviewed Annual Budget Estimates, approve it and submit Research Programmes to the Treasury through parent ministry for financing
- Coordinated Performance targets and indicators (We received an Award of Excellence for achieving set targets for State Corporations)

## INTERNATIONAL LINKAGES, CONSULTANCY AND COMMUNITY OUTREACH

### ◆ International Linkages

- I have served as Lead Principal Investigator and sat on the Advisory Member of the USAID funded Aquaculture and Fisheries Collaborative Research Support Programme (AquaFish Innovation Lab) for 18 years
  - I Have been a Member of the Research team under USAID funded AquaFish Innovation Lab - a multidisciplinary team of researchers and advisors representing US and Global International Aquaculture experts in over 27 US Universities and 54 international institutions in 23 developing countries
  - Through this funding we have Implemented Aquaculture and Mariculture programmes in Kenya, China, Ghana, Honduras, Mali, Mexico, Philippines, Indonesia, Nepal, Uganda, Tanzania, Thailand, and Vietnam
  - Though this funding we have fully funded over 100 graduate students majorly young women in developing countries; in Kenya I have funded over 20 students through this programme
  - From this funding we developed innovative technologies that included providing fish farmers with alternative sources of fish feed now adopted across the globe
  - In 2018, each Lead Principal Investigator was recognized by the Board for International Food and Agricultural Development and was presented with Scientific Award of Excellence for the work
- I have had other linkages with Stirling University; USAID; German GIZ, Kenya and Israel Mashav, Trilateral programme
- FAO Youth development Programmes both in Freshwater and Marine environments

### ◆ Consultancies

- September 2020 to present - Gatsby Africa Consultant Services providing Consultancy particularly for development of small-scale commercial fish farmers, training government extension officers, development of policy documents and working with departments of fisheries and aquaculture at the county and national level and input suppliers.
- Oct 2021 to March 2023: FAO Aquaculture Sector Analyst Consultant; Improving governance of Aquaculture employment; developing tools for Investment decision making in Aquaculture and Financing aquaculture in Africa
- May -August 2021: FAO National Consultant: Fisheries Technologies and Innovation
- Oct 2015 – Dec 2016 - FAO Promoting Agricultural Diversification to Reduce Poverty, fight Nutrition and Enhance Youth Employment opportunities in Eastern Africa
- July – Sept 2015 - Deloitte, Kenya: Potential opportunities in terms of aquaculture and related industries in three East Africa countries - Planned future investments and new investments opportunities that could be considered by Norwegian companies; both with regional public and private sector promoters
- Feb- March 2014 - FAO project to conduct a case study of the Social and Economic Performance of Tilapia farming in Kenya
- Oct 2007 – Sep 2010 USAID/Mali Leader with Associate Award Project: Consultant on the Aquatic Resource Use and Conservation for Sustainable Freshwater Aquaculture and Fisheries project in Mali. Aquaculture lead PI.
- 2009 -ACP Fish II - EU Project–IBF International Consulting Ref CU/PE1/UG/10/001 on Preparation of a National Aquaculture Policy in Kenya – Developed and Adopted by Government of Kenya
- 2010 - European Union (EU) - World Fish Centre Project on Development of Regional Aquaculture Trade Directory for East Africa and Central Africa
- 2009 - SARNISSA/ Stirling University Project: Assessment of National Aquaculture Policies and Programmes in Kenya under Sustainable Aquaculture Research Network in Sub Saharan Africa (SARNISSA) – Regional Coordinator
- European Commission (EC) Project: Aquashops - Enhancing fish farmer – on enterprise for sustainable productivity and livelihoods in East Africa. The RIU Best Bets funded by DFID a Project on Initiative to build aquaculture development Aquashops services in Kenya
- SIDA Project on Staff and Students Exchange Programme Linnaeus- Palme; Collaboration between Moi University and Kalmar University, Sweden

### ◆ Community and Outreach Work

- Current patron of the Kirinyaga County Fish Farmers Association. Through this Association we have engaged the county government to allocate funds to buy a fish feed mill that will be run by the fish farmers.
- Through proposal writing and grants, I have fully supported over 20 students who have graduated with MSc and most of them have secured employment.
- I have worked with Bidii fish farmers based in Luanda, Vihiga County, raised their livelihood and presently they are fish feed manufactures in western Kenya.
- Through the Kenya, German, Israel Trilateral Programme, transformed Ramogi Institute of Advance Technology to a TVET institution through equipping their Aquatic Science laboratories and sinking a bore hole that provide clean water through out; the water project saves RIAT kshs 3.0 Million every year.

 **Has Served as PhD External Examiner for:**

1. Ambakisye Polland Simtoe, September 2024: PhD thesis titled: Studies on the influence of artificial feeds on growth performance and immune responses of farmers black tiger prawn *Penaeus monodon* (Fabricius, 1798) in Tanzania.
2. Esther Wairimu Magondu, September 2022: Application of an integrated multi trophic aquaculture system in enhancing production and profitability in small scale Mariculture enterprises in Kenya
3. Ms Luvna Caussy, March 2020, "Biology of the deep water snapper, *polysteganus baissaci*, stocks of Mauritius– implication for management Mauritius
4. Alayu Yalew, Addis Ababa University, December 2018: Thesis Titled: Study on the reproductive and growth performance of the African catfish, *Clarias gariepinus* (Burchell, 1822) in Captivity for enhancing Aquaculture
5. Paul Sagwe Orina, University of Eldoret, December 2014: The Biology and Aquaculture potential of *Labeo victorianus* (Boulenger, 1901) under different culture systems, diets and stocking densities
6. Lucious Grandson Chizula Kanyumba, University of Malawi, March 2009: Biogeography of Rock-Dwelling Cichlids, Mbuna, in Lake Malawi
7. Mokuu, Millicent Awino Moi University, October 2005: An Economic Analysis of Fisheries Management in Lake Victoria, Kenya: Performance and Policy Options

 **Has Served as MSc External Examiner**

8. July 2022: Faith Mwende Nzilu B407/MAI/20029/2018 South Eastern Kenya University thesis titled: Assessment of fish farmers' Vulnerability to climate Variability and Extreme events in ASALs of Kenya, Case study of selected parts of Kitui County.
9. January 2022: Richard Kariuki Mwangi, Kenyatta University, thesis titled: An assessment on the performance of small scale commercial fish farming from economic stimulus programme in Nyeri county, Kenya
10. January 2020: Maurine Kerubo Arori, I56/83265/2015. University of Nairobi. Thesis titled: Potential use of selected seaweeds as a feed supplement on growth performance and survival of Nile tilapia (*Oreochromis niloticus* – Linnaeus, 1758), fingerlings reared in Tanks
11. October 2018: Agwata Ototo, I56/PU/2143/13, Pwani University, MSc Thesis titled: The effect of Dietary vitamin E on the growth and survival of Nile tilapia (*Oreochromis niloticus*) cultured under a semi-intensive system
12. September 2017: Jackson Muchiri, A56/80921/2012, University of Nairboi: Evaluation of fish Farming practices and effects of dietary protein levels and pond fertilization on performance of African Catfish (*Clarias gariepinus*)
13. June 2017: Athman, Abubakar Almubarak; I56/PU/2034/13, Pwani University, Titled Characterization of the Small-Scale Tuna Fishery in Kenya
14. Jan 2017: Lucy Kapombe, I56/PUC/2216/13, Pwani University: Assessment of Ecological integrity of lower Sabaki River using Macro-invertebrates as Biological indicators
15. May 2016: Oketch Anam Rashid, I56/PUC/2065/12, Pwani University: Some Aspects of the Biology and Taxonomy of Rabbit fishes in Kenyan Inshore Marine Waters
16. November 2015: Kembenya Elijah Migiro; MAN14/50002/13, Kisii Univeristy, Broodstock Management and Larval rearing of Ningyu (*Labeo victorianus*, Boulinger, 1901) at Kegati, Kisii, Kenya
17. May 2015: Muya Judith Wairimu; NRM/PGFI/SG/5 VOL.IV, University of Eldoret, Comparative study of growth performance and viability of four marine fish species under cage culture

18. Aug 2007: Ismael A. Kimirei, University of Dar es Salaam, Variability in Pelagic fish Catches and the Physico-Chemical Parameters in Kigoma Bay, Lake Tanganyika, Tanzania

### I have supervised and graduated the following PhD Students

19. Julius Manyala, University of Eldoret: A synopsis on the Ecology and Fishery Biology of *Rastrineobola argentea* (pellegrin 1904) in the Winam Gulf of Lake Victoria, Kenya – Graduated in December 2013.
20. Charles Odhiambo Oduor, Kenyatta University: Effects of land use on stargazer mountain catfish, *Amphilius uranoscopus*, stream habitat variables and the need for management and conservation of catchment regions along Sagana and Thego streams, Kenya –Graduated in July 2019
21. Mary Opiyo, Kenyatta University: Effects of Probiotics on Performance, Immunity and Safety of Nile Tilapia (*Oreochromis niloticus*) Cultured in Low Input Cages in Pond –Graduated in December 2020

### Current PhD Student I am supervising

1. **Morine Mukami, Karatina University:** Growth and survival rate of catfish (*Clarias gariepinus*) fry fed on Kenyan produced and imported *Artemia* with subsequent weaning of dry feeds – on going

### I have supervised and graduated the following MSc Students

22. Justus Njue, Karatina University 2023: Karatina University: Spawning interactions between hatchery-reared and wild naturalized Rainbow trout (*Oncorhynchus mykiss*, Walbaum, 1792) in high altitude tropical streams, Kenya. Awaiting Defense
23. Douglas Okemwa 2022: Karatina University: Growth performance of Rabbitfish *Siganus sutor* offered black soldier fly (BSF) larvae (*Hermetia illucens*) diet in brackish water earthen ponds in Kenya”. Awaiting graduation
24. Theuri Olive Wairimu 2019: Kenyatta University: Influence of aquaculture development on fish pond water Quality and livelihoods of fish farmers in Gatundu, Kiambu county, Kenya
25. Ann Kimotho 2019: Kenyatta University: Effects of Stocking Density on Growth Performance of Nile Tilapia (*Oreochromis niloticus*) in Cage-cum-Pond-Integrated System in Kirinyaga County, Kenya.
26. Carolyne Musyoka Mino 2015: Nairobi University: Impacts of Aquaculture on water quality and economic benefits in Central Kenya: a case study of Gatundu South Constituency
27. Gladys Mwhaki Kuria 2012: Moi University: Effects of Stocking Density on Growth performance yield and economic returns of Nile tilapia (*Oreochromis niloticus*, Linn 1858) in an integrated cage cum pond culture system
28. Cecilia Muthoni Githukia 2012: Moi University: consumer preferences of wild and cultured Nile tilapia (*Oreochromis niloticus*) and African catfish (*Clarias gariepinus*) in selected urban centres in Kenya.
29. Abigael Mweruti Nyansarora 2010: Moi University: Effects of iodized common salt on survival, growth and stress response of Nile tilapia (*Oreochromis niloticus* Linn. 1758) fry
30. George Kamau 2011: Moi University: Effects of replacing fish meal with pasteurized bovine blood on growth performance, survival and economic benefits in Nile tilapia (*Oreochromis niloticus*) cultured in earthen fish ponds
31. Mary Opiyo 2009: Moi University: Influence of stocking density and background colour on the growth performance and survival of Nile tilapia fry (*Oreochromis niloticus*)
32. Morine Mukami 2009: Moi University: Using GIS and remote sensing in assessing potential small-scale aquaculture sites in Embu district.
33. Simon Macharia 2009: Egerton University: The Impacts of Common Carp (*Cyprinus Carpio* L.) Introduction in Lake Naivasha, Kenya –

34. Nyamweya Chrispine 2009: Moi University: Age and Growth parameters of Native fish species commercially exploited in Lake Baringo, Kenya
35. Ann Mokoro 2008: Moi University: Effects of Stocking Densities on Growth and survival of Juvenile Nile tilapia (*Oreochromis niloticus*, Linn 1858) in Cages
36. Stephen Njau 2008: Moi University: Effect of Hatchery Rearing duration and Stocking density on Growth and survival of the African catfish (*Clarias gariepinus*, Burchell 1822) Larvae reared in hapas suspended in a static pond
37. James Mugo Bundi, 2008: Moi University: Effect of varying dietary crude protein levels on reproductive performance of Nile tilapia (*Oreochromis niloticus*, linn.) reared in earthen ponds
38. Elizabeth M. Nyanchiri 2007: Moi University: The Effect of Different Stocking Ratios on the Yields of Tilapia (*Oreochromis niloticus*) and African Catfish (*Clarias gariepinus*) In Fertilized Earthen Ponds
39. Victoria Boit 2007: Moi University: Effects of three feeding regimes and two light regimes on growth and survival of African catfish, *Clarias gariepinus*, Burchell, 1822: Family Clariidae) Larvae
40. David Ouma Mboya, 2006: Moi University: Feeding habits of *Barbus* Spp. of Nyando River, Lake Victoria Basin
41. Julius K. Nzeve 2005: Moi University: Influence of three different live feeds on survival and growth of juveniles of the African catfish, *Clarias gariepinus*, reared in Tanks
42. Daniel K. Omwansa 2005: Moi University: Early Feeding Habits of *Clarias gariepinus* in high altitude fish ponds fertilized with Organic Manure
43. Rachel N. Kamau 2005: Moi University: Nursery rearing of the African Catfish (*Clarias gariepinus*) at different stocking densities in hapa nets suspended in a pond.
44. Sammy K. Macharia 2004: Moi University: Breeding Techniques of African Catfish (*Clarias gariepinus*) in Lake Victoria Basin at Kibos Fish Farm
45. Mr. Enos Mac'Were 2003: Moi University: Comparison of Tilapia and *Clarias* Polyculture Yields and Economic Benefits Resulting from Rice Bran, Pig Finisher and A pelleted Test Diet

#### Graduate broad areas that I teach:

Aquaculture Planning and Management, Research Methods, Biology of Finfishes, Pond Dynamics and Hatchery Production Techniques. Marine ecosystems, watershed management, Stream Ecology, Marine policy and Law

#### Undergraduate broad areas that I teach:

Fish Biology, Aquaculture, Fisheries and Natural Resources Management, Stream ecology and watershed management, Aquatic Ecology, Research Methods, Animal Science, Fisheries Policy and law, Fisheries Project Planning.



## RESEARCH AND PUBLICATIONS

#### Key note Speeches and Lectures:

- I have given lectures in Regional and International Conferences in Africa, Asia, Latin America and North America; *In*: Bangladesh, Canada, Cameroon, Shanghai China, Egypt, Ethiopia, Israel, Ghana, Malawi, Mali, Mexico, Nepal, South Africa, Thailand, Tanzania, Uganda, USA (Auburn, San Antonio, San Ndiego, Oregon, Washington), Vietnam, Zambia etc.

## 📖 Books and Book Chapters

1. Mary A. Opiyo, Rita N. Nairuti and Charles C. Ngugi. 2023. Black soldier fly (*Hermetia illucens*) larvae meal as sustainable protein source for fish feed production in Kenya. In Gabriel, N. N. (eds). *Emerging Sustainable Aquaculture Innovations in Africa*. Sustainable Agriculture and Food Security 98-101pgs. ISBN 978-981-19-7450-2
2. Charles C. Ngugi, Betty Nyandat, Julius O. Manyala, Beth Wagude, 2017. Social and economic performance of tilapia farming in Kenya pages 91-112. In *Social and economic performance of tilapia farming in Africa*, Edited by J. Cai, K.K. Quagraine and N. Hishamunda. **FAO Fisheries and Aquaculture Circular No. C1130**. Rome, Italy. ISBN 978-92-5-109756-4 -144Pp
3. Ngugi, C. C., Bowman, J. and Omolo, B. 2007. *A New Guide to Fish Farming in Kenya*; Published by Aquaculture Collaborative Research Support Programme. Printed by Pro Printer, Corvallis, Oregon. ISBN 978-0-9798658-0-0. 100 Pages. (with over 8,000 readership as of Jan 2020)
4. Mboya, D.O., Manyala, J.O., and **Ngugi, C.C.**, 2005. Fish Introductions and their Impact on the Biodiversity and the Fisheries of Lake Victoria. pgs 505-517. In: *Knowledge and experiences gained from Managing Lake Victoria Ecosystem*. Colour Print (T) Ltd, Dar es Salaam, Tanzania. ISBN 9987- 8976-5-7.
5. Macharia, S.K., **Ngugi C.C.** and Rasowo J. 2005. Comparative study of hatching rates of African catfish *Clarias gariepinus* (Burchell, 1822) eggs on difference substrates No. 2, pgs 467-478. In: *Knowledge and experiences gained from managing Lake Victoria Ecosystem*. Colour Print (T) Ltd, Dar es Salaam, Tanzania. ISBN 9987- 8976-5-7.
6. Ngugi, C.C., and Manyala, J.O. 2004. Review of Aquaculture Extension Service in Kenya *In: Poumogne, V., and Brummett, R. E. (Eds.). Aquaculture Extension in Sub-Saharan in Africa* **FAO Fisheries Circular, No. 1002 FIRI/C1002 (en)** ISSN 0429-9329. 55Pp.

## 📖 Peer Reviewed Journal Papers/Publications

### 2023

Njue, J.N., Ngugi, C.C., Muchiri, M., & Opiyo, M.A. (2023) Spawning interactions between hatchery-reared and wild naturalized rainbow trout (*Oncorhynchus mykiss*, Walbaum, 1792) in high-altitude tropical streams, Kenya. *Aquaculture, Fish and Fisheries* 2023;1–13. <https://doi.org/10.1002/aff2.141>

Odhiambo, C. O, **Ngugi, C.C**, Sharma, R. R., Oyoo-Okoth E. 2023. Macroinvertebrate metrics and lipid profiles as potential indicators of land use influence in a high altitude tropical highland stream (River Sagana, Kenya). *Ecological Indicator*. Under Review.

### 2022

1. Okemwa, M. D., Ngugi, C., and Mirera, D. O. 2022. Growth performance of rabbitfish (*Siganus sutor*) reared on brackish water coastal earthen ponds (hapa nets). Paper submitted to *Aquaculture Research*, under Review.
2. Opiyo, M. A., Muendo, P., Mbogo, K., **Ngugi, C. C.**, Charo-Karisa, H., Orina, P., ... & Tocher, D. R. (2022). Inclusion of duckweed (*Lemna minor*) in the diet improves flesh omega-3 long-chain polyunsaturated fatty acid profiles but not the growth of farmed Nile tilapia (*Oreochromis niloticus*). *Animal Feed Science and Technology*, 115442.
3. Van Anrooy, R., Gietzen, T., Yang, L., **Ngugi, C.**, Otieno, S., Amimo, J. and Essel, T. 2022. Assessment of fisheries innovations for investment and financing in Kenya. **FAO Fisheries and Aquaculture Circular No. 1245**. Rome, FAO.

### 2021

4. Okemwa, D. M., **Ngugi, C. C.**, and Mirera, D. O. 2021. Growth, nutritive value and bioconversion efficiency of pre-pupal black soldier fly fed on urban household and market waste. *East Africa Agriculture and Forestry Journal* (2021)Vol. 85, 1-4, Pg. 325-335.
5. Ngugi CC, Oyoo-Okoth E, Odhiambo CO (2021) Efficacy of sodium chloride, hydrogen peroxide, Cu and ZnO nanoparticles on hatchability and control of *Saprolegnia* spp. on *Clarias gariepinus* eggs. *Annals of Aquaculture Research* 6(1): 1049. <https://doi.org/10.47739/2379-0881/>

## 2020

6. Kimotho, A., **Ngugi, C. C.**, Kitur, E., and Oyoo-Okoth, E. 2020. Growth performance of Nile tilapia cultured under different cage stocking densities in a cage-cum-pond systems based on laboratory condition and among farmers (Kirinyaga, Kenya). *Journal of Fisheries International*, Vol 15: 22-29.

## 2019

7. Mary A. Opiyo, James Jumbe, **Charles C. Ngugi** and Harrison Charo-Karisa. 2019. Dietary administration of probiotics modulates non-specific immunity and gut microbiota of Nile tilapia (*Oreochromis niloticus*) cultured in low input ponds. Submitted to the *International Journal of Veterinary and Medicine*, 7:1, 1-9.
8. Mary A. Opiyo, James Jumbe, **Charles C. Ngugi** and Harrison Charo-Karisa. 2019. Different levels of probiotics affect growth performance and carcass composition of Nile tilapia (*Oreochromis niloticus*) reared in low input ponds. *Scientific African* 4 (2019). sciaf.2019.e00103. Open access Article.
9. Theuri, O. W., Kitur, E., **Ngugi C.C.**, Mwangi, B.M., and Nzeve, J.K. 2019. Impact of aquaculture development on water quality of fish ponds in gatundu North and south sub-counties, Kenya. *International Journal of Fisheries and Aquatic Studies* 2019; 7(4): E-ISSN: 2347-5129

## 2018

10. Elizabeth Obado, Josiah Ani, Phillip O. Raburu, Julius O. Manyala, **Charles Ngugi**, Kevin Fitzsimmons and Hillary Egna. 2018. Effects of Lysine and Methionine Supplementation and cost Effectiveness in Production of Nile Tilapia Diets (*Oreochromis niloticus*) in Western Kenya. *International Journal of Research Science and Management* Vol 5(3) March 2018. ISSN: 2349-5197.

## 2017

11. Charles C. Ngugi, Elijah Oyoo-Okoth, Julius O. Manyala, Kevin Fitzsimmons, Ann Kimotho. 2017. Characterization of the nutritional quality of amaranth leaf protein concentrates and suitability of fishmeal replacement in Nile tilapia feeds, Elsevier, *Aquaculture Reports* 5 (2017) 62-69.
12. Charles C Ngugi, Hillary Egna, Elijah Oyoo-Okoth and Julius O Manyala. 2017. Growth, yields and economic benefit of Nile tilapia (*Oreochromis niloticus*) fed diets formulated from local ingredients in cages. *International Journal of Fisheries and Aquatic Studies* 2016; 4(1): 209-213.

## 2016

13. John Oluoch-Otiego, Elijah Oyoo-Okoth, Kipkorir Koross, Godfrey Kiptoo, Emily J. Chemoiwa, **Charles C. Ngugi**, Gelas Simiyu, Elijah S. Omutange, Veronica Ngure, Mary A. Opiyo. 2016. PCBs in fish and their cestode parasites in Lake Victoria. *Environmental Monitoring Assessment* (2016) 188:483: DOI 10.1007/s10661-016-5483-0
14. Charles C Ngugi, Elijah Oyoo-Okoth and Mucai Muchiri. 2016. Effects of dietary levels of essential oil (EO) extract from bitter lemon (*Citrus limon*) fruit peels on growth, biochemical,

haemato-immunological parameters and disease resistance in Juvenile *Labeo victorinus* fingerlings challenged with *Aeromonas hydrophila*. *Aquaculture Research*, 2016, 1–13

15. Carolyne Musyoki Minoo, **Charles C. Ngugi**, Elijah Oyoo-Okoth, Agnes Muthumbi, Dorcus Sigana, Rich Mulwa, and Emily Jepyegon Chemoiwa. 2016. Monitoring the effects of aquaculture effluents on benthic Macro-invertebrate populations and functional feeding responses in a tropical highland headwater stream (Kenya). *Aquatic Ecosystem Health & Management*, 19(4):1–10, 2016. DOI: 10.1080/14634988.2016.1258896
16. Charles C. Ngugi, Elijah Oyoo-Okoth, John Gichuki, Charles Gatune and James Mwangi-Kinyanjui. 2016. Fingerprints of upstream catchment land use in suspended particulate organic matter (SPOM) at the river discharge sites in Lake Victoria (Kenya): insights from element, stable isotope and lipid biomarker analysis. *Aquatic Sciences*: DOI 10.1007/s00027-016-0480-5

## 2015

17. Ndanga LZB, Quagraine K, **Ngugi CC**, and J Amadiva, 2015. Application of Porter's Framework to Assess Aquaculture Value Chain in Kenya. *African Journal of Food Agriculture, Nutrition and Development*. Vol. 15 No. 3. June 2015 pages 10118-10137. ISSN 1684 5374.
18. Charles C Ngugi, Elijah Oyoo-Okoth, James Mugo-Bundo, Paul S Orina, Emily J Chemoiwa, Penina A Aloo, 2015. Effects of dietary administration of stinging nettle (*Urtica dioica*) on the biochemical, hematological and immunological parameters in juvenile and adult *Victoria Labeo* (*Labeo victorinus*). *Journal of Fish and Shellfish Immunology* (2015), Vol 44 Issue 2, June 2015, Pages 533–541

## 2014

19. Elijah Oyoo-Okoth, **Charles C. Ngugi**, James Mugo-Bundi. 2014. Growth, Survival and Nutrient Utilization of Nile Tilapia (*Oreochromis niloticus*) using Cyanophyceae (*Arthrospira fusiformis*) as Replacement of Fishmeal Based Diets. *International Journal of Science and Research (IJSR)* Volume 3 Issue 8, August 2014, 1553-1556p
20. Gladys M. Kuria, **Charles C. Ngugi**, Elijah Oyoo-Okoth. 2014. Dynamic of Stress Response in *Victoria Labeo* (*Labeo victorinus*) during transfer from the Hatchery to cages and Ponds under Differential Caged Stocking Densities. *International Journal of Science and Research (IJSR)* Volume 3 Issue 9, September 2014, 311-315p.
21. David Manguya-Lusega, Elijah Oyoo-Okoth, Odipo Osano, **Charles C. Ngugi**. 2014. Contribution of Catchment and Anthropogenic activities to Metal Bioavailability in the Lake Victoria Sediments using Sequential Extraction and Radiotracer Analysis. *International Journal of Science and Research (IJSR)* Volume 3 Issue 9, September 2014; 26-30p.
22. Cecilia Muthoni Githukia, Kevin O. Obiero, Julius O. Manyala, **Charles C. Ngugi**, Kwamena K. Quagraine. 2014. Consumer Perceptions and Preferences of Wild and Farmed Nile Tilapia (*Oreochromis niloticus* L.) and African Catfish (*Clarias gariepinus* Burchell 1822) in Urban Centres in Kenya. *International Journal of Advanced Research* (2014), Volume 2, Issue 7, 694-705p.
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  29. Quagraine, K., Kaliba, A., Osewe, K., Senkondo, E., Amisha, S., Fosu, A., **Ngugi, C.C.**, and Makambo, J. 2006. Economic Analysis of Nile tilapia *Oreochromis niloticus* Production in Tanzania, Kenya and Ghana..Presented at the World Aquaculture Conference (WAS, AQUA 2006) Florence, Italy, May 9-13
  30. Ngugi, C.C., Nyanchiri, E., Rasowo, J., and Bowman, J. 2006. The effect of Different Stocking Ratios on Yields of Tilapia *Oreochromis niloticus* and the African Catfish *Clarias gariepinus* in Fertilized Earthen Ponds. Presented at the World Aquaculture Conference (WAS, AQUA 2006) Florence, Italy, May 9-13, 2006.
  31. Aloo, P.O., and **Ngugi, C.C.** 2005. Participatory Approach the key to Aquaculture Development in Kenya. Presented at the 7th Conference of the Aquaculture Association of Southern Africa September 2005, Rhodes University, Grahamstown, South Africa.
  32. Ngugi, C.C., Bowman, J.M. and Veverica, K.L. 2005. Factors Influencing Growth and Survival of African Catfish *Clarias Gariepinus* Juveniles and Their Implications for Aquaculture Development in Kenya. Presented at the 7th Conference of the Aquaculture Association of Southern Africa September 2005, Rhodes University, Grahamstown, South Africa.
  33. Muchiri, M., **Ngugi, C.** and Hickley, P. 2004. A Community Project for Aquaculture in Kenya. A Paper presented at the Institute of Fisheries Management Annual Conference 7th-9th September 2004, Cardiff University, UK Conference Proceedings on Sustainable Fisheries 2004 pages 15-23.
  34. Ngugi, C. C., Nzeve, J.K. and Bowman J.R., 2004. Growth and Survival of African Catfish *Clarias gariepinus* Larvae fed *Artemia* Nauplii, Freshwater Rotifers and whole, freeze-dried

- Cyclops in indoor Tanks. Paper presented at the World Aquaculture Conference (WAS, AQUA 2004) Hawaii, Honolulu, USA, March 2004.
35. Engle, C. Neria, I. Quagraine, K., **Ngugi, C.**, and Muchiri, M., 2004. Economic Analysis of Fish Farming in Kenya. Paper presented at the World Aquaculture Conference (WAS, AQUA 2004) Hawaii, Honolulu, USA, March 2004.
  36. Ngugi, C. C., Amadiva, J., Veverica, K. L., Bowman, J., Imende, S., Nyandat, B., and Matolla, G. K., 2003. Yield Verification Trials in Western Kenya Change Attitudes of Farmers and Extensionists. Paper presented at the World Aquaculture Conference (WAS, AQUA AMERICA 2003) Held in Louisville, Kentucky, USA, Feb 2003.
  37. Ngugi, C.C., and Green, J.M., 1998. Current Status of Salmonid Fishes in Rivers on the Southwestern Slopes of Mount Kenya. In International Symposium and Workshop on Management and Ecology of River Fisheries. Hull International Fisheries Institute, University of Hull, England, April 1998, 53p.

### Papers Presented in Regional Conferences

1. Ngugi, C. C. 2022. Report on Governance of Aquaculture Employment. Presented at FAO Meeting in Dar es Salaam, Tanzania May 2022.
2. Ngugi, C.C. 2017. Transformative Aquaculture Technologies in Sub-saharan Africa: The murky World of Fisheries, Keynote speaker. The 9<sup>th</sup> Fish Farmers Symposium and Trade Fair organized by Uganda Walimi Fish Farmers Cooperative Society (WAFICOs). 1<sup>st</sup>-3<sup>rd</sup> March 2017.
3. Ngugi, C. C. 2016. Development of Aquaculture in Africa; Dealing with the weakest links. Keynote speaker. East African Aquaculture symposium and Exhibition organized by Kiambu County government and Country director of Fisheries. Jomo Kenyatta University of Science and Technology. 23<sup>rd</sup>-25<sup>th</sup> Nov 2016.
4. Ngugi, C. C., 2013. Kenya Aquaculture; Good Pond Management. USAID/AquaFish CRSP Workshop on Pond Aquaculture Best Management Practices, Faculty of Engineering–UMaT, Tarkwa Date: July 2 –5, 2013. Oral Presentation
5. Ngugi, C. C., 2013. Kenya Aquaculture Stimulus Programme in perspectives, the role of AquaFish in adoption of aquaculture technologies. AquaFish Innovation Lab - Africa Regional Meeting KNUST Engineering Guest House, Kumasi, Ghana July 5 -7, 2013. Oral Presentation
6. Julius Manyala, Judith Amadiva, Charles Ngugi and Kwamena Quagraine 2012. Review of Status and Opportunities in Farmed fish using an innovative real time market information system. Paper presented at the International Institute of Fisheries Economic and Trade (IIFET) Conference in Tanzania July 2012 Dar es Saalam, Tanzania.
7. Charo-Karisa, H., Gichuri, M. W., Opiyo, M., Mbugua, H., Ngugi, C. C., Ntiba, J.M. , 2012. The Role of Government in Promoting Commercial Aquaculture in Africa: Examples from East Africa Sixth Biennial Conference of the International Institute of Fisheries Economics, 16-20 July 2012, Dar es Salam, Tanzania, Book of Abstracts, pg. 111.
8. Ngugi, C. C. 2011. Kenya Fisheries Resource Management and Exploitation, 7<sup>th</sup> Business Development Services (MESPT) Conference held at the Sarova Whitesands hotel, Mombasa, Kenya .23<sup>rd</sup> to 25<sup>th</sup> Nov 201. Oral Presentation.
9. Ngugi, C. C. 2011. Fish for wealth and food security. Paper presented at the workshop for Vice chancellors of all public university under the theme University support to National Drought Mitigation Intervention. Held at Moi University in August 2011. Oral Presentation.
10. Ngugi, Charles C. 2010. Aquaculture Research and Development: Is there a roadmap from Subsistence to Sustainable Aquaculture in Kenya? Keynote address at the Kenya Marine and Fisheries Research Institute (KMFRI); 2<sup>nd</sup> International Conference on Aquatic Resources of Kenya (ARK II) 16 - 19th November 2010 held at the KWSTI Naivasha, Kenya. Oral presentation.

11. Nyamweya, C.S., Mlewa, C.M., Ngugi, C.C. and B. Kaunda-Arara (2010). Validation of daily growth of African catfish *Clarias gariepinus* (Burchell 1822) young-of-the-year from Lake Baringo, Kenya. Poster presentation at the 2<sup>nd</sup> International Conference on Aquatic Resources of Kenya (ARK II) 16 - 19th November 2010 held at the KWSTI Naivasha, Kenya.
12. Nyamweya, C.S., C.M. Mlewa and C.C. Ngugi (2009). Age and growth parameters of *Barbus intermedius australis* from Lake Baringo determined using their otolith microstructure. Paper presented at 5th Annual International Conference, Moi University, 4th – 8th Aug. 2009, Eldoret, Kenya
13. Nyamweya, C.S., C.M. Mlewa, C.C. Ngugi and B. Kaunda-Arara (2009). Age validation and growth of redeye labeo, *Labeo cylindricus* Peters 1852 from Lake Baringo, Kenya. Paper presented at the 5th Annual International Conference, Moi University, 4th – 8th Aug. 2009, Eldoret, Kenya
14. Mlewa, C.M., D.O. Were and C.C. Ngugi. (2008). Growth of the marbled lungfish *Protopterus aethiopicus* in earthen pond culture. Paper presented at the 4th PAFFA Conference held at Addis Ababa University, Ethiopia, 21 – 26<sup>th</sup> September 2008.
15. Nyamweya, C.S., C.M. Mlewa and C.C. Ngugi (2008). Age and growth parameters of exploited native fish species in Lake Baringo, Kenya. Paper presented at 4th PAFFA Conference held at Addis Ababa University, Ethiopia, 21 – 26th September 2008
16. Nyamweya, C.S., C.M. Mlewa and C.C. Ngugi (2008). Validation of age and growth for the Baringo tilapia (*Oreochromis niloticus*) and African catfish (*Clarias gariepinus*). Paper presented at 4th Annual International Conference, Moi University 29th July – 1st Aug 2008
17. Nyamweya, C.S., C.M. Mlewa and C.C. Ngugi (2008). An assessment of age and growth of the Baringo tilapia (*Oreochromis niloticus baringoensis*) from Lake Baringo, based on otolith counts. Paper presented at the 4<sup>th</sup> Annual Moi University International Scientific Conference, Eldoret, Kenya. July 29<sup>th</sup> - 2<sup>nd</sup> August 2008.
18. Mugo, J.B., Ngugi, C. C., Bowman, R. J., and Manyala, O. J., 2008. Effect of varying dietary crude protein levels on reproductive performance of Nile tilapia (*Oreochromis niloticus*, linn.) reared in earthen ponds. ISTA Conference, October 11-15 2008, Cairo, Egypt. Oral presentation
19. Rasowo, J., Ngugi, C.C., and Macharia, S.K., 2006. Evaluation of *Caridina* (*P. Roux*, L 933) (Decapoda: Atyidae) as feed for the African Catfish fish *Clarias gariepinus*. Moi University 2nd Annual International Conference, Science and Socio- Economic for sustainable Development: Challenges and Opportunities in the 21st Century. 29th August – 2nd September 2006, Moi University, Kenya. Oral presentation
20. Rasowo, J., Oyoo E. O., Mugo, J. B. and Ngugi, C. C., 2006. Effects of different Antifungal Treatments on the Hatching rate of Catfish *Clarias gariepinus* eggs. Moi University 2nd Annual International Conference, Science and Socio- Economic for sustainable Development: Challenges and Opportunities in the 21st Century. 29th August – 2nd September 2006, Moi University, Kenya.
21. Mwatete, M. C., Ogola, D. W., and Ngugi, C.C., 2005. Towards the recruitment of marbled lungfish (*Protopterus ethiopicus*) in aquaculture in the lake Victoria basin: some preliminary results of culture trials at the Chepkoilel fish farm, Kenya. 2nd National Scientific Conference, Lake Victoria Environmental Management Project. 17th to 19th October 2005. Tom Mboya College, Kisumu, Kenya.
22. Nyanchiri, E. M., Ngugi, C.C., and Rasowo J. 2005. The effect of different combination ratios on yields of tilapia (*Oreochromis niloticus*) and African catfish (*Clarias gariepinus*) in fertilized earthen ponds. 2nd National Scientific Conference, LVEMP. 17th to 19th October 2005. Tom Mboya College, Kisumu, Kenya.

23. Macharia, S.K., Ngugi, C.C., and Rasowo, J. 2005. Hatching rates of African catfish (*Clarias gariepinus*, Burchell, 1822) eggs on different substrates. 2nd National Scientific Conference, LVEMP. 17th to 19th October 2005. Tom Mboya College, Kisumu, Kenya.
24. Fulanda, B., Nyandat, B., Ngugi, C. and Muthoka, M. 2004. Cage Culture Development in Kenya, the BOMOSA experience. FAO Expert Workshop on Cage Culture in Africa, 20- 23rd October 2004, Entebbe, Uganda
25. Ngugi, C. C., and Mlewa, C. M. 2004. Potential for African Catfish, *Clarias gariepinus*, Production as Bait fish for Lake Victoria Fishery. Community Sensitization Workshop, Busia, Kenya, Capacity Building, Funded by the World Bank, LVEMP
26. Ngugi, C. C. 2004. Aquaculture Development in Kenya through Participatory Approach. Community Sensitization Workshop, Busia, Kenya, Capacity Building, Funded by the World Bank, LVEMP
27. Macharia, S.K., Ngugi, C.C., and Rasowo, J., 2001. Hatching rates of African Catfish (*Clarias gariepinus*, Burchell 1822) eggs. First National Scientific Conference, Lake Victoria Environmental Management Project (LVEMP), Kisumu, Kenya.
28. Mboya, D.O., Manyala, J.O., and Ngugi, C.C., 2001. Fish Introductions and their Impact on the Biodiversity and the Fisheries of Lake Victoria. Ist National Scientific Conference, LVEMP Kisumu, Kenya.

#### Recent International Conferences, Seminars and Workshops Attended

1. World Aquaculture 2022; World Aquaculture Society. Alexandria, Egypt, March, 2022.
2. World Aquaculture 2018; We are Aquaculture. Le Corum Congress Centre, Montpellier, France, August 25-29, 2018.
3. Aquaculture America 2018; Shaping the future, telling our story. Paris Hotel, Las Vegas, Nevada, USA, February 20 – 22, 2018.
4. World Aquaculture Conference and Exposition, 2017. Sustainable Aquaculture New Frontiers for Economic Growth –Spotlight on Africa Cape town International Convention Centre, Cape Town, South Africa June 26-30, 2017.
5. World Aquaculture Society and Asian-Pacific Aquaculture 2016 Conference, Grand City Convention Centre, Surabaya, Indonesia, April 26-29, 2016
6. AquaFish Innovation Lab Annual meeting and Impact assessment Workshop, JW Marriott Hotel, Surabaya, Indonesia, April 24-26, 2016
7. The 10<sup>th</sup> International Symposium on Tilapia in Aquaculture (ISTA), Crowne Plaza Hotel, Jerusalem, Israel, 6th to 10th October 2013.
8. The 9<sup>th</sup> Asian Fisheries and Aquaculture Forum Shanghai, China, April 21-25, 2011
9. The 8<sup>th</sup> International Symposium on Tilapia in Aquaculture (ISTA). Cairo International Convention Centre, Egypt. 11- 15 2008.

#### Recent Regional Conferences, Seminars and Workshops Attended

1. Global Sustainable Blue Economy Conference, Nairobi, Kenya November 26 -28<sup>th</sup>, 2018.
2. Aquaculture Network of Eastern Africa (ANEA) 2018. Naura Springs, Arusha, Tanzania, June 27-30<sup>th</sup>, 2018.
3. The Ninth WAFICOs Fish farmers Symposium and Trade fair, Fairway Hotel, Kampala, Uganda, 1st -3rd March 2017.
4. Workshop to Review progress of AquaFish Innovation Labs Projects in four African Countries, Kampala, Sheraton Hotel, Uganda. 9-12 January 2017.

5. Workshop on Establishing an Aquaculture Regional Network for East Africa, Arusha, Tanzania, 23<sup>rd</sup> – 25<sup>th</sup> September 2015
6. New Investment Opportunities and Potential Partners in Kenya, Tanzania and Uganda within Aquaculture and Particularly Marine Fisheries -18<sup>th</sup> September 2015
7. Enhancing the Profitability of Small Aquaculture Operations in Kenya and Tanzania -AquaFish Innovation Lab - Africa Regional Meeting Morogoro, Tanzania 8<sup>th</sup> -10<sup>th</sup> August 2014.
8. AquaFish Innovation Lab - Africa Regional Meeting KNUST Engineering Guest House, Kumasi, Ghana July 5 -7, 2013
9. USAID/AquaFish CRSP Workshop on Pond Aquaculture Best Management Practices, Faculty of Engineering–UMaT, Tarkwa Date: July 2 –5, 2013
10. 2<sup>nd</sup> KMFRI International Conference on Aquatic Resources of Kenya (ARK II) held at the KWSTI, Naivasha, Kenya, 16 - 19th November 2010

### I Review for the following Journals and Organizations

- The Borlaug International Agricultural Science and Technology Fellowship Programme from 2015
- Commission for University Education –Curricula for public and private Universities from 2015
- Transactions of the Royal Society of South Africa 2011
- IFS, International Foundation for Science, Sweden 2010
- Lake & Reservoirs, Research and Management 2009
- Aquaculture Journal (Elsevier) 2009
- African Journal of Agricultural Research 2008
- Journal of Natural Resource Management (JEARNAM) 2005, 2006



### SCHOLARSHIPS AWARDS AND MEMBERSHIP IN PROFESSIONAL BODIES

#### Scholarships and Awards

- 2020: The Aquaculture unsung Hero Award held in Scotland, UK
- 2018: Award for Scientific Excellence in a Feed the Future Innovation Lab, The Board for international and Agriculture Development
- 2009 Edition Inclusion in the Who's Who in the World that distinguishes leading achievers from around the globe
- 2007: The Moi University Long Service Staff Award of Excellence
- 1998: Recognition of Excellence: Outstanding achievement and pursuit of excellence by a Memorial University Student at graduate level
- 1995: CIDA: Graduate Fellowship for a Ph.D. at Memorial University of Newfoundland, Thesis title: The Biology of Naturalized Rainbow Trout *Oncorhynchus mykiss* (Walbaum) in Kenya Cold Water Streams and Implications for Future Management
- 1985: Commonwealth Funds for Technical Co-operation (C.F.T.C.) London, UK - for Master's Degree in Aquaculture in Nigeria

#### Membership in Academic and Professional Societies

##### Alumni

- Karatina University, Kenya
- Kenyatta University, Nairobi, Kenya

- Moi University, Eldoret, Kenya
- Auburn University, Auburn, Alabama, USA
- Memorial University of Newfoundland, St John's, Canada
- River State University of Science and Technology, Nigeria
- African Regional Aquaculture Centre (ARAC), Port Harcourt, Nigeria
- University of Nairobi, Nairobi, Kenya

### Professional Societies

- World Aquaculture Society (WAS) Membership Number 20030123
- Aquaculture Association of Southern Africa (AASA)
- West Indian Ocean Marine Science Association (WIOMSA)



### PROFESSIONAL REFEREES

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