

2023
AFRAQ
AQUACULTURE AFRICA



November 13-16, 2023
Mulungushi International
Convention Centre (MICC)
Lusaka, Zambia

"Resilient value chains in the blue economy"

The 2nd Annual International Conference & Exposition
of the African Chapter
of the World Aquaculture Society (AFRAQ2023)

Organized By

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Society



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Aquaculture

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BLUE AQUA



MSD
Animal Health





Conference Venue

The venue will be the Mulungushi International Convention Centre (MICC), regarded as the country's ultimate Conferencing Centre, with world class facilities for meetings, exhibitions and other social activities. Located in the centre of Southern Africa, Zambia itself is a large, landlocked, resource-rich country with sparsely populated lands. The country is regarded as the "land of the legendary African walking safari" with magnificent natural wonders and boast of having the famous Victoria Falls (shared with Zimbabwe), the wild Zambezi River which feeds Lake Kariba (where major large-scale aquaculture ventures are located) and several other freshwater bodies. Zambia is regarded as one of the safest countries in the world to visit.

The conference offers a great opportunity for aquaculture researchers, practitioners, decision makers and other stakeholders to meet, network and discuss all aspects of aquaculture in Africa. Exhibitors from all over the globe are expected to exhibit their products in the amazing exhibition Center. Visits to some famous touristic attractions in Lusaka and Zambia will be arranged. Special excursionary or aquaculture tours will also be arranged to nearby fish farms (both large, medium and small scale; aquafeeds plants, fish markets and some aquaculture R&D centres. Be sure to schedule time for this unique scientific, business and social event!

AFRAQ23 Programme Themes

AFRAQ23 technical program will aim to cover developmental issues including latest research and developmental aspects on aquaculture in Africa. The thematic plenary and technical parallel sessions will comprise submitted oral and poster presentations. AFRAQ23 will feature an international trade exhibition, industry forums, student sessions and activities, satellite workshops (and training sessions) and various meetings/forums on aquaculture development in Zambia and Africa. The international conference will be centered around the theme "Resilient value chains in the blue economy", and will feature lessons learnt from Zambia on how the country has managed to weather through many storms, including the recent COVID-19 pandemic to remain one of the fastest growing aquaculture producer countries in Africa.

Sample topics will include: (This is an initial theme list, subject to change)

- | | |
|--|---|
| ▪ Aquaculture Investment and Financing | ▪ Aquaculture Engineering |
| ▪ Feed, Nutrition & Physiology | ▪ Freshwater Aquaculture |
| ▪ Species, Genetics & Reproduction | ▪ Brackishwater Aquaculture |
| ▪ Aquatic Animal Health, Welfare & Biosecurity | ▪ Mariculture |
| ▪ Environmental Management | ▪ Ornamental Fish Culture |
| ▪ Sustainability , Livelihood & Nutritional Security | ▪ New/Innovative Systems and Practices |
| ▪ Processing and Value Addition | ▪ Aquaculture Certification & Standards |
| ▪ Food Quality & Safety | ▪ Country Case Studies |
| ▪ Gender and Youth Development | ▪ Other Special Topics |

Possible special sessions relevant to aquaculture development in Africa will be included and an- announced in due course

Details regarding online submissions of abstracts (including full guidelines for abstract preparation and an abstract sample will be available soon on:

www.was.org

CALL FOR PAPERS - SUBMIT YOUR PAPERS NOW!

DEADLINE: October 1, 2023

AFRAQ23 encourages the submission of high quality oral and poster presentations. We strongly encourage authors to consider poster presentations because poster sessions will be an integral part of the program. Papers submitted for "oral presentation only" may not be accepted as oral presentations due to the limited number of available time slots. English encouraged, but 3 official languages (English, French and Portuguese accepted. Power Point Presentation – Slides - same as above – English strongly encouraged. Oral Presentation: any of the 3 official languages. At the conference, the abstracts may be presented in English, French or Portuguese.

Each oral presenter shall be entitled to no more than 20 minutes comprised of 15 minutes for a presentation, plus 5 minutes for questions. Authors of studies involving proprietary products or formulations should present this information in workshops or the trade show. Oral presentations can only use Power Point. Overhead projectors, slides and video players will not be available or allowed.

All presenters are required to pay their own registration, accommodation and travel expenses. AFRAQ23 cannot subsidize registration fees, travel or hotel costs.

INSTRUCTIONS FOR PREPARATION OF ABSTRACTS

Extended Abstract Format – Please refer to the sample.

- 1. TITLE OF PAPER :** The paper title is printed in CAPITAL LETTERS, with the exception of scientific names which should be Upper/lower case and italicized. Scientific names should not be preceded or followed by commas or parentheses or other markings.
- 2. AUTHOR(S) :** The first name should be the presenting author. Use *after the presenting author. Type in upper/lower case.
- 3. ADDRESS AND EMAIL :** Type only the presenting author's institution, address and email. Type in upper/lower case.
- 4. MAXIMUM LENGTH :** One Page
- 5. PAGE SIZE :** Standard 210mm x 297mm A4 paper (portrait)
- 6. MARGINS :** 1-inch margin throughout(left/right/top/bottom)
- 7. SPACING :** Single spaced
- 8. PARAGRAPHS :** Paragraphs should be separated by a blank line and should not be indented.
- 9. FONTS :** Character fonts should be 12 point type.
- 10. FIGURES & TABLES :** Figures and tables are highly recommended. They should be reduced to the appropriate size for a one page abstract and should be clearly readable at the reduced size in black print only. The reduced figures and tables should be included in the abstract in camera-ready form.
- 11. MEASUREMENTS :** Use metric units of measurement. When needed, English equivalents may be given in parentheses.

1 inch margin

EVALUATION OF JUVENILE AUSTRALIAN RED CLAW CRAYFISH (*Decapoda quadricarinatus*) FED PRACTICAL DIETS WITH AND WITHOUT SUPPLEMENTAL LECITHIN AND/OR CHOLESTEROL

Laura A. Martinic*, Kenneth R. Thompson, Tracy Christian, Carl D. Webster, Lukasz Manowicz, and David R. Rouse

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Red claw crayfish (*Decapoda quadricarinatus*) are one of more than a hundred Australian freshwater crayfish. However, because of its rapid growth rate, ease of spawning, wide temperature tolerance, and lack of a larval stage, red claw may be the best candidate for aquaculture in the United States. Red claw are only being investigated as an aquaculture species in the very early stages of their nutritional requirements and practical diet formulations. No commercial crayfish require lecithin and cholesterol to be added to their diet, but these two nutrients are important for growth and cholesterol are very expensive. Since diet costs can be as much as 70% of the total cost of an aquaculture enterprise, it is imperative that the least expensive diet be formulated. The present study was conducted to determine if cholesterol and lecithin needs to be added to a practical diet for red claw crayfish.

An 8-week feeding trial was conducted in a recirculating system with aerated, dechlorinated tap water. Each weight of 0.2 g red claw, each stocked in one of six mesh culture units. Individual units were within fibreglass tanks, each presenting a water line. Water was recirculated by a pump and mechanical filter. Water temperature was maintained at 27-28°C and lighting was provided by a 12-hour fluorescent ceiling light. The photoperiod cycle. Ammonia, nitrite, and nitrate were monitored daily. Crayfish were fed three times per week. The goal of growth performance was to examine the effects of growth performance of newly hatched juvenile red claw when fed four practical diets with or without cholesterol and lecithin. Other practical diets included menhaden fish meal, soybean meal, shrimp meal, wheat flour, vitamin and mineral mix, pellet binder, cod liver oil, and corn oil (Table 1).

After 8 weeks, red claw crayfish fed a practical diet without cholesterol (Diet 1) had significantly ($P < 0.05$) lower final weight, percentage weight gain, and specific growth rate (SGR) compared to crayfish fed all other diets (Table 2). These results indicate that a practical diet containing 2% cod liver oil and 1% corn oil and having no lecithin appears to be sufficient and that lecithin may not be necessary for juvenile red claw diets.

11 inches long

1 inch margin

8.5 inches wide

TABLE 1. Formulation of experimental diets fed to red claw crayfish.

	1	2	3	4
Menhaden fish meal	25.0	25.0	25.0	25.0
Soybean meal	35.0	35.0	35.0	44.5
Lecithin	0.0	0.5	0.0	0.0
Cholesterol	1.0	1.0	0.0	0.0
Other	38.5	29.0	39.5	30.5

TABLE 2. Final weight, percentage weight gain, specific growth rate (SGR), and percentage survival of red claw crayfish fed four practical diets. Means in a column with different letters were significantly different ($P < 0.05$).

	1	2	3	4
Final weight (g)	0.97 ^a	0.05 ^a	3.65 ^b	5.13 ^b
Weight gain (%)	234 ^a	287 ^a	177 ^b	244 ^b
SGR (day ⁻¹)	1.76 ^a	1.66 ^a	4.09 ^b	5.41 ^b
Survival (%)	76.0	64.0	56.0	99.0

PLEASE SUBMIT YOUR ABSTRACT ONLINE

Submit abstracts via the internet at the meeting website : www.was.org Follow the complete instructions on the online submission.

If you are unable to submit your abstract online, contact the Conference Manager for alternative methods at : worldaqua@was.org or Fax: +1-760-751-5003



AFRAQ2023

November 13-16, 2023

Register online at: www.was.org

Return address for international payments in USD:
Conference Manager
P.O. Box 2302
Valley Center, CA 92082 USA
Tel: +1 760 751 5005
Fax: +1 760 751 5003
Email: worldaqua@was.org

Online registration is preferred at www.was.org OR fax or mail both sides with payment. Use one form per person.

PLEASE PRINT CLEARLY OR TYPE ALL REQUESTED INFORMATION		
BADGE INFORMATION: (As you want your name badge to read – No titles, please)		
First Name _____	SURNAME (FAMILY NAME) _____	
Company or Institution _____ (Limited to 40 Letters & Spaces)		
City _____	State/Prov _____	Country _____

MAILING INFORMATION: Email _____ (<i>please</i> include email address)			
Postal Address _____			
City _____	State / Prov _____	Postal Code _____	Country _____
Phone _____ (Include country and city code)	Fax _____ (Include country and city code)	Title: (circle one) Dr. Mr. Ms. Mrs.	

REGISTRATION FEES: In order to receive the discount rates as listed below, this form and payment must be received by the date listed.
See brochure for what is included in registration fees.

TYPE OF REGISTRATION FULL CONFERENCE & TRADE SHOW <small>In order to receive the Pre-Registration discount rate, this form and payment must be received by the date above</small>	Register by Oct. 1, 2023	Register after Oct. 1, 2023	
AFRICAN NATIONALS			
MEMBER RATE*	<input type="checkbox"/> US\$ 325	<input type="checkbox"/> US\$ 490	* To qualify for Member Rate you <u>must</u> complete the Association Memberships section on the reverse side.
STUDENT MEMBER RATE*	<input type="checkbox"/> US\$ 165	<input type="checkbox"/> US\$ 195	
Non-Member Rate	<input type="checkbox"/> US\$ 425	<input type="checkbox"/> US\$ 590	• • • • • Trade Show is <u>included</u> in the Full Conference Registration Rate.
Student Non-Member Rate <small>You can join WAS on the reverse side and use</small>	<input type="checkbox"/> US\$ 215	<input type="checkbox"/> US\$ 255	
NON-AFRICAN NATIONALS			
MEMBER RATE*	<input type="checkbox"/> US\$ 395	<input type="checkbox"/> US\$ 490	TOTAL REGISTRATION FEE
STUDENT MEMBER RATE*	<input type="checkbox"/> US\$ 165	<input type="checkbox"/> US\$ 195	
Non-Member Rate	<input type="checkbox"/> US\$ 495	<input type="checkbox"/> US\$ 590	US\$ _____
Student Non-Member Rate <small>You can join WAS on the reverse side and use</small>	<input type="checkbox"/> US\$ 215	<input type="checkbox"/> US\$ 255	
TRADE SHOW PASS (Trade show pass is included with the Full Conference Registration) Good for 3 days admission to exhibits only – November 14-15, 2023 <input type="checkbox"/> US\$ 30 TOTAL TRADE SHOW PASS US\$ _____			
INDUSTRY TOURS – Details to come			TOTAL INDUSTRY TOURS US\$ _____
MEMBERSHIP DUES – Enter amount from Membership Application on other side if applicable.			TOTAL MEMBERSHIP DUES US\$ _____
Do not mail registration after Nov. 1, 2023 or fax after Nov. 1, 2023 After Nov. 1, 2023, bring this form with you to register at the show. Please register online.		➔ TOTAL AMOUNT US\$ _____	

Registration Confirmation and Receipt will be emailed after processing.

CANCELLATION POLICY: Cancellation of registration must be received - in writing - no later than August 31, 2023. Refunds for registration fees will be subject to a 20% handling fee. Refunds are processed after the conference. No refund will be made for cancellations received after August 31, 2023 or for "no shows". After August 31, 2023, no refunds will be made for professional or personal emergencies, flight cancellations, denied visa, weather related cancellation or other travel emergencies. Fees for memberships are non-refundable.

PAYMENT METHOD: All fees must be paid to the order of AFRAQ2023.

For bank transfer details, contact us.

<input type="checkbox"/> Check # _____	<input type="checkbox"/> Visa	<input type="checkbox"/> Mastercard	<input type="checkbox"/> American Express	<input type="checkbox"/> Discover	<input type="checkbox"/> Diners Club
Card # _____	Expiration Date _____		Sec Code _____		
Name on Card _____	Date _____	Signature _____			
Credit Card Billing Address _____					

REGISTRATION FORM - SIDE 2

Name _____

ASSOCIATION MEMBERSHIPS: Please check all boxes for associations for which you are a current member. Membership in any of those associations qualifies you for the Member Rate* on the Registration Fees. You can join an association at any time before registering to qualify for the Member Rate.

MEMBERSHIPS: ☐ WAS ☐ USAS ☐ APC ☐ Korean ☐ LACC ☐ African Chapter

AFFILIATE MEMBERSHIPS:

- | | |
|--|--|
| <input type="checkbox"/> Aquabio | <input type="checkbox"/> IAFI International Association of Fish Inspectors |
| <input type="checkbox"/> Aquaculture Association of Canada | <input type="checkbox"/> Indonesian Aquaculture Society |
| <input type="checkbox"/> Aquaculture Association of South Africa | <input type="checkbox"/> Korean Aquaculture Society |
| <input type="checkbox"/> Aquaculture Without Frontiers | <input type="checkbox"/> Korean Society of Fisheries and Sciences (KOSFAS) |
| <input type="checkbox"/> Asian Fisheries Society | <input type="checkbox"/> Malaysian Fisheries Society |
| <input type="checkbox"/> China Society of Fisheries | <input type="checkbox"/> Sociedad Brasileira de Acuicultura |
| <input type="checkbox"/> Egyptian Aquaculture Society | <input type="checkbox"/> Society of Aquaculture Professionals (India) |
| <input type="checkbox"/> European Aquaculture Society | <input type="checkbox"/> South African Aquaculture Society |
| <input type="checkbox"/> Global Aquaculture Alliance | <input type="checkbox"/> Spanish Aquaculture Association (SEA) |

MEMBERSHIP APPLICATIONS ☐ NEW APPLICATION ☐ RENEWAL

WORLD AQUACULTURE SOCIETY (WAS) APPLICATION www.was.org

For details on the different types of memberships and options, please contact the WAS home office at

Tel: +1-225-347-5408 Fax: +1-225-347-5408 Email: judya@was.org

MEMBERSHIP CATEGORY: (Indicate only one)

- ☐ **Individual** (USD 90/yr) Applies to an individual only
- ☐ **Full Student** (USD 45/yr) Has all benefits and rights of regular membership including voting for all candidates on the ballot (Copy of Student ID or Signature of Professor required)
- ☐ **Comp Student** (No charge) Has all benefits of regular membership but voting only allowed is for the Student Director and not for the full ballot. (Copy of Student ID or Signature of Professor required)
- ☐ **Sustaining** (USD 155/yr) Applies to any one individual from a company
- ☐ **Corporate** (USD 295/yr) Allows all employees of one company to attend meeting at Member Rate
- ☐ **Lifetime** (USD 1400 with one chapter) Applies to an individual only

**Discounted rates available for individuals in countries based on World Bank List of Low Income Economies. Must sign-up on website only for this category.

CHAPTER OPTIONS:

*One chapter included in membership.
Mark the chapter you choose.*

- ☐ **African Chapter**
- ☐ **Asian Pacific**
- ☐ **Korea**
- ☐ **Latin American/Caribbean**
- ☐ **United States (USAS)**
- ☐ **None** (deduct USD 5)

You can add extra Chapters for USD 5

Fees for memberships are non-refundable.

Total Amount for WAS Membership USD _____
Please enter this amount under "Membership Dues" section on opposite side of this form.

**For membership in other associations, please contact them directly.
If you need a phone number, contact the Conference Manager (+1-760-751-5005).**

Engaging with Industry

The Aquaculture Africa events are all about communication with the sector. AFRAQ2023 will feature a special international trade exhibition, where Zambia and international companies will present their latest technologies, products and services. Both Standard and Corner booths will be available and each booth is 6m² (2x3m) and features walls, carpet, two chairs and one table, spotlights, one power outlet, fascia identification sign and two free passes for the conference. We can provide meeting points for industry associations, organization/industry panels or B2B meetings, farmers forums etc. Organization/industry panel meetings will take place around the trade exhibition, and aquaculture tours will be organized.

Platform for Developmental Organizations

AFRAQ23 will also be a meeting hub for developmental agencies, NGOs and institutions in Africa to hold plenary talks, meetings, seminars, investment forums, platforms for satellite workshops of African aquaculture projects and activities.

Networking for Students

Special forums and events will be arranged for students attending AFRAQ2023 to enable networking and exchange of ideas. The forums/events will have a dedicated programme and include a special student reception and student awards. Students receive the full registration package plus the student reception. To qualify for the student rate, a copy of your student I.D. is required.

Farm Tours

Aquaculture tours are being organized at some commercial ventures, projects, R&D centres, fish markets, aquafeeds manufacturers etc, around Lusaka and to Lake Kariba. More details available on conference website.



FULL CONFERENCE REGISTRATION INCLUDES:

- Admission to all sessions (including reception), seminars and the trade show.
- Conference bag and Show Directory
- Refreshment breaks (including lunch)
- Abstract App and/or Abstract Book

*To qualify for Member Rate, you must be a WAS member in good standing

Trade Show Pass only –
Valid whole period: USD30

AFRAQ2023 Tentative Programme Overview

Monday, November 13

Registration Open & Exhibit Set-up	1200 - 1700
WAS AC Business Meeting	1300 - 1700
Welcome Drink	1700 - 1800

Tuesday, November 14

Registration Open	0730 - 1700
Welcome To Zambia	0900 - 0930
Coffee / Tea	0930 - 0940
Plenary Sessions	0940 - 1040
Opening Ceremony	1100 - 1200
Opening Exhibition	1200 - 1220
Break	1040 - 1100
Trade Show	1000 - 1800
Lunch	1220 - 1400
Sessions	1400 - 1540
Break	1540 - 1600
Sessions	1600 - 1740
Happy Hour	1700 - 1800
Posters	1030 - 1800

Wednesday, November 15

Registration Open	0730 - 1700
Sessions	0900 - 1020
Break	1020 - 1040
Trade Show	1000 - 1800
Sessions	1040 - 1200
Lunch	1220 - 1400
Sessions	1400 - 1540
Break	1540 - 1600
Sessions	1600 - 1740
Happy Hour	1700 - 1800
Posters	1030 - 1800

Thursday, November 16

Registration Open	0800 - 1500
Sessions	0900 - 1020
Break	1020 - 1040
Trade Show	1000 - 1600
Sessions	1040 - 1200
Lunch	1220 - 1400
Sessions	1400 - 1540
Break	1540 - 1600
Sessions	1600 - 1740
Posters	1030 - 1600
Exhibit Move-out	1600 - 1900

AFRAQ2023 Steering Committee and National Organizing Committee

AFRAQ2023 Conference Chairs:

- o Prof. Cyprian Katongo: Conference co-Chair (WAS), ZAMBIA: Department of Biological Sciences, University of Zambia
- o Office of the Permanent Secretary, Ministry of Fisheries and Livestock (MoFL), ZAMBIA

AFRAQ2023 Steering Committee (SC):

- o Dr. Alexander Shula Kefi, SADC/ Ministry of Fisheries and Livestock (MoFL), ZAMBIA
- o Dr. Khalid Salie: Aquaculture Association of Southern Africa (AASA)/ Lecturer: Stellenbosch University, SOUTH AFRICA
- o Prof. Steven Amisah: AFRAQ24 Ghana Co-ordinator: Kwame Nkrumah University of Science and Technology (KNUST), GHANA
- o Dr. Bernice Mclean: Africa Union Development Agency (AUDA-NEPAD), SOUTH AFRICA
- o Dr. Motseki Hlatshwayo: SADC Fisheries Programme Officer, BOTSWANA
- o Ms. Rhodah Nyirenda: Progressive Commercial Fish Farmer, Kitwe, ZAMBIA
- o Dr. Eva Nambeye: University of Zambia, Department of Biological Sciences, ZAMBIA
- o Mr. Fisho Patrick Mwale: Aquaculture Development Association of Zambia (ADAZ), ZAMBIA

AFRAQ2023 National Organizing Committee (NOC):

- o Timothy Kaula, Aller Aqua Rep, ZAMBIA
- o Representatives from Ministry of Fisheries and Livestock, other relevant line Ministries, state agencies (TBA)

AFRAQ2023 Program Co-Chairs:

- o Prof. Cyprian Katongo: Program Chair, ZAMBIA: Department of Biological Sciences, University of Zambia), ZAMBIA
- o Dr Joachim Y. Kuzimbila: Program Chair, FRENCH: FAO/INERA, DR CONGO
- o Prof. Peter Britz: Program Manager/Advisor, Rhodes University, SOUTH AFRICA

Ex-Officio

- o Mr. John Cooksey: WAS Conference Director, USA
- o Mr. Mario Stael: WAS Conference Management, BELGIUM
- o Mr. Noah Cooksey: WAS Conference Management, USA
- o Mr. Blessing Mapfumo: WAS African Chapter Secretariat, SOUTH AFRICA/ZIMBABWE



Location – Mulungushi International Convention Centre (MICC)

Aquaculture Africa (AFRAQ2023) will be held at the MICC.

For more information about the MICC, visit: <https://www.micc.co.zm/>

For more information about Lusaka and Zambia, visit: <https://www.zambiatourism.com/>

AFRAQ2021 Contacts

For more information, please stay in touch with AFRAQ2023 Conference Management Team or visit our website www.was.org



Conference Management

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Trade Show, Exhibition and Sponsorship

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