

LAQUA 22

Latin American & Caribbean Aquaculture 2022

Sustainable Aquaculture
for Two Oceans

November 14-17, 2022

HOTEL RIU PLAZA
Panama City, Panama

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The annual meeting of

WORLD
AQUACULTURE
Society



Hosted by

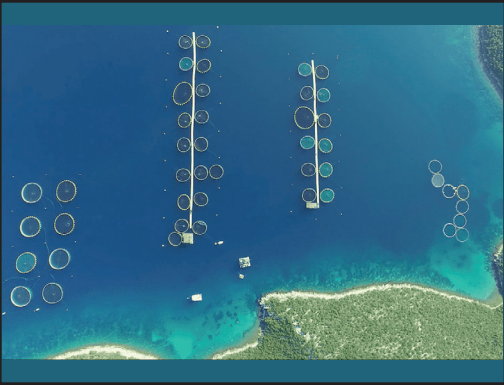


Conference sponsor



Premier sponsors





LACQUA22 will be the 2022 Annual meeting of the Latin American & Caribbean Chapter of WAS. Following upon the previous successful LACQUA meetings, LACQUA22 will bring back international attention to the aquaculture industry of Panama and Latin America.

LACQUA22 will be held in Panama City, the capital of Panama. Panama is a cosmopolitan, dynamic city, where the modern and the traditional come together to create a cheerful and relaxed atmosphere. Panama, the hub of the Americas, makes a great venue for LACQUA22.

The aquaculture sector of Panama (fish and shrimp together) is one of the main export items of the country. The most cultivated species in Panama are fish (tilapia, cobia, pámpano) and shrimp.

BEYOND THE CONFERENCE

The conference will be held in three languages for spoken and written materials. The conference will include all major aquatic species cultured in Panama and the other LACC countries with a special focus on tilapia, trout, shrimp and marine species.

INTERNATIONAL EXHIBITION

There will be an exhibition of aquaculture suppliers from around the world displaying the latest in equipment, supplies and services. As well as national entities.

TRADE SHOW SCHEDULE		
TUESDAY	WEDNESDAY	THURSDAY
NOV	NOV	NOV
15	16	17

Keep in contact with the program developments for

LACQUA 22

**Latin American & Caribbean
Aquaculture 2022**

www.was.org

TECHNICAL PROGRAM COVERS THE LATEST RESEARCH

Sessions and workshops at LACQUA22 will cover all aspects of aquaculture in Panama and Latin America as well as the rest of the world. Sample topics will include:

Fish Culture

- Central american fish
- Marine fish
- Ornamental fish
- Other native fish

Crustaceans Culture

- Shrimp culture

Other Species

- Seaweeds and algae
- Molluscs
- Echinoderms
- Plankton

Production Systems

- Biofloc systems
- Recirculation systems - RAS
- Aquaponic systems

Sustainable Aquaculture

- Standards and certification
- Aquaculture and the environment
- Mariculture and the environment
- Integrated multi-trophic aquaculture
- Water quality management

Health and Diseases

- Immunology
- Toxicology
- Fish health
- Shrimp health
- Probiotics and prebiotics

Physiology and Genetics

- Fish physiology and genetics
- Shrimp genetics
- Salmon genetics

Nutrition and Feeding

- Fishmeal and fish oil
- Alternative ingredients
- Shrimp feed
- Climate changes and fisheries
- Finfish nutritional needs
- Larval feeding
- Feeding strategies - automatism

Processing and Economics

- Processing technologies
- Aquaculture socio-economics

Education and Aquaculture Careers

- Student exchanges

YOUR FULL CONFERENCE REGISTRATION INCLUDES

- Only pre-registered attendees are guaranteed materials.
- **Admission to all sessions, seminars and the trade show.**
- Admission to the Receptions.
- Conference bag and Show Directory.
- Refreshment Breaks and Cash Bar Happy Hour
- 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.

Farmer's Day and Industry Sessions

There will be a special Farmers Day with presentations on topics especially of interest to aquaculture farmers. There will also be Industry Sessions throughout the conference with speakers addressing industry concerns.

**REGISTER EARLY
AND \$AVE!**

FOR MORE INFORMATION:

LACQUA22
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
carolina@was.org
www.was.org

REGISTER EARLY AND \$AVE!

CALL FOR PAPERS- DEADLINE: June 1, 2022

LACQUA22 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/Portuguese/Spanish) 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, Spanish 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. LACQUA22 cannot subsidize registration fees, travel or hotel costs

INSTRUCTIONS FOR PREPARATION OF ABSTRACTS

Extended Abstract Format – Please refer to the sample.

- 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.
- AUTHOR(S) :** The first name should be the presenting author. Use *after the presenting author. Type in upper/lower case.
- ADDRESS AND EMAIL :** Type only the presenting author's institution, address and email. Type in upper/lower case.
- MAXIMUM LENGTH :** One Page
- PAGE SIZE :** Standard 210mm x 297mm A4 paper (portrait)
- MARGINS :** 1-inch margin throughout(left/right/top/bottom)
- SPACING :** Single spaced
- PARAGRAPHS :** Paragraphs should be separated by a blank line and should not be indented.
- FONTS :** Character fonts should be 12 point type.
- 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.
- 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. Moran¹*, Kenneth R. Thompson, Tracy Christian, Carl D. Webster, Lukasz Monemelis, and David R. Rouse

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Frankfort, KY 40601
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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 geographic distribution, and lack of a larval stage, red claw may be the best candidate for aquaculture. Red claw are only being investigated as an aquaculture species in the United States. Information exists on their nutritional requirements and practical diet formulations. Some studies have reported that dietary lecithin and cholesterol are essential for growth and survival of red claw. However, dietary lecithin 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 water system with newly-hatched juvenile red claw (mean weight of 0.2 g) reared in each of four practical, static mesh culture units. Individual units were housed within fibreglass tanks, each containing a 100-litre water line. Water was recirculated through mechanical filters, water heaters, and aerators at 27-29°C and lighting was provided by a 14-h photoperiod cycling hydroponic cycle. Ammonia, nitrite, and nitrate were monitored daily. All animals were fed three times per week. The goal 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 and lecithin 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 may be sufficient and that lecithin may not be necessary for juvenile red claw diets.

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

	Diet			
	1	2	3	4
Menhaden FM	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	25.5	29.0	29.5	26.5

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 ($P < 0.05$).

	Diet			
	1	2	3	4
Final weight (g)	6.97a	4.02a	3.56b	3.11a
Weight gain (%)	3304	2870	1770	2404
SGR (day ⁻¹)	1.74a	1.06a	0.88b	1.41a
Survival (%)	76.0	64.0	56.0	88.0

1 inch margin
8.5 inches wide

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 : worldaqna@was.org or Fax: +1-760-751-5003



LACQUA 22

November 14-17, 2022

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 _____
(please include email address)

Postal Address _____

City _____ State / Prov _____ Postal Code _____ Country _____

Phone _____ Fax _____ Title: (circle one) Dr. Mr. Ms. Mrs.
(Include country and city code) (Include country and city code)

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	Register by Oct. 1, 2022	Register after Oct. 1, 2022	
RULL 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>			
ASSOCIATION MEMBER RATE*	<input type="checkbox"/> US\$ 275	<input type="checkbox"/> US\$ 375	* To qualify for Member Rate you must complete the Association Memberships section on the reverse side. ● ● ● ● ● ● ● ●
STUDENT MEMBER RATE* <small>Include copy of Student I.D.</small>	<input type="checkbox"/> US\$ 95	<input type="checkbox"/> US\$ 135	
Non-Member Rate	<input type="checkbox"/> US\$ 370	<input type="checkbox"/> US\$ 470	Trade Show is included in the Full Conference Registration Rate.
Student Non-Member Rate <small>Include copy of Student I.D. You can join WAS on the reverse side and use the Member Rate.</small>	<input type="checkbox"/> US\$ 145	<input type="checkbox"/> US\$ 180	
<input type="checkbox"/> Spouse Rate Name _____	<input type="checkbox"/> US\$ 225	<input type="checkbox"/> US\$ 295	TOTAL REGISTRATION FEE US\$ _____
TRADE SHOW PASS <small>Good for 3 days admission to exhibits only - November 14-17, 2022</small>		<input type="checkbox"/> US\$ 30	(Trade show pass is included with the Full Conference Registration) 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 Oct. 1, 2022 or fax after Oct. 1, 2022. After October 1, bring this form with you to register at the show.		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 October 1, 2022. 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 October 1, 2022 or for "no shows". After October 1, 2022, 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 LACQUA22.

For bank transfer details, contact us.

Check # _____ Visa Mastercard American Express Discover 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

AFFILIATE MEMBERSHIPS:

- AQUABIO
- Aquaculture Association of Canada
- Aquaculture Association of South Africa
- Aquaculture Without Frontiers
- Asian Fisheries Society
- Associação Cearense de Aquicultores - ACEAQ
- China Society of Fisheries
- Egyptian Aquaculture Society
- European Aquaculture Society
- Global Aquaculture Alliance
- IAFI The International Association of Seafood Professionals
- Indonesian Aquaculture Society
- Korean Aquaculture Society
- Korean Society of Fisheries and Sciences (KOSFAS)
- Malaysian Fisheries Society
- Society of Aquaculture Professionals (India)
- South African Aquaculture Society
- 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** (Electronic JWAS) (USD 65/yr) Applies to an individual only
- Individual** (Printed JWAS) (USD 110/yr) Applies to an individual only
- Student** (Electronic JWAS) (USD 45/yr) (Copy of Student ID or Signature of Professor required)
- Student** (Printed JWAS) (USD 90/yr) (Copy of Student ID or Signature of Professor required)
- Sustaining** (Electronic JWAS) (USD 105/yr) Applies to any one individual from a company
- Sustaining** (Printed JWAS) (USD 150/yr) Applies to any one individual from a company
- Corporate** (Electronic JWAS) (USD 255/yr) Allows all employees of one company to attend meeting at Member Rate
- Corporate** (Printed JWAS) (USD 300/yr) Allows all employees of one company to attend meeting at Member Rate
- Lifetime** (Electronic JWAS only) (USD 1005/yr) Applies to an individual only

CHAPTER OPTIONS:

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

- 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).

FARM TOURS

There will be several Farm and Tours around Panama. Please check the website for details.

TRAVEL AND HOTEL

Check the website: WWW.WAS.ORG



TENTATIVE SCHEDULE

Monday, November 14

Registration Open	11:00 – 18:30
Exhibitor Move-in	8.00 – 18:30
Poster Set-up	11:00 – 18:30
Inauguration	18:30 – 19.30
Welcome Drink	19:30 – 21.00

Tuesday, November 15

Registration Open	8:00 – 17:00
Exhibitor Move-in	8:00 – 10:00
Poster Set-up	8:00 – 12:00
Session	9.00 – 10.40
Coffee break	10:40 – 11:20
Session	11.20 – 13.00
Trade Show	10:00 – 19:00
Lunch (On your own)	13:00 – 14:20
Session	14.20 – 18.00
Refreshment break	16.40 – 17.00
LACC General Assembly	18:00 – 19:00

Wednesday, November 16

Registration Open	8:00 – 17:00
Sessions	9:00 – 11:00
Trade Show & Posters Open	11:00 - 19:00
Refreshment Break	11:00 – 11:20
Sessions	11:20 – 13:00
Lunch (On your own)	13:00 – 14:20
Sessions	14:20 – 18:40
Refreshment Break	16:40 – 17:00
President Dinner	19:00 – 21:30

Thursday, November 17

Registration Open	08:00 – 15:00
Sessions	09:00 – 11:00
Refreshment Break	11:00 – 11:20
Trade Show & Posters Open	10:00 – 16:00
Sessions	11:20 – 13:00
Lunch (On your own)	13:00 - 14:20
Sessions	14:20 - 17:40

