



# Asian-Pacific Aquaculture 2024

## Aquaculture - Driving the Blue Economy

**11-14 June, 2024**  
Grand City  
Surabaya, Indonesia

The Annual International Conference &  
Exposition of World Aquaculture Society  
and Asian Pacific Aquaculture 2024  
Annual meeting of Asian Pacific Chapter, WAS



**WORLD**  
AQUACULTURE  
Society



Hosted by:  
Ministry of Marine Affairs & Fisheries  
(MMAF)



Co-Organizer:  
PT Tirta Anugrah Abadi  
**PT. TIRTA ANUGRAH ABADI**

Premier Sponsors



**BLUE AQUA**





# ASIAN PACIFIC AQUACULTURE 2024

## THE THIRD MAJOR INTERNATIONAL AQUACULTURE CONFERENCE IN INDONESIA

After the first successful meeting in 2005 in Bali, and following the successful in 2024 in Surabaya. We decided to come back to Indonesia again in 2024.

Asian Pacific Aquaculture 2024 will be the next chance for the international aquaculture community to visit Indonesia and see the rapidly expanding aquaculture industry in Indonesia – nearly 20% increase in the last 5 years in hectares in aquaculture production and over 50% per year increase in tons produced every year for the last 10 years! Attendees will be able to see what is happening in Indonesian aquaculture to create this growth as well as aquaculture developments in the rest of Southeast Asia.

Asian Pacific Aquaculture 2024 is the place to learn about the latest in aquaculture, see the newest technology in the trade show with exhibits from around the world and enjoy the many tourist sites in Indonesia.

### SPECIAL PRODUCER PROGRAM

Asian Pacific Aquaculture 2024 will have several special Industry sessions with the latest in practical knowledge for the Indonesian aquaculture producers.

### TECHNICAL PROGRAM COVERS THE LATEST RESEARCH

Sessions and workshops at Asian Pacific Aquaculture 2024 will cover all aspects of aquaculture in Indonesia as well as Southeast Asia.



## PROGRAM TOPICS

- Algal Aquaculture and Biology
- Amphibian and Reptile Aquaculture
- Animal Health & Welfare
- Aquaponics and Integrated Aquaculture-Agriculture Systems
- Arid land Aquaculture
- Barramundi, Seabass & Seabream
- Bio-floc Systems
- Biosecurity
- Biotechnology
- Breeding & Genetics
- Cage-culture
- Catfish
- Cobia
- Coldwater Species - General
- Crabs & Lobsters
- Crayfish & Freshwater Prawn
- Diseases
- Drugs and Chemotherapeutics
- Economics & Management
- Education, Extension, Technology Transfer
- Eels
- Embryology
- Emerging Issues
- Emerging Species
- Enhancement, Stocking & Ranching
- Environment, Biodiversity and Climate Change
- Farmers Day
- Finfish Broodstock Maturation
- Fish Biology and Physiology
- Fish Health
- Fish Meal and Oil
- Flatfish
- Food Safety, Inspections and Audits
- Freshwater Aquaculture and Environmental Impact
- Freshwater Species – cold & warm
- Genetics and Breeding of Freshwater Fishes
- Grouper & Snapper
- Hatchery & Larvae Management
- Immunology and Vaccines
- Information Technology in Aquaculture
- Innovation and High Techs
- Integrated Multi-trophic Aquaculture
- Investment in Aquaculture
- Indonesian Aquaculture Session
- Marine Shrimp
- Marketing & Trade
- Milk Fish
- Mollusc Broodstock and Hatchery
- Mollusc Cultivation
- Molluscan Genetics and Genomes
- Nutrition & Feed
- Ocean Acidification
- Octopus and Cuttlefish
- Offshore Aquaculture
- Organic Aquaculture
- Ornamentals
- Other Marine Fish
- Oyster
- Pacific & Indigenous Aquaculture
- Pangasius, Clarias & Ictalurus
- Pearl and Queen Conch Culture
- Physiology, Morphology & Histology
- Plankton Culture
- Policy & Regulations
- Polyculture
- Pond Culture
- Prebiotics and Probiotics
- Processing Technology
- Product Quality
- Raceway Systems
- Recirculating Systems
- Reservoir based Aquaculture
- Salmonid & trout
- Sea cucumbers and Urchins
- Seaweeds and Algae
- Shellfish
- Shrimp Farm Design and Management
- Shrimp Feeding and Nutrition
- Shrimp Genetics, Broodstock and Hatchery Management
- Spatial Planning and Regulation
- Standards & Certification
- Sustainable Development of Aquaculture
- Tilapia
- Tuna
- Value Chain Development
- Wastage Utilisation
- Water Quality and Usage
- Women in Aquaculture
- Yellowtails, Amberjacks, etc
- Zebrafish

Stay in touch with the program developments for ASIAN-PACIFIC AQUACULTURE 2024 through our Web Page at: <http://www.was.org>

# CALL FOR PAPERS – DEADLINE: December 31, 2023

ASIAN-PACIFIC AQUACULTURE 2024 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. **All abstracts must be in English - the official language of the conference.**

## Posters will have a featured and prominent place in ASIAN-PACIFIC AQUACULTURE 2024:

- Presenters that turn in the PDF or PowerPoint of their poster four weeks before the conference will have their poster reviewed at the end of the appropriate oral session.
- If turned in as stated above, the posters will also go on the conference website.
- Besides the two Happy Hours in the exhibits, there will be an additional Special Poster Viewing & Happy Hour on Friday.
- In the Program Book, special announcements will be made in the oral session lists of where relevant posters can be found.

Each oral presenter shall be entitled to no more than 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 should use Power Point. Overhead and slide projectors and video players will not be available or allowed.

All presenters are required to pay their own registration, accommodation and travel expenses. ASIAN-PACIFIC AQUACULTURE 2024 cannot subsidize registration fees, travel or hotel costs.

No Abstract Book will be printed - an abstract book will be available online.

## INSTRUCTIONS FOR PREPARATION OF ABSTRACTS

### Expanded 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 (see sample). 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 A4 paper (210mm x 297mm = 8.27" x 11.69")(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. PHOTOS, FIGURES & TABLES:** Photo, figures and tables are highly recommended and they may be in color. They should be reduced to the appropriate size to fit a one page abstract and should be clearly readable at the reduced size. The reduced figures and tables should be included in the abstract.

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

Laura A. Muzinic\*, Kenneth R. Thompson, Tracey Christian, Carl D. Webster, Lukas Manomaitis, and David B. Rouse

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Kentucky State University  
Frankfort, KY 40601  
lmuzinic@dcr.net

Red claw crayfish (*Cherax quadricarinatus*) are one of more than a hundred species of Australian freshwater crayfish. However, because of its rapid growth rate, ease of spawning, wide temperature tolerance, and dissolved oxygen 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 this country because specific information exists on their nutritional requirements and practical diet formulations. Since many crayfish diets require lecithin and cholesterol to be added to their diet, these two nutrients are usually added; however, lecithin and cholesterol are very expensive. Since diet costs can be as much as 10% of the total expenses for an aquaculture enterprise, it is imperative that the least expensive diet that meets the nutrient requirements of the species. The present study was conducted to determine if cholesterol and/or lecithin needs to be added to a practical diet for red claw crayfish.

An 8-week feeding trial was conducted in a recirculating aquaculture system with newly-hatched juvenile (initial weight of 0.2 g) red claw, each stocked in individual plastic mesh culture units. Individual units were maintained within fiberglass tanks, each with an individual water line. Water was recirculated through biological and mechanical filters. Water temperature was maintained at 27-29°C and lighting was provided by overhead fluorescent ceiling lights (14-hour light:dark cycle). Ammonia, dissolved oxygen, temperature, alkalinity, chlorides, and pH were measured three times per week. The goal of the study 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 3) 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.

**2.5 cm margin**

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29.7 cm long

2.5 cm margin

2.5 cm margin

**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 0.5	0.0	0.5	0.0	
Cholesterol	1.0	1.0	0.0	0.0
Other	38.5	39.0	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 ( $P < 0.05$ ).**

	Diet			
	1	2	3	4
Final weight (g)	6.97a	6.00b	3.64b	5.11a
Weight gain (%)	3384a	2897a	1717b	2454a
SGR (%/day)	5.74a	5.66a	4.68b	5.41a
Survival (%)	76.0	64.0	56.0	80.0

PLEASE SUBMIT YOUR ABSTRACT ONLINE

www.was.org





# REGISTRATION FORM

## ASIAN-PACIFIC AQUACULTURE 2024

### June 11-14, 2024



#### SAVE TIME – REGISTER ONLINE

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- Register Online
  - Please return both sides of this form with payment to one of the addresses above (depending on the currency used).
  - Registration can be faxed (Fax: +1-760-751-5003) if paying by credit card. (Fax both sides).
  - Use one form per person. Please copy this form for additional people.
  - Cancelled registrations will receive a refund minus 20% handling. Cancellations must be in writing and be received by April 10, 2024
- Refunds will be issued after the conference.

PLEASE PRINT CLEARLY OR TYPE ALL REQUESTED INFORMATION

**NAME 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)

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)

TYPE OF REGISTRATION	Register by April 15, 2024	Register after April 15, 2024	* To qualify for Member Rate you <u>must</u> complete the Association Memberships section on the reverse side. Only the listed Asia-Pacific countries that qualify in this event and registration for Non-Member rate will be included in WAS Membership
<b>FULL CONFERENCE &amp; TRADE SHOW</b> In order to receive the pre-Registration discount rate, this form and payment must be received by the date above.			
<b>ASSOCIATION MEMBER RATE*</b>	<input type="checkbox"/> US\$ 395	<input type="checkbox"/> US\$ 490	••••• Trade Show is <u>included</u> in the Full Conference Registration Rate.  <b>TOTAL REGISTRATION FEE</b> US\$ _____
<b>STUDENT MEMBER RATE*</b> Include copy of Student I.D.	<input type="checkbox"/> US\$ 165	<input type="checkbox"/> US\$ 195	
<b>Non-Member Rate</b>	<input type="checkbox"/> US\$ 495	<input type="checkbox"/> US\$ 590	
<b>Student Non-Member Rate</b> Include copy of Student I.D. You can join WAS on the reverse side and use the Member Rate.	<input type="checkbox"/> US\$ 215	<input type="checkbox"/> US\$ 255	
<b>Asia-Pacific Country Member Rate*</b>	<input type="checkbox"/> US\$ 200	<input type="checkbox"/> US\$ 280	
<b>Asia-Pacific Country Student Rate*</b>	<input type="checkbox"/> US\$ 90	<input type="checkbox"/> US\$ 120	
<b>Asia Pacific Country Non-Member Rate*</b>	<input type="checkbox"/> US\$ 260	<input type="checkbox"/> US\$ 315	
<b>Asisa-Pacific Country Student Non-Member Rate*</b>	<input type="checkbox"/> US\$ 115	<input type="checkbox"/> US\$ 145	
<input type="checkbox"/> <b>Spouse Rate</b> Name _____	<input type="checkbox"/> US\$ 225	<input type="checkbox"/> US\$ 395	

**TRADE SHOW PASS** – Good for 3 days admission to exhibits only – June 12, 13, and 14 (Trade show pass is included with the Full Conference Registration)  
 US\$ 50 **TOTAL TRADE SHOW PASS** US\$ \_\_\_\_\_

**INDUSTRY TOURS** – Information to come US\$ \_\_\_\_\_

**MEMBERSHIP DUES** – Enter amount from Membership Application on other side if applicable. US\$ \_\_\_\_\_

Do not mail registration after May 15, 2024 or fax after May 15. After May 15, bring this form with you to register at the show. **➔ TOTAL AMOUNT** US\$ \_\_\_\_\_

**REGISTRATION CONFIRMATION AND RECEIPT WILL BE EMAILED AFTER PROCESSING.**

**PAYMENT METHOD:** All fees must be paid to the order of ASIAN-PACIFIC AQUACULTURE 2024 without charges for the beneficiary.

Check # \_\_\_\_\_  Visa  Mastercard  American Express  Discover  Diners Club

Card # \_\_\_\_\_ Expiration Date \_\_\_\_\_ Sec Code \_\_\_\_\_

Name on Card \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_

Credit Card Billing Address \_\_\_\_\_

For bank transfer details, contact us. Return address for payments in USD:  
WAS Conference Office - ASIAN-PACIFIC AQUACULTURE 2024  
P.O. Box 2302 • Valley Center, CA 92082 USA  
Tel: +1 760 751 5005 Fax: +1 760 751 5003 Email: worldaqua@was.org

# 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:

- African Chapter WAS
- Aquabio
- Aquaculture Association of Canada
- Aquaculture Association of South Africa
- Aquaculture Without Frontiers
- Asian Fisheries Society
- 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
- Sociedad Brasileira de Acuicultura
- 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: +1-225-578-3137 Fax: +1-225-578-3493 Email: [judya@was.org](mailto:judya@was.org)

### MEMBERSHIP CATEGORY: (Indicate only one)

- Individual** (USD 90/yr) Applies to an individual only
- Student** (USD 45/yr) (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 Students and Individuals in countries based on World Bank List of Low Income Economies.**

Please see website or contact [killanh@was.org](mailto:killanh@was.org) for details.

### CHAPTER OPTIONS:

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

- Africa
- 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).

## MANY OPPORTUNITIES FOR FARM TOURS

Some very special tours will be set up by the Indonesian Associations. Details to be provided later – check our website for updates.



### FOR MORE INFORMATION: ASIAN-PACIFIC AQUACULTURE 2024

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](mailto:worldaqua@was.org)

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

## TENTATIVE SCHEDULE

### TUESDAY, JUNE 11

Registration Open .....	Noon - 6:30 pm
Exhibitor Move-in .....	Noon - 6:00 pm
Poster Set-up.....	1:00 pm - 5:30 pm

### WEDNESDAY, JUNE 12

Registration Open .....	7:30 am - 5:00 pm
Plenary Session .....	9:00 am - 10:00 am
Opening Ceremony .....	10:00 am - 10:40 am
Exhibitor Move-in .....	8:00 am - 10:00 am
Poster Set-up.....	8:00 am - 10:00 am
Exhibition Official Opening.....	10:40 am
Refreshment Break .....	10:40 am - 11:20 am
Trade Show & Posters Open .....	10:00 am - 6:30 pm
Sessions.....	11:20 am - 12:40 pm
Lunch (On your own) .....	12:40 pm - 1:50 pm
Sessions.....	1:50 pm - 3:30 pm
Refreshment Break .....	3:30 pm - 4:00 pm
Sessions.....	4:00 pm - 5:20 pm
Happy Hour & Poster Session .....	5:20 pm - 6:30 pm

### THURSDAY, JUNE 13

Registration Open .....	7:30 am - 5:00 pm
Sessions.....	9:00 am - 10:40 am
Poster Set-up.....	8:00 am - 10:00 am
Refreshment Break .....	10:20 am - 11:00 am
Trade Show & Posters Open .....	10:00 am - 6:30 pm
Sessions.....	11:00 am - 12:20 pm
Lunch (On your own) .....	12:20 pm - 1:50 pm
Sessions.....	1:50 pm - 3:30 pm
Refreshment Break .....	3:30 pm - 4:00 pm
Sessions.....	4:00 pm - 5:20 pm
Happy Hour & Poster Session .....	5:20 pm - 6:30 pm
WAS-APC Members meeting.....	5:30 pm - 6:30 pm
Presidents Reception.....	7:00 pm - 9:30 pm

### FRIDAY, JUNE 14

Registration Open .....	7:30 am - 5:00 pm
Sessions.....	9:00 am - 10:20 am
Refreshment Break .....	10:20 am - 11:00 am
Trade Show & Posters Open .....	10:00 am - 5:30 pm
Sessions.....	11:00 am - 12:20 pm
Lunch (On your own) .....	12:20 pm - 1:50 pm
Sessions.....	1:50 pm - 3:30 pm
Refreshment Break .....	3:30 pm - 4:00 pm
Sessions.....	4:00 pm - 5:20 pm
Poster out take down.....	4:00 pm - 6:30 pm
Exhibitor Move out .....	5:40 pm - 10:00 pm

### YOUR FULL CONFERENCE REGISTRATION INCLUDES:

- ❖ Admission to all sessions, seminars and the trade show.
- ❖ Admission to the Reception.
- ❖ Conference bag and Show Directory (except for spouse)
- ❖ 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.
- ❖ Only pre-registered attendees are guaranteed materials.

## REGISTER EARLY AND \$AVE!