



# Asian-Pacific Aquaculture 2021

*Bridging Technology Innovation to Elevate the Sustainable Aquaculture Industry*

8-11 June 2021  
Grand City  
Surabaya, Indonesia

This event includes:

- Asia Pacific Aquaculture 2021
  - IndoAqua 2021
    - FITA 2021
  - CAI-MAI 2021
    - SCI 2021
  - DigiFish 2021



# APA21

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

**WORLD**  
**AQUACULTURE**  
Society



# ASIAN PACIFIC AQUACULTURE 2021

## THE SECOND MAJOR INTERNATIONAL AQUACULTURE CONFERENCE IN INDONESIA

After the first Asian meeting in 2016 in Indonesia, Asian Pacific Aquaculture 2021 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 2021 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 sights in Indonesia.

### SPECIAL PRODUCER PROGRAM

Asian Pacific Aquaculture 2021 will have several special Industry sessions with the latest in practical knowledge for the Indonesian aquaculture producers IndoAqua, Fita.

### TECHNICAL PROGRAM COVERS THE LATEST RESEARCH

Sessions and workshops at Asian Pacific Aquaculture 2021 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
- Development, Welfare and Poverty Alleviation (AwF)
- 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 (ISTA)
- 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 2021 through our Web Page at: <http://www.was.org>

# CALL FOR PAPERS – DEADLINE: January 31, 2021

ASIAN-PACIFIC AQUACULTURE 2021 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 2021:

- 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 projectors will not be available or allowed.

All presenters are required to pay their own registration, accommodation and travel expenses. ASIAN-PACIFIC AQUACULTURE 2021 cannot subsidize registration fees, travel or hotel costs.

No Abstract Book will be printed - a USB will be given to registered attendees.

## 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.

**2.5 cm margin**

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

Aquaculture Research Center  
Kentucky State University  
Frankfort, KY 40601  
lmuzinic@dcrc.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 range, 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. Very little information exists on their nutritional requirements and practical diet formulations. Since many crayfish 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 20% of the total operating expenses for an aquaculture enterprise, it is imperative that the least expensive diet be used. 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 system with newly-hatched juvenile (initial weight of 0.2 g) red claw, each stocked in individual plastic mesh culture units. Individual units were placed 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 light was provided by overhead fluorescent ceiling lights on a 12-hour light:dark cycle. Ammonia, nitrite, nitrate, 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**

**21 cm wide**

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



# REGISTRATION FORM

## ASIAN-PACIFIC AQUACULTURE 2021

### JUNE 9-11, 2021



#### SAVE TIME – REGISTER ONLINE

#### SAVE TIME – REGISTER ONLINE

- 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, 2021. 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 May 1, 2021	Register after May 1, 2021	
<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			* To qualify for Member Rate you <u>must</u> complete the Association Memberships section on the reverse side.  ● ● ● ● ● ● ● ● ● ●  Trade Show is <u>included</u> in the Full Conference Registration Rate.
<input type="checkbox"/> <b>WAS/CHAPTER MEMBER RATE*</b>	<input type="checkbox"/> US\$ 325	<input type="checkbox"/> US\$ 490	
<input type="checkbox"/> <b>WAS/CHAPTER STUDENT MEMBER RATE*</b> Include copy of Student I.D.	<input type="checkbox"/> US\$ 165	<input type="checkbox"/> US\$ 195	
<input type="checkbox"/> <b>Non-Member Rate</b> <input type="checkbox"/> <b>Student Non-Member Rate</b> Include copy of Student I.D. <i>You can join WAS on the reverse side and use the Member Rate.</i>	<input type="checkbox"/> US\$ 425 <input type="checkbox"/> US\$ 215	<input type="checkbox"/> US\$ 590 <input type="checkbox"/> US\$ 255	
<input type="checkbox"/> <b>Spouse Rate</b> – must accompany a full registration Name _____	<input type="checkbox"/> US\$ 255	<input type="checkbox"/> US\$ 395	<b>TOTAL REGISTRATION FEE</b>  US\$ _____

**TRADE SHOW PASS** (Trade show pass is included with the Full Conference Registration)  
Good for 3 days admission to exhibits only – June 9, 10, 11  US\$ 30 **TOTAL TRADE SHOW PASS** US\$ \_\_\_\_\_

**WORKSHOPS & TOURS** – Information to come.

**TOTAL** US\$ \_\_\_\_\_

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

Do not mail registration after March 10, 2021 or fax after May 10.  
After May 10, 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 2021 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 2021  
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)

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

**MEMBERSHIP APPLICATIONS**  NEW APPLICATION  RENEWAL

## WORLD AQUACULTURE SOCIETY (WAS) APPLICATION [www.was.org](http://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** (Electronic JWAS) (USD 65/yr) Applies to an individual only
- Individual** (Printed JWAS) (USD 110/yr) Applies to an individual only
- Individual** (E Access) (USD 45/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 1000 with no chapter) Applies to an individual only

**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

Total Amount for WAS Membership USD \_\_\_\_\_

Fees for memberships are non-refundable.

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 2021

Conference Manager

P.O. Box 2302

Valley Center, CA 92082 USA

Questions:?

Tel: +1-760-751-5005

Fax: +1-760-751-5003

## TENTATIVE SCHEDULE

### TUESDAY, JUNE 8

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

### WEDNESDAY, JUNE 9

Registration Open .....	7:30 am – 5:00 pm
Plenary Session .....	8:30 am – 9:30 am
Opening ceremony.....	9:30 am – 10:00 am
Exhibition opening .....	10:00 am – 10:10 am
Exhibitor Move-in .....	8:00 am – 10:00 am
Poster Set-up.....	8:00 am – 10:00 am
Refreshment Break .....	10:00 am – 10:40 am
Trade Show & Posters Open .....	10:00 am – 6:30 pm
Sessions.....	10:40 am – 12:20 pm
Lunch (coupon conv hall) .....	12:20 pm – 1:50 pm
Sessions.....	1:50 pm – 3:30 pm
Refreshment Break Sessions.....	3:30 pm – 4:00 pm
Happy Hour & Poster Session .....	4:00 pm – 5:20 pm
WAS-APC AGM .....	5:30 pm – 6:30 pm
Student Forum.....	7:30 am – 9:00 pm

### THURSDAY, JUNE 10

Registration Open .....	7:30 am – 5:00 pm
Sessions.....	8:30 am – 10:10 am
Refreshment Break .....	10:10 am – 10:40 am
Trade Show & Posters Open Sessions .	10:00 am – 5:30 pm
Sessions.....	10:40 am – 12:20 pm
Lunch (On your own) .....	12:20 am – 1:50 pm
Sessions.....	1:50 pm – 3:30 pm
Refreshment Break Sessions.....	3:30 pm – 4:00 pm
WAS-APC Members meeting.....	4:00 pm – 5:20 pm
President Reception.....	7:30 pm – 9:30pm

### FRIDAY, JUNE 11

Registration Open .....	7:30 am – 5:00 pm
Sessions.....	8:30 am – 11:00 am
Refreshment Break .....	10:10 am – 10:40 am
Trade Show & Posters Open .....	10:00 am – 4:00 pm
Lunch (On your own) .....	12:00 pm – 1:00 am
Sessions.....	1:00 pm – 3:30 pm
Refreshment Break Sessions.....	3:30 pm – 4:00 pm
Sessions.....	4:00 pm – 5:20 pm

## YOUR FULL CONFERENCE REGISTRATION INCLUDES:

- ❖ Only pre-registered attendees are guaranteed materials
- ❖ Admission to all sessions, seminars and the trade show
- ❖ Admission to the Reception
- ❖ Conference bag
- ❖ 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

# REGISTER EARLY AND \$AVE!