WA2021 will be an In-Person Event! Please get vaccinated so we can have a free-flowing meeting!

World Aquaculture 2021
#AquacultureNow

November 15-19, 2021
Mérida, Mexico

Centro Internacional de Congresos de Yucatán, CIC

Annual global meeting of the World Aquaculture Society

WAS Premier Sponsors

mérida me mueve INAPESCA Red Tilapia Mexico YucatecN SVPAS Yucatán Seranias Caribbean waters CONAPESCA
The World Aquaculture Society is the organization of professionals in the most important field in the world, with members of more than 100 countries. Its annual conference is recognized globally as the most relevant for the exchange of knowledge, technology, innovation and professional network training. During WA2021 there will be the participation of the Food and Agriculture Organization of the United Nations (FAO) and other international organizations. There will be multiple presentations, workshops, business meetings, trade exhibition, art gallery, technical visits to farms and process plants in the region, and various events dedicated to building professional networks.

Mérida is distinguished for being one of the most beautiful cities in the world, as well as being considered one of the jewels of Latin America. With a wonderful climate, friendly and hospitable people, located in the State of Yucatan, cradle of the Mayan culture; It has various tourist attractions, among which are archaeological centers, beaches, large haciendas and majestic cenotes.

The Yucatan International Congress Center is an ecologically responsible building, equipped with state-of-the-art technology, built under the LEED Green Building certification system, it has “El Cenote” inside it, an underwater river that makes it unique in the world.

Due to the richness of its natural and hydrological resources, Mexico is considered one of the countries with the greatest aquaculture potential in the world. It is an honor for Mexico and a great opportunity that Mérida will become the capital of aquaculture during 2021. This event is expected to be a watershed in the evolution of the activity not only in the peninsula but throughout the country. #AquacultureNow.

WA2021 is inviting the national and international organisations and societies to hold their seminar, workshop and meetings during the event in Merida.

Stay in touch with the program developments for WORLD AQUACULTURE 2021 through our Web Page at: www.was.org
Sessions and workshops at World Aquaculture 2021 will cover all aspects of aquaculture in the Latin American and Caribbean region as well as the rest of the world. Sample topics will include:

- Abalone
- Advances in alternative feed ingredients
- Advances in live feeds for larviculture
- Algae and macrophytes
- Amphibian and Reptile Aquaculture
- Animal health and Welfare
- Aquaculture and Circular Economy
- Aquaculture business incubator
- Aquaculture for the future
- Aquaponics and Integrated Aquaculture - Agriculture Systems
- Aquatic veterinary health capacity
- Arid land Aquaculture
- Barramundi, Seabass & Seabream
- Bio-floc Systems
- Biodiversity and Climate Change
- Breeding & Genetics
- Cage-culture
- Carpet Shells
- Carps
- Catfish
- Certification and legislation
- Clams (including Giant Clams)
- Climate change, adaptation, resilience
- Cobia
- Coldwater Species - General
- Commercial Species. Shrimp, Tilapia, Oyster, Tuna
- Country Specific Sessions (eg 2008 Norway)
- Crabs & Lobsters
- Crayfish & Freshwater Prawn
- Development of national aquaculture technology
- Development, Welfare and Poverty Alleviation (AwF)
- Diseases
- Drugs and Chemotherapeutics
- Economics & Management
- Ecosystems approach
- Education, Extension, Technology Transfer & Workforce Development (AquaEd)
- Eels
- Embryology
- Emerging Issues
- Emerging Species
- Enhancement, Stocking & Ranching
- Environment and Biodiversity and Climate Change
- Energy-alternative sources and conservation
- Engineering
- Financing and investment
- Finfish Broodstock Maturation
- Fish Health
- Fish Meal and Oil (IFFO)
- Flatfish
- Food Safety, Inspections and Audits
- Food security
- Freshwater fish: Catfish, trout, Pejelagarto
- Atractosteus tropicus
- Freshwater crustaceans: Cherax crayfish,
  Procambarus crawfish, Macrobrachium spp.
- Freshwater Species - General
- The future of integrated aquaculture
- General Aquaculture
- Genetic Improvement Programs for commercially
  important aquaculture species
- Grouper & Snapper
- Hatchery & Larvae Management
- Hatchery and Nursery
- Health - food and well-being
- Immunology
- Information Technology in Aquaculture
- Innovation and High Techs
- Integrated Multi-trophic Aquaculture
- Investment funds and financing mechanisms for aquaculture
- Korean Aquaculture Session
- Macroalgae
- Marine Fish: Red drum, Cobia, Snapper, Totoaba,
  Groupers
- Marketing & Trade
- Markets and media
- Milkfish
- Mollusks: Bivalves (Scallops, Penshell), Octopus
- Mollusc Broodstock and Hatchery
- Molluscs Cultivation
- Mullets
- Mussels
- Nutrition & Feed
- Ocean acidification
- Octopus and Cuttlefish
- Offshore Aquaculture
- Omics tools for Aquaculture
- Organic Aquaculture
- Ornamentals
- Other Marine Fish
- Oyster
- Pacific & Indigenous Aquaculture
- Pangasius, Clarias & Ictalurus
- Pearl and Queen Conch Culture
- 3rd International Symposium on Perch and Bass
- Physiology, Morphology & Histology
- Plankton Culture
- Policy & Regulations
- Polyculture
- Pond Culture
- Prebiotics and Probiotics
- Processing Technology
- Product Quality
- Production systems
- Raceway Systems
- Recirculating Systems
- Regularization in aquaculture planning
- Reservoir based and Lake Aquaculture
- Salmonids
- Scallops
- Sea cucumbers
- Sea urchins
- Seafood & Health (GILLS)
- Seaweeds and Algae
- Shrimp Farm Design and Management
- Shrimp Feeding and Nutrition
- Shrimp Genetics, Broodstock and Hatchery Management
- Shrimp pathology and biosecurity
- Snappers
- Socioeconomics
- Spatial Planning, Regulation and Zoning
- Species with potential for Expansion. Marine Fish (Seriola),
  Pacific Oyster
- Species with potential for economic development
- Standards & Certification
- Sturgeons
- Supply chain
- Sustainable Development of Aquaculture
- Tilapia
- Trade
- Trouts
- Tuna
- Urban aquaculture
- Value Chain Development
- Warm water Species – General
- Wastage Utilisation
- Water Quality and Usage
- Women in Aquaculture
- Workforce development
- Yellowtails, Amberjacks, etc
- Zebrafish

YOUR FULL CONFERENCE REGISTRATION INCLUDES:

- Admission to all sessions, seminars and the trade show.
- Admission to the Receptions.
- 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

World Aquaculture 2021

FOR MORE INFORMATION:
World Aquaculture 2021
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
www.was.org
REGISTER EARLY AND SAVE!
CALL FOR PAPERS – DEADLINE: August 6, 2021

WORLD 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.

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. Slides, overhead projectors and video players will not be available or allowed.

All presenters are required to pay their own registration accommodation and travel expenses. WORLD AQUACULTURE 2021 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 abstract title is printed in CAPITAL LETTERS, with the exception of scientific names which should be Upper/lower case and italicized (see example). 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 8.5 x 11 inch 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. The reduced figures and tables should be included in the abstract in camera-ready form.

1 inch margin (2.54 cm)

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@dcr.net

Red claw crayfish (Cherax quadricarinatus) are one of more than a hundred species of 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 a commercial aquaculture enterprise in the United States. Red claw are only being investigated as an aquaculture species in this country and information exists on their nutritional requirements and practical diet formulations. Many crustaceans require lecithin and choleseterol to be added to their diet, these two nutrients are extremely expensive. Since diet costs can be as much as 30% of the operating expenses for an aquaculture enterprise, it is imperative that the least expensive diet formulations for the nutrient requirements of the species. 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 newly-hatched juvenile (mean individual weight of 0.2 g) red claw, each stocked in plastic mesh culture units. Individual units were maintained within fiberglass tanks, each containing 50 L of water. Water was recirculated through biological and mechanical filters. Water temperature was maintained at 27-29°C and light was provided by overhead fluorescent ceiling lamps in a 14:10 hour light:dark cycle. Ammonia, nitrite, dissolved oxygen, temperature, alkalinity, chlorides, and pH were measured three times per week. The goal of this study was to examine the effects of growth performance of newly-hatched juvenile red claw when fed 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, pelleted 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.

1 inch margin (2.54 cm)

PLEASE SUBMIT YOUR ABSTRACT ONLINE

Submit your abstract via the internet at the meeting website. Follow the complete instructions on the website for online submission.

www.was.org

If you are unable to submit your abstract online, contact the Conference Manager for alternative methods at:
worldaqua@was.org
## World Aquaculture 2021

**November 15-19, 2021**

Register online at: www.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** ________________________________________________________________
- **City** ___________________________  **State/Prov** ___________________________  **Country** ___________________________

**MAILING INFORMATION:**

- **Email**
- **Postal Address** ___________________________
- **City** ___________________________  **State / Prov** ___________________________  **Postal Code** ___________________________  **Country** ___________________________
- **Phone** ___________________________  **Fax** ___________________________

**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.

<table>
<thead>
<tr>
<th>TYPE OF REGISTRATION</th>
<th>Register by Sept, 1, 2021</th>
<th>Register by Oct, 1, 2021</th>
<th>Register after Oct, 1, 2021</th>
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<tr>
<td>FULL CONFERENCE &amp; TRADE SHOW</td>
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<tr>
<td>WAS/CHAPTER MEMBER RATE*</td>
<td>US$ 475</td>
<td>US$ 575</td>
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<td>WAS/CHAPTER STUDENT MEMBER RATE*</td>
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<td>Spouse Rate – must accompany a full registration</td>
<td>US$ 335</td>
<td>US$ 395</td>
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**TRADE SHOW PASS** (Trade show pass is included with the Full Conference Registration)

- Good for 3 days admission to exhibits only – December 16, 17, 18
  - US$ 50  **TOTAL TRADE SHOW PASS** US$ ________

**WORKSHOPS & TOURS** – TBA

**MEMBERSHIP DUES** – Enter amount from Membership Application on other side if applicable.

- **TOTAL MEMBERSHIP DUES** US$ ________

**TOTAL** US$ ________

Registration Confirmation and Receipt will be emailed after processing.

### CANCELLATION POLICY:

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 Oct. 1, 2021 or for "no shows". After Oct. 1, 2021, 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 WORLD AQUACULTURE 2021.

<table>
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<tr>
<th>Payment Method</th>
<th>Check #</th>
<th>Visa</th>
<th>Mastercard</th>
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<th>Discover</th>
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**Name on Card** ___________________________  **Date** ___________________________  **Signature** ___________________________

Credit Card Billing Address ___________________________
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

AFILIATE MEMBERSHIPS:
❑ 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

MEMBERSHIP CATEGORY: (Indicate only one)
❑ Individual (Electronic JWAS) (USD 65/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)
❑ Sustaining (Electronic JWAS) (USD 105/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
❑ Lifetime (Electronic JWAS only) (USD 1000 with no chapter) Applies to an individual only
❑ Lifetime (Electronic JWAS only) (USD 1100 with one chapter) Applies to an individual only

CHAPTER OPTIONS:
One chapter included in membership. Mark the chapter you choose.
❑ Africa
❑ Asian Pacific
❑ Korea
❑ Latin American/Carribean
❑ 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 arranged. Details to be provided later – check our website for updates.

HOTELS

We have arranged a wide range of quality accommodations at special rates. Please check the website for hotel details.

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<table>
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<tr>
<th>TRADE SHOW SCHEDULE</th>
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<td><strong>NOV 16</strong></td>
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Centro Nacional de Congress de Yucatan CIC  
(Av.Cupules y Av. Colón Centro, C.P. 97000 - Mérida)
### TENTATIVE SCHEDULE

**Monday, Nov 15**
- Registration Open & Exhibit Set-up 1000 – 1700
- Farm Tours
- WAS Business Meeting 1600 – 1700
- Inauguration & WAS/LACC Awards/spotlight 1700 – 1900
- Welcome Drink 1915 – 2100

**Tuesday, Nov 16**
- Registration Open 0730 – 1700
- Plenary Sessions 0900 – 1030
- Break 1030 – 1120
- Trade Show Open 1000 – 1830
- Sessions 1120 – 1700
- FAO COFI Meeting 1120 – 1700
- Industry Forum 1120 – 1700
- Lunch (at individual expense) 1300 – 1430
- Sessions 1430 – 1730
- Happy Hour & Posters 1730 – 1830
- Student Reception 1900 – 2100

**Wednesday, Nov 17**
- Registration Open 0800 – 1700
- Sessions 0900 – 1040
- FAO COFI Meeting 0900 – 1700
- Break 1040 – 1110
- Trade Show Open 1000 – 1830
- Sessions 1110 – 1310
- Lunch (at individual expense) 1310 – 1430
- Sessions 1430 – 1730
- Happy Hour & Posters 1730 – 1830
- President’s Reception 1900 – 2200

**Thursday, Nov 18**
- Registration Open 0800 – 1600
- Sessions 0900 – 1040
- Break 1040 – 1110
- Trade Show Open 1000 – 1630
- Sessions 1110 – 1310
- Lunch (at individual expense) 1300 – 1430
- FAO COFI Meeting 1300 – 1430
- Sessions 1430 – 1550
- Break 1550 – 1610
- Sessions 1610 – 1730
- Exhibit Move-out 1630 – 1900

**Friday, Nov 19**
- Registration Open 0800 – 1500
- Sessions 0900 – 1040
- Break 1040 – 1110
- Sessions 1110 – 1310
- Lunch (at individual expense) 1300 – 1400
- Sessions 1400 – 1540
- Break 1540 – 1600
- Sessions 1600 – 1720

**Saturday, Nov 20**
- Farm Tours