AQUACULTURE AMERICA 2024

Setting the Table for U.S. Aquaculture

FEBRUARY 18-21, 2024
San Antonio Marriott Rivercenter
San Antonio, Texas

SPONSORED BY:

WAS Premier Sponsors

Associate Sponsors

In Cooperation with: Texas Aquaculture Association
AQUACULTURE AMERICA 2024 RETURNS TO SAN ANTONIO

AQUACULTURE AMERICA 2024 returns to one of the favorite tourist spots in the world for the only major national aquaculture conference and exposition held in the U.S. The U.S. Aquaculture Society (formerly U.S. Chapter of WAS) joins with National Aquaculture Association and the Aquaculture Suppliers Association to produce the annual Aquaculture America meetings. These sponsors are joined by the annual meetings of Aquacultural Engineering Society, US Trout Farmers Association and many more associations to make Aquaculture America 2024 the one meeting in the U.S. that you don’t want to miss!

A CRITICAL TRADE SHOW FOR AQUACULTURISTS!
AQUACULTURE AMERICA 2024 will have the largest aquaculture trade show in the Western Hemisphere and one of the largest anywhere in the world with nearly 200 booths! This is your opportunity to inspect the latest in products and services for the aquaculture industry. It is the place to visit current suppliers and make new contacts. To keep ahead and to keep profits building, you need to keep pace with the technological advancements in the industry - and AQUACULTURE AMERICA 2024 is the place to do it!

Stay in touch with the program developments for AQUACULTURE AMERICA 2024 through our Web Page at:
www.was.org

SAN ANTONIO–RIVERWALK, ENTERTAINMENT, EATING AND HISTORY!
AQUACULTURE AMERICA 2024 is the place to learn about the latest in aquaculture, see the newest technology in the trade show and have a great time in the many fantastic restaurants, bars and entertainment sites in San Antonio.

EXPANDED PRODUCER PROGRAM
Aquaculture America is known for the high quality of its Producer Program organized by National Aquaculture Association. AQUACULTURE AMERICA 2024 will continue to expand the size and scope of the producer program to address all of the issues facing producers in the U.S. as well as around the world. Topics Include:

Aquatic Animal Health
Aquatic Invasive Species
Clean Water Act
Commercial Aquaculture Health Program Standards
Endangered Species Act
Federal Agency Town Hall

Aqua Tools:
- Siting and Environmental Management
- Aquatic Animal Health
- Aquatic Invasive Species
- Clean Water Act
- Commercial Aquaculture Health Program Standards
- Endangered Species Act
- Federal Agency Town Hall

Nutrition and Food Safety
Lacey Act
Marketing
Regulatory Issues
Science/Public Policy
Start-up Aquaculture
Therapeutic Drug Approval
The U.S. Aquaculture Society will put together an extensive technical program featuring special sessions, contributed papers and workshops on all of the species and issues facing aquaculturists around the country and throughout the world. Sample topics:

**Biotechnology/Biogenetics**
- Crustacean genetics/selection/genomics
- Finfish genetics/selection/genomics
- Shellfish genetics/selection/genomics
- Genetically modified organisms
- Microbiome
- Gen/Transcript/Prote-omics

**Conservation/Management/Stock Enhancement**
- Conservation/restoration aquaculture
- Stock enhancement
- AZA-Aquarium and Zoo Association

**Crustaceans**
- *Species*
  - Crawfish
  - *L. vannamei*
  - *Macrobrachium sp.*
- Shrimp health and disease
- Shrimp production

**Economics/Marketing**
- Aquaculture economics
- Certification
- Consumer perceptions of farm-raised seafood
- Marketing
- Risk management

**Engineering**
- Aquaponics
- Bioflocs
- Biofouling
- Biofuels
- Effluent waste management
- Recirculating aquaculture system technology
- System modelling
- Wireless/automated technologies in aquaculture

**Finfish**
- *Species*
  - Baitfish
  - Catfish/catfish hybrids
  - Cleaner fish
  - Flatfish
  - Gar/paddlefish/bowfin
  - Largemouth bass
  - Marine fish
  - Mullet
  - Percids
  - Salmonids
  - Striped bass/striped bass hybrids
  - Sturgeon
  - Tilapia
  - Tuna
  - Zebrafish
- Finfish husbandry/production

**Food Safety**
- Seafood safety
- Shellfish safety

**Health/Disease**
- Aquaculture drugs
- Aquatic animal veterinary medicine
- Aquatic animal health
- Biosecurity
- Crustacean diseases
- Finfish diseases
- Immunology/stress
- Mucosal health
- Preventative medicine strategies
- Shellfish diseases
- Vaccines
- Viral diseases
- Welfare

**Nutrition**
- Alternative feeds
- Feed ingredients
- Feed supplements and gut health
- Nutrition – protein
- Nutrition – lipids
- Nutrient requirements
- Live feeds
- Pond fertilization
- Prebiotics/probiotics

**Other Sessions**
- Aquaculture education, extension, technology transfer
- Disaster relief
- Diversity and Inclusion in Aquaculture
- Ecology/environment
- Endangered species
- History of aquaculture
- Invasive species
- Ocean acidification
- Organic aquaculture
- Outreach
- Physiology
- Public Perceptions

**Other Species**
- Macroalgae
- Alligator
- Amphibians
- Echinodermes
- Eels
- Ornamentals

**Regulations/Policies/Permitting**
- Federal Actions Supporting U.S. Aquaculture

**Workforce Development**
- Drug Approval
- Regulatory costs
- USDA Veterinary Services
- Aquaculture 101
- State Aquaculture Leasing Programs
- Risk Management and Catastrophic
- Natural Disaster Assistance
- Smart Farm Siting and Environmental Management
- Reproduction
- Broodstock propagation/management
- Crustacean reproduction
- Finfish reproduction
- Hatchery technology
- Larval culture
- Shellfish reproduction

**Shellfish**
- *Species*
  - Abalone
  - Freshwater mussels
  - Mussels/clams/geoducks
  - Oysters
  - Scallops
- Shellfish husbandry/production

**Systems**
- Cage culture
- In-pond raceways/split-ponds
- Integrated multi trophic aquaculture
- Non-traditional aquaculture
- Offshore aquaculture
- Pond culture
- Raceway culture
- Recirculating aquaculture
- Recreational/oriental
- Small scale aquaculture
- Urban aquaculture

**Water Quality/Chemistry**
- Algal blooms
- Instrumentation
- Management
- Methodology
- Nitrogen waste management
- Toxins/contaminants
- Wireless/automated technologies in aquaculture
CALL FOR PAPERS – DEADLINE: September 29, 2023

AQUACULTURE AMERICA 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.

Each oral presenter shall be entitled to no more than 12 minutes for a presentation, plus 3 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 PowerPoint. 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.

AQUACULTURE AMERICA 2024 cannot subsidize registration fees, travel or hotel costs.

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 included in the abstract in camera-ready form.

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

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

<table>
<thead>
<tr>
<th>Diet</th>
<th>Methionine (%)</th>
<th>Soybean Meal (%)</th>
<th>Lecithin (%)</th>
<th>Cholesterol (%)</th>
<th>Other</th>
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<tbody>
<tr>
<td>1</td>
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<td>40.0</td>
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<td>40.0</td>
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<td>35.0</td>
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<td>25.0</td>
<td>35.0</td>
<td>1.0</td>
<td>0.0</td>
<td>40.0</td>
</tr>
</tbody>
</table>

After 8 weeks, red claw crayfish fed a practical diet without cholesterol (Diet 3) had significantly (P < 0.05) higher 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 crayfish.

### 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).

<table>
<thead>
<tr>
<th>Diet</th>
<th>Final weight (g)</th>
<th>Percentage weight gain (%)</th>
<th>Specific growth rate (SGR)</th>
<th>Percentage survival (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.07a</td>
<td>8.69a</td>
<td>6.49b</td>
<td>7.31a</td>
</tr>
<tr>
<td>2</td>
<td>6.58a</td>
<td>8.99a</td>
<td>7.41b</td>
<td>8.11a</td>
</tr>
<tr>
<td>3</td>
<td>7.10a</td>
<td>9.11a</td>
<td>8.21b</td>
<td>8.91a</td>
</tr>
<tr>
<td>4</td>
<td>8.10a</td>
<td>9.64a</td>
<td>9.22b</td>
<td>9.71a</td>
</tr>
</tbody>
</table>

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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 lack of a larval stage, red claw may be the best candidate for a United States. Red claw are only being investigated as an aquaculture species in the country and information exists on their nutritional requirements and practical diet formulations. Many crustaceans require leucine and cholesterol to be added to their diet, these two nutrients are very expensive and leucine and cholesterol are very expensive. Since diet costs can be as much as 50% of the operating expenses for an aquaculture enterprise, it is imperative that the least expensive dietary system for red claw crayfish exists.

An 8-week feeding trial was conducted in a recirculating system with newly-hatched juvenile red claw crayfish (weight of 0.2 g) red claw, each stock in plastic mesh culture units. Individually stocked within fiberglass tanks, each tank connected to the water line. Water was recirculated through biological and mechanical filters. Water temperature was maintained at 27-28°C and lighting was provided by overhead fluorescent ceiling lights on a 14:10 hour light:dark cycle. Ammonia, nitrite, alkalinity, chlorine, pH, and temperature were measured three times per week. The primary objective 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).

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ATTENDEE REGISTRATION FORM

AQUACULTURE AMERICA 2024
February 18-21, 2024 – San Antonio, Texas

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** ___________________________
- **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.

<table>
<thead>
<tr>
<th>TYPE OF REGISTRATION</th>
<th>FULL CONFERENCE &amp; TRADE SHOW</th>
<th>Register by January 26, 2024</th>
<th>Register by February 9, 2024</th>
<th>Register after February 9, 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEMBER RATE</strong></td>
<td></td>
<td>US$ 495</td>
<td>US$ 595</td>
<td>US$ 695</td>
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<tr>
<td><strong>STUDENT MEMBER RATE</strong></td>
<td>Include copy of Student I.D.</td>
<td>US$ 270</td>
<td>US$ 270</td>
<td>US$ 325</td>
</tr>
<tr>
<td><strong>Non-Member Rate</strong></td>
<td></td>
<td>US$ 590</td>
<td>US$ 690</td>
<td>US$ 790</td>
</tr>
<tr>
<td><strong>Student Non-Member Rate</strong></td>
<td>Include copy of Student I.D.</td>
<td>US$ 330</td>
<td>US$ 330</td>
<td>US$ 390</td>
</tr>
<tr>
<td><strong>Spouse Rate</strong></td>
<td>- must accompany a full registration</td>
<td>US$ 395</td>
<td>US$ 495</td>
<td>US$ 595</td>
</tr>
</tbody>
</table>

**TRADE SHOW PASS**
Good for 3 days admission to exhibits only – February 19, 20, 21
- **US$ 50** **TOTAL TRADE SHOW PASS** **US$**

**INDUSTRY TOURS**
- Information To Come

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

- **TOTAL MEMBERSHIP DUES** **US$**

**CANCELLATION POLICY:** Cancellation of registration must be received - in writing - no later than January 15, 2024. 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 January 15, 2024 or for “no shows”. After January 15, 2024, 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 AQUACULTURE AMERICA 2024. For bank transfer details, contact us.

- **Check** # ___________________________ **Visa** **Mastercard** **American Express** **Discover** **Diners Club**
- **Card #** ___________________________ **Sec Code** ___________________________ **Expiration Date** ____________
- **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
   ❑ Aquacultural Engineering Society
   ❑ Aquaculture Association of Canada
   ❑ Aquaculture Association of South Africa
   ❑ Aquaculture Feed Industry Association
   ❑ Fish Culture Section - AFS
   ❑ Global Seafood Alliance
   ❑ National Aquaculture Association
   ❑ National Shellfisheries Association
   ❑ World Aquatic Veterinary Medical Association
   ❑ Zebrafish Husbandry Association

MEMBERSHIP APPLICATIONS   ❑ NEW APPLICATION   ❑ RENEWAL

NATIONAL AQUACULTURE ASSOCIATION (NAA)

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

Tel: +1-850-216-2400   Email: naa@thenaa.net   Web: thenaa.net

Individual Memberships: Individuals, growers, partnerships and corporations who engage in the practice of and who derive a portion of their income from aquaculture. Silver, Gold and Platinum members also derive income from aquaculture, but wish to increase their support of the NAA.

_____ Individual: $250   _____ Silver: $1,000 to $2,499
_____ Gold: $2,500 to $4,999   _____ Platinum: $5,000 and above

Total Amount for NAA Membership USD

Please enter this amount under “Membership Dues” section on opposite side of this form.

Fees for memberships are non-refundable.

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.

Total Amount for WAS Membership USD

Please enter this amount under “Membership Dues” section on opposite side of this form.

Fees for memberships are non-refundable.

For membership in other associations, please contact them directly.

If you need a phone number, contact the Conference Manager (+1-760-751-5005).
YOUR FULL CONFERENCE REGISTRATION INCLUDES:

❖ Only pre-registered attendees are guaranteed materials
❖ Admission to all sessions, seminars and the trade show.
❖ Admission to the President’s Reception.
❖ 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.

FOR MORE INFORMATION:
AQUACULTURE AMERICA 2024
Conference Manager
P.O. Box 2302 • Valley Center, CA 92082 USA
Fax: +1-760-751-5003 • worldaqua@was.org

INDUSTRY TOURS AND EXTRAS

TO BE ANNOUNCED

HOTELS
We have arranged a block of rooms with very special rates at San Antonio Marriott Rivercenter. Booking Information on website.
# TENTATIVE SCHEDULE

## Sunday, February 18
- **Registration Open**: 11:00am - 5:30pm
- **Exhibitor Move-in**: 11:00am - 6:00pm
- **Poster Set-up**: 1:00pm - 5:30pm

## Monday, February 19
- **Registration Open**: 7:30am - 5:00pm
- **Plenary Session**: 8:30am - 10:00am
- **Exhibitor Move-in**: 8:00am - 10:00am
- **Poster Set-up**: 8:00am - 10:00am
- **Refreshment Break**: 10:00am - 11:00am
- **Trade Show & Posters Open**: 10:00am - 6:00pm
- **Sessions**: 11:00am - 12:30pm
- **Lunch (On your own)**: 12:30pm - 1:30pm
- **Sessions**: 1:30pm - 4:30pm
- **Poster & Happy Hour**: 4:30pm - 5:30pm
- **President’s Reception**: 6:30pm - 9:00pm

## Tuesday, February 20
- **Registration Open**: 8:00am - 5:00pm
- **Sessions**: 8:30am - 10:00am
- **Refreshment Break**: 10:00am - 10:30am
- **Sessions**: 10:30am - 12:30pm
- **Trade Show & Posters Open**: 10:00am - 6:00pm
- **Lunch (On your own)**: 12:30pm - 1:30pm
- **Sessions**: 1:30pm - 5:00pm
- **Poster & Happy Hour**: 5:00pm - 6:00pm
- **NAA Auction**: 6:00pm - 8:00pm
- **Student Reception**: 7:30pm - 9:30pm

## Wednesday, February 21
- **Registration Open**: 8:00am - 3:00pm
- **Sessions**: 8:30am - 10:00am
- **Trade Show & Posters Open**: 10:00am - 1:30pm
- **Refreshment Break**: 10:00am - 11:00am
- **Sessions**: 11:00am - 12:30am
- **Lunch (On your own)**: 12:30pm - 1:30pm
- **Sessions**: 1:30pm - 3:00pm
- **Refreshment Break**: 3:00pm - 3:30pm
- **Sessions**: 3:30pm - 5:00pm
- **Closing Happy Hour**: 5:00pm - 6:00pm