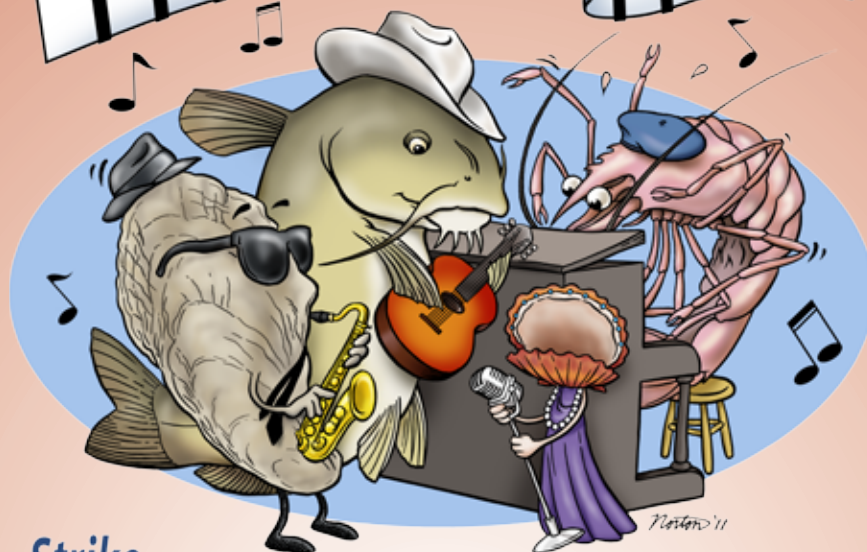


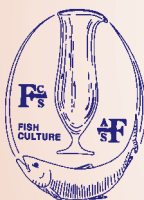
AQUACULTURE 2013



Strike
a Chord for Sustainable Aquaculture

February 21-25, 2013 • Nashville, Tennessee USA

Presented by . . .



WORLD
AQUACULTURE
Society



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NATIONAL
Aquaculture
ASSOCIATION



Associate Sponsors

American Tilapia Association
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Economics and Management

Latin American Chapter WAS
Striped Bass Growers Association
US Shrimp Farming Association
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World Aquatic Veterinary Medical Association
Zebrafish Husbandry Association



THE TRIENNIAL IS EVERY THREE YEARS!



AQUACULTURE 2013

Every three years, the Triennial is held somewhere in the United States. In 2013, the Triennial enters new territory in the exciting city of Nashville, Tennessee - the Music City!

THE TRIENNIAL IS THE LARGEST AQUACULTURE MEETING IN THE WORLD!

The Triennial is the largest aquaculture conference and tradeshow held in the world with nearly 4000 attendees from over 90 countries and even more countries are expected to have attendees at AQUACULTURE 2013. The Triennial combines the annual meetings of the Fish Culture Section of the American Fisheries Society, the World Aquaculture Society and the National Shellfisheries Association. In addition to the annual meetings of the main sponsors, look what else is happening at AQUACULTURE 2013!

- AQUACULTURE AMERICA - Annual Meeting of the U.S. Chapter of World Aquaculture Society, the National Aquaculture Association, and the U.S. Aquaculture Suppliers Association.
- Annual Meeting of the American Tilapia Association
- Annual Meeting of the Striped Bass Growers Association
- Annual Meeting of the U.S. Trout Farmers Association
- Special sessions organized by Aquacultural Engineering Society and International Association of Aquaculture Economics and Management
- Many other meetings of work groups, government agencies and related aquaculture activities
- Program with technical sessions and producer's seminars covering virtually all species grown by aquaculture
- AND - look at all of the Associate Sponsors on the cover who are participating in the program development!

The last Triennial was held in 2010 in San Diego where it was pronounced a huge success by the nearly 4000 people who attended. Don't miss this Triennial!

FOR MORE INFORMATION

AQUACULTURE 2013

Conference Management Office
P.O. Box 2302

Valley Center, CA 92082 USA
Questions: Tel: +1-760-751-5005

Fax: +1-760-751-5003

Email: worldaqua@aol.com

REGISTER EARLY AND \$AVE!



NASHVILLE - THE MUSIC CITY!

AQUACULTURE 2013 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, and entertainment sites in Nashville - a city of culture and history, of haute cuisine, natural beauty and pure Southern charm!

PLENARY: EDWARD ALISON GLOBAL CLIMATE CHANGE AND AQUACULTURE

EXPANDED PRODUCER PROGRAM

Aquaculture America is known for the high quality of its Producer Program organized by National Aquaculture Association. AQUACULTURE 2013 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.

Communications and Media
Aquatic Animal Health
National Animal Identification
Feed Safety
Aquatic Invasive Species
Marketing
Offshore Aquaculture
Environmental Issues
Start Up Aquaculture
Science and Public Policy
Federal Agency Town Hall Meeting

AQUACULTURE 2013: A CRITICAL TRADE SHOW FOR AQUACULTURISTS!

will have the largest aquaculture trade show in the Western Hemisphere and one of the largest anywhere in the world with over 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 2013 is the place to do it!

YOUR FULL CONFERENCE REGISTRATION INCLUDES:

- Admission to all sessions, seminars and the trade show
- Admission to the receptions
- Conference Bag, Abstract CD 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.

Only pre-registered attendees are guaranteed materials

TECHNICAL PROGRAM COVERS THE LATEST RESEARCH

The Triennial Sponsors 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. Sample topics will include:

Shrimp	Fish Physiology
Shrimp Nutrition	Larval Finfish
Shrimp Health & Disease	Eels
Shellfish Disease	Finfish Breeding, Genetics, Genomics
Finfish Disease	Striped Bass & Hybrids
Finfish Nutrition	Dermo
Shellfish Nutrition	Probiotics and feed additives
Marine Finfish	Therapeutic drugs
Aquaculture Engineering	Vibrio
Zebrafish	Biosecurity
Aquaponics	Probiotics in aquaculture
Tuna	Nutriceuticals
Open Ocean Aquaculture	Biotechnology
IMTA / Integrated Aquaculture	Stock Enhancement
Biofouling	Broodstock propagation and management
Conservation / Restoration	Fish transport
Aquaculture (fish and shellfish)	Hatchery technology
Disaster Relief	Recirculation technology
Sea Lice	Freshwater Pond Aquaculture
GMO Fish and Shellfish	Recreational and ornamental pond management
Consumer Perceptions of Farm-raised Seafood	Small scale aquaculture
History of Aquaculture	Urban aquaculture
Mussels	Artemia
Scallops	Harmful algal blooms
Oysters	Law and Policy
Clams	Aquaculture Without Frontiers
Abalone	Aquaculture education (including minority institutions)
Geoducks	Market driven aquaculture: developing and sustaining an industry
Pearl oysters	Aquaculture Economics
Freshwater mussels	Ecology & Environment
Tridacna	Policy & regulations
Shellfish genomics	Organic Aquaculture: Future Opportunities
Post harvest shellfish treatment	Certification
Sea Urchins	Endangered species
Macrobrachium	Frogs
Crustaceans	Water Quality & Effluents
Tilapia	Extension/Technology Transfer
Catfish	Feeds
Largemouth bass	Latin American and Caribbean Aquaculture
Sturgeon	Fish Oil
Gar, paddlefish and bowfin	
Percids	
Finfish genetics	
Pond fertilization and fish larvaeculture	
Ornamentals	
Mullet	

CALL FOR PAPERS – DEADLINE: August 31, 2012

AQUACULTURE 2013 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 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. AQUACULTURE 2013 cannot subsidize registration fees, travel or hotel costs.

No Abstract Book will be printed – a CD Abstract Book will be given to registered attendees.

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.

**ALL ABSTRACTS AND PRESENTATIONS
MUST BE IN ENGLISH**

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@csr.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 tolerance of low 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 and no information exists on their nutritional requirements and practical diet formulations. Many crustaceans require lecithin and cholesterol to be added to their diet, these two nutrients are usually found in fish oil; however, lecithin and cholesterol are very expensive. Since diet costs can be as much as 70% of the total expenses for an aquaculture enterprise, it is imperative that the least expensive diet be developed that meets the nutrient requirements of the species. The present study was conducted to determine if cholesterol 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 (mean initial weight of 0.2 g) red claw, each stocked in a 100 L plastic mesh culture units. Individual units were placed within fiberglass tanks, each containing a recirculating water line. Water was recirculated through mechanical and mechanical filters. Water temperature was maintained at 27-29°C and lighting was provided by overhead fluorescent ceiling lights on a 12-hour light:dark cycle. Ammonia, nitrite, nitrate, oxygen, temperature, alkalinity, chloride, 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.

1 inch margin (2.54 cm)

8.5 inches wide (21.6 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@aol.com or Fax: +1-760-751-5003



ATTENDEE REGISTRATION FORM

AQUACULTURE 2013

February 21-25, 2013 – Nashville, Tennessee

Return address for payments in USD:
AQUACULTURE 2013
Conference Manager
P.O. Box 2302
Valley Center, CA 92082 USA
Tel: +1 760 751 5005
Fax: +1 760 751 5003
Email: worldaqua@aol.com

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 January 11, 2013	Register by February 1, 2013	Register after February 1, 2013	<p>* To qualify for Member Rate you <u>must</u> complete the Association Memberships section on the reverse side.</p> <p>• • • • •</p> <p>Trade Show is <u>included</u> in the Full Conference Registration Rate.</p> <p>TOTAL REGISTRATION FEE</p> <p>US\$ _____</p>
FULL CONFERENCE & TRADE SHOW In order to receive the Pre-Registration discount rate, this form and payment must be received by the date above				
ASSOCIATION MEMBER RATE*	<input type="checkbox"/> US\$ 435	<input type="checkbox"/> US\$ 535	<input type="checkbox"/> US\$ 635	
STUDENT MEMBER RATE* Include copy of Student I.D.	<input type="checkbox"/> US\$ 225	<input type="checkbox"/> US\$ 225	<input type="checkbox"/> US\$ 290	
Non-Member Rate	<input type="checkbox"/> US\$ 530	<input type="checkbox"/> US\$ 630	<input type="checkbox"/> US\$ 730	
Student Non-Member Rate Include copy of Student I.D. You can join any of the groups on the reverse side and use the Member Rate.	<input type="checkbox"/> US\$ 295	<input type="checkbox"/> US\$ 295	<input type="checkbox"/> US\$ 365	
<input type="checkbox"/> Spouse Rate Name _____	<input type="checkbox"/> US\$ 335	<input type="checkbox"/> US\$ 395	<input type="checkbox"/> US\$ 495	

TRADE SHOW PASS

(Trade show pass is included with the Full Conference Registration)

Good for 3 days admission to exhibits only – February 22, 23, 24

☐ US\$ 50 **TOTAL TRADE SHOW PASS** US\$ _____

INDUSTRY TOURS – See website for current tour information

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

TOTAL MEMBERSHIP DUES US\$ _____

Do not mail registration after Feb. 4, 2013 or fax after Feb. 18, 2013.
After those dates, 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 February 11, 2013. 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 February 11, 2013 or for "no shows". After February 11, 2013, 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 2013**.

☐ Check # _____ ☐ Visa ☐ Mastercard ☐ American Express

Card # _____ Expiration Date _____

Name on Card _____ Date _____ Signature _____

For bank transfer details, contact us.

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.

- | | | |
|--|--|---|
| <input type="checkbox"/> American Tilapia Association | <input type="checkbox"/> Fish Culture Section - AFS | <input type="checkbox"/> Sociedad Brasileira de Acuicultura |
| <input type="checkbox"/> American Veterinary Medical Association | <input type="checkbox"/> Global Aquaculture Alliance | <input type="checkbox"/> Society of Aquaculture Professionals |
| <input type="checkbox"/> Aquacultural Engineering Society | <input type="checkbox"/> Indonesian Aquaculture Society | <input type="checkbox"/> South African Aquaculture Society |
| <input type="checkbox"/> Aquaculture Association of Canada | <input type="checkbox"/> International Association of Aquaculture Economics and Management | <input type="checkbox"/> Spanish Aquaculture Association |
| <input type="checkbox"/> Aquaculture Without Frontiers | <input type="checkbox"/> Korean Aquaculture Society | <input type="checkbox"/> Striped Bass Growers Association |
| <input type="checkbox"/> Asian Fisheries Society | <input type="checkbox"/> Latin American & Caribbean Chapter WAS | <input type="checkbox"/> US Marine Shrimp Farming Association |
| <input type="checkbox"/> California Aquaculture Association | <input type="checkbox"/> Malaysian Fisheries Society | <input type="checkbox"/> US Chapter of WAS (USAS) |
| <input type="checkbox"/> Catfish Farmers of America | <input type="checkbox"/> National Aquaculture Association | <input type="checkbox"/> US Trout Farmers Association |
| <input type="checkbox"/> China Society of Fisheries | <input type="checkbox"/> National Aquaculture Council | <input type="checkbox"/> World Aquaculture Society |
| <input type="checkbox"/> Egyptian Aquaculture Society | <input type="checkbox"/> National Shellfisheries Association | <input type="checkbox"/> World Aquatic Veterinary Medical Association |
| <input type="checkbox"/> European Aquaculture Society | | <input type="checkbox"/> Zebrafish Husbandry Association |

MEMBERSHIP APPLICATIONS

☐ NEW APPLICATION

☐ RENEWAL

NATIONAL SHELLFISHERIES ASSOCIATION

For details on the different types of memberships and options please contact the NSA office at:

Web: www.shellfish.org

MEMBERSHIP CATEGORY: (Indicate only one)

☐ **Regular** (USD 85/yr)

☐ **Student** (USD 45/yr)

Signature of Professor or copy of Student ID required _____

Total Amount for NSA Membership USD _____

Includes subscription to the *Journal of Shellfish Research*

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

FISH CULTURE SECTION OF AMERICAN FISHERIES SOCIETY

☐ **FCS Membership for Current AFS members** \$2.00

☐ **Affiliate FCS membership for non-AFS members** \$12.00

Pay your membership dues online at www.fisheries.org (to join the section as a current AFS member) or www.fishculturesection.org (to join as an affiliate member), or send a check to:

Alan Johnson • Iowa Department of Natural Resources • Rathbun Fish Culture Research Facility
15053 Hatchery Place • Moravia, IA 52571 • 641-647-2658 • alan.johnson@dnr.iowa.gov

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** (Printed JWAS) (USD 85/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 65/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 125/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 275/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
- ☐ **E membership** (USD 15/yr) Full access to the WAS website and Member's Area.
Printed publications not included. Cannot have been a regular member in the last five years.

CHAPTER OPTIONS:

(Must have active membership in one of the categories at left)
Please mark the Chapter you choose that is included in your dues above. You can join more chapters by adding USD 5 per extra chapter.
If you mark none, you can deduct USD 5.

- ☐ **Asian Pacific** (USD 5)
- ☐ **Japan** (USD 5)
- ☐ **Korea** (USD 5)
- ☐ **Latin American/Caribbean** (USD 5)
- ☐ **United States (USAS)** (USD 5)
- ☐ **None**

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.

NATIONAL AQUACULTURE ASSOCIATION (NAA)

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

Tel: +1-870-850-7900 Fax: +1-870-850-7902 Email: naa@thenaa.net Web: www.thenaa.net

For membership in other associations, please contact them directly.

If you need a phone number, contact the Conference Manager (+1-760-751-5005).

TRAVEL INFORMATION

HOTEL INFORMATION

The Renaissance Nashville Hotel is the conference hotel. It is connected to the Convention Center. We have arranged a block of rooms with very special rates at the Renaissance Nashville as well as some other hotels close to the Convention center. Please check the website for details on making reservations.

TRAVEL

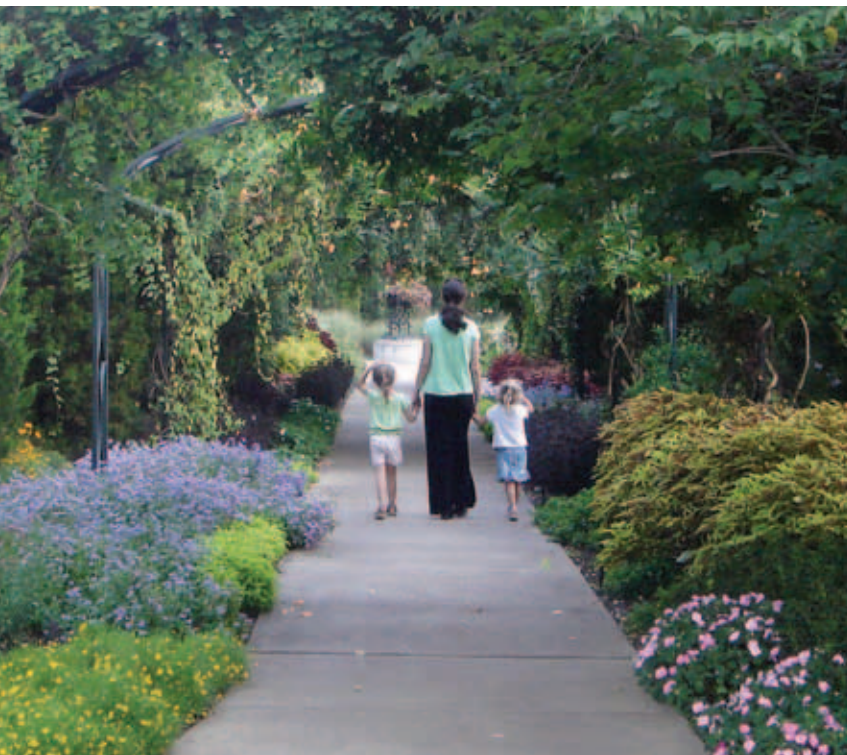
Special car rental fares also have been arranged with AVIS. You can make reservations at 800-331-1600 or +1-918-624-4338 and mention the special discount code# J770126.

Special airfares are available for travel within the U.S. to Nashville. For the best airfares, contact FLIGHT COORDINATORS for details at:

Tel: 1-800-544-3644 or +1-310-581-5600

Fax: +1-310-581-5620

Email: globaltc@gte.net



Stay in touch with the program
developments for

AQUACULTURE 2013

www.was.org



TENTATIVE SCHEDULE

Thursday, February 21

Registration Open & Exhibit Set-up..... 10:00 - 7:00
Welcome Reception 6:00 - 8:00

Friday, February 22

Registration Open..... 7:30 - 5:00
Opening Ceremonies & Plenary Session... 8:30 - 10:00
Refreshment Break 10:00 - 11:00
Sessions..... 11:00 - 12:30
Trade Show Open 10:00 - 6:00
Lunch (on your own) 12:30 - 1:30
Sessions..... 1:30 - 3:00
Refreshment Break 3:00 - 3:30
Sessions..... 3:30 - 5:30
Happy Hour & Posters..... 5:30 - 6:30
Student Reception 7:00 - 9:00

Saturday, February 23

Registration Open..... 7:30 - 5:00
Sessions..... 8:30 - 10:00
Trade Show Open 10:00 - 5:30
Refreshment Break 10:00 - 10:30
Sessions..... 10:30 - 12:30
Lunch (on your own) 12:30 - 1:30
Sessions..... 1:30 - 4:30
Happy Hour & Posters..... 4:30 - 5:30
NAA Auction..... 5:30 - 7:30

Sunday, February 24

Registration Open..... 7:30 - 5:00
Sessions..... 8:30 - 10:00
Trade Show Open 10:00 - 3:30
Refreshment Break 10:00 - 11:00
Sessions..... 11:00 - 12:30
Lunch (on your own) 12:30 - 1:30
Sessions..... 1:30 - 3:00
Refreshment Break 3:00 - 3:30
Sessions..... 3:30 - 5:30
Exhibit Move-out..... 3:30 - 7:00
Presidents Reception 6:30 - 9:30

Monday, February 25

Registration Open..... 8:00 - 5:00
Sessions..... 8:30 - 10:00
Refreshment Break 10:00 - 10:30
Sessions..... 10:30 - 12:30
Lunch (on your own) 12:30 - 1:30
Sessions..... 1:30 - 3:00
Refreshment Break 3:00 - 3:30
Sessions..... 3:30 - 5:30
Closing Happy Hour..... 5:30 - 6:30

