

# AQUACULTURE AMERICA 2014

*"Taking Aquaculture to New Heights Through  
Technology, Marketing, Collaboration"*

**February 9-12, 2014**

**Washington State Convention Center  
Seattle, Washington**

**THE NATIONAL CONFERENCE & EXPOSITION OF**

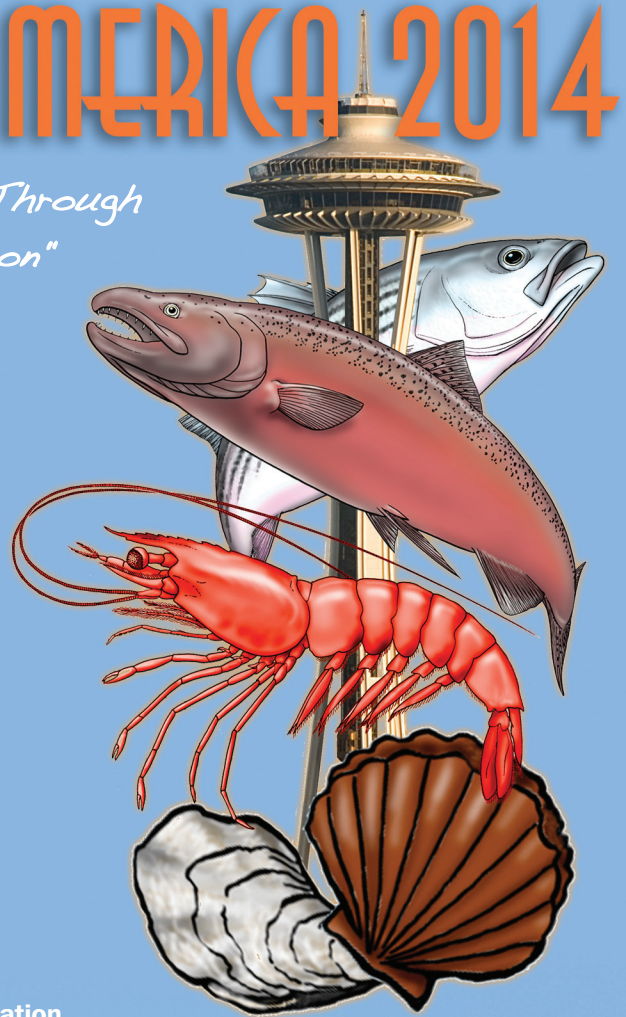


**NATIONAL  
Aquaculture  
ASSOCIATION**



## *Associate Sponsors*

American Tilapia Association | American Veterinary Medical Association  
Aquacultural Engineering Society | Aquaculture Association of Canada  
Catfish Farmers of America | Striped Bass Growers Association  
US Shrimp Farming Association | US Trout Farmers Association  
International Association of Aquaculture Economics and Management





# AQUACULTURE AMERICA RETURNS TO SEATTLE



AQUACULTURE AMERICA 2014 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 U.S. Aquaculture Suppliers Association to produce the annual Aquaculture America meetings.

These sponsors are joined by the annual meetings of Aquacultural Engineering Society, American Tilapia Association, Striped Bass Growers Association, US Trout Farmers Association, US Shrimp Farming Association and many more associations to make AQUACULTURE AMERICA 2014 the one meeting in the U.S. that you don't want to miss!

## BEYOND THE CONFERENCE

Come to Seattle for the conference and trade show and get all of Seattle's marvelous extras! Enjoy the many wonderful restaurants and night spots – visit the many world-class museums – fill your suitcases during shopping at a wide variety of great stores – visit the spectacles of the Cascade Mountains – cruise the Puget Sound – plan a ski holiday – take a side trip to Victoria or Vancouver, Canada! There is something for everyone to enjoy in and around Seattle!



## A CRITICAL TRADE SHOW FOR AQUACULTURISTS!

AQUACULTURE AMERICA 2014 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 2014 is the place to do it!





# EXPANDED PRODUCER PROGRAM

Aquaculture America is known for the high quality of its Producer Program organized by NAA. AQUACULTURE AMERICA 2014 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:

- 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 Updates

## TECHNICAL PROGRAM COVERS THE LATEST RESEARCH

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:

Best Management Practices	Quality Assurance/HACCP
Environmental Monitoring	Drugs/Therapeutics
Marine Cage Culture	Finfish Culture
Biotechnological Applications	Water Quality and Effluents
Extension/Technology Transfer	Ecological Interactions
Ornamentals	Genetics/Breeding
Computer Technologies	Yellow Perch & Walleye
Farm Production	Economics
Policy/Regulations	Health and Disease
Coldwater Fish Aquaculture	Northwest Aquaculture Issues
Feeds/Nutrition	Education Programs
Polyculture	Marketing and Promotion
Crustacean Culture	Engineering
Fisheries Enhancement	Mollusc Culture

## PLENARY



Patrick Sorgeloos will present the Plenary addressing the conference theme: *"Taking Aquaculture to New Heights Through Technology, Marketing, Collaboration"*

Marine biologist Patrick Sorgeloos (1948) is professor of aquaculture at Ghent University in Belgium and has been involved in fish and shellfish larviculture R&D in Europe, Asia, Latin America and Africa ever since the mid-seventies. So far, over 250 Master and 60 PhD alumni graduated at Ghent University in the field of aquaculture. Patrick is a strong promoter of international networking in aquaculture and was/is involved with the World Aquaculture Society (1999-2000 President), the European Commission (chairman Thematic Network Aquaculture – AquaTnet; member Advisory Group DG Research FP7 theme 2 "food, agriculture and biotechnology; chairman ASEM Aquaculture Platform) and the European Aquaculture Technology & Innovation Platform (board member). He received honorary awards in China, Ecuador, Egypt, Greece, Thailand, USA and Vietnam.



# CALL FOR PAPERS – DEADLINE: August 30, 2013

**AQUACULTURE AMERICA 2014 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 AMERICA 2014 cannot subsidize registration fees, travel or hotel costs.**

**Abstracts will be provided to attendees in a USB.**

## INSTRUCTIONS FOR PREPARATION OF ABSTRACTS

Expanded Abstract Format - Please refer to the sample.

- 1. ALL ABSTRACTS MUST BE IN ENGLISH.**
- 2. 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.
- 3. AUTHOR(S):** The first author's name should be the presenting author. Use \* after the presenting author. Type in upper/lower case.
- 4. ADDRESS AND EMAIL:** Type only the presenting author's institution, address and email. Type in upper/lower case.
- 5. MAXIMUM LENGTH:** One Page
- 6. PAGE SIZE:** Standard 8.5 x 11 inch paper (portrait)
- 7. MARGINS:** 1-inch margin throughout (left/right/top/bottom)
- 8. SPACING:** Single spaced
- 9. PARAGRAPHS:** Paragraphs should be separated by a blank line and should not be indented.
- 10. FONTS:** Character fonts should be 12 point type.
- 11. 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 Australian freshwater crayfish. However, because of its rapid growth rate, ease of spawning, wide tolerance for dissolved oxygen, 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 body 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 aeration, chemical 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)**

1 inch margin (2.54 cm)

1 inch margin (2.54 cm)

11 inches long (27.94 cm)

	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

	Diet			
	1	2	3	4
Final weight (g)	6.97a	6.00a	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

**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 AMERICA 2014**  
**February 9-12, 2014 – Seattle, Washington**

*Return address for payments in USD:*  
**AQUACULTURE AMERICA 2014**  
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](http://www.was.org) OR fax or mail both sides with payment. Use one form per person.

PLEASE PRINT CLEARLY OR TYPE ALL REQUESTED INFORMATION	
<b>BADGE INFORMATION:</b> (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 1st announcement for what is included in registration fees.

TYPE OF REGISTRATION FULL CONFERENCE & TRADE SHOW <small>In order to receive the Pre-Registration discount rate, this form and payment must be received by the date above</small>	Register by January 16, 2014	Register by January 30, 2014	Register after January 30, 2014	<b>* To qualify for Member Rate you <u>must</u> complete the Association Memberships section on the reverse side.</b>  • • • • • <b>Trade Show is <u>included</u> in the Full Conference Registration Rate.</b>  <b>TOTAL REGISTRATION FEE</b> <b>US\$ _____</b>
<b>ASSOCIATION MEMBER RATE*</b>	<input type="checkbox"/> US\$ 435	<input type="checkbox"/> US\$ 535	<input type="checkbox"/> US\$ 635	
<b>STUDENT MEMBER RATE*</b> <small>Include copy of Student I.D.</small>	<input type="checkbox"/> US\$ 225	<input type="checkbox"/> US\$ 225	<input type="checkbox"/> US\$ 290	
<b>Non-Member Rate</b>	<input type="checkbox"/> US\$ 530	<input type="checkbox"/> US\$ 630	<input type="checkbox"/> US\$ 730	
<b>Student Non-Member Rate</b> <small>Include copy of Student I.D. You can join WAS on the reverse side and use the Member Rate.</small>	<input type="checkbox"/> US\$ 295	<input type="checkbox"/> US\$ 295	<input type="checkbox"/> US\$ 365	
<input type="checkbox"/> <b>Spouse Rate</b> – must accompany a full registration Name _____	<input type="checkbox"/> US\$ 335	<input type="checkbox"/> US\$ 395	<input type="checkbox"/> US\$ 495	
<b>TRADE SHOW PASS</b> <small>Good for 3 days admission to exhibits only – Feb. 10, 11, 12</small>				
			<input type="checkbox"/> US\$ 50	<b>TOTAL TRADE SHOW PASS* US\$ _____</b>
<b>INDUSTRY TOURS</b> – To be announced later.				
<b>MEMBERSHIP DUES</b> – Enter amount from Membership Application on other side if applicable.			<b>TOTAL MEMBERSHIP DUES US\$ _____</b>	
<b>Do not mail registration after January 23, 2014 or fax after Feb. 4.</b> <b>After Feb. 4, bring this form with you to register at the show.</b>			<b>➔ TOTAL AMOUNT US\$ _____</b>	

**Registration Confirmation and Receipt will be emailed after processing.**

**CANCELLATION POLICY:** Cancellation of registration must be received - in writing - no later than January 18, 2014. 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 18, 2014 or for "no shows". After January 18, 2014, 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 2014**.

☐ Check # \_\_\_\_\_ ☐ Visa ☐ Mastercard ☐ American Express Security Code \_\_\_\_\_

Card # \_\_\_\_\_ Expiration Date \_\_\_\_\_ Name on Card \_\_\_\_\_

For bank transfer details, contact us. Date \_\_\_\_\_ Signature \_\_\_\_\_



## 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 AQUACULTURE ASSOCIATION (NAA)

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

**Tel: +1-304-728-2167 Fax: +1-304-728-2196 Email: [naa@frontiernet.net](mailto:naa@frontiernet.net)**

Individual Memberships: Individuals, growers, partnerships and corporations who engage in the practice of and who derive a portion of their income from aquaculture. Individual members nominate and elect four board members for three-year terms.

\_\_\_\_\_ Individual: \$250

\_\_\_\_\_ Silver: \$1,000 to \$2,499

\_\_\_\_\_ Gold: \$2,500 to \$4,999

\_\_\_\_\_ Platinum: \$5,000 and above

For membership information on State Associations and Species Associations, call for details.

Web: [www.nationalaquaculture.org](http://www.nationalaquaculture.org)

**Total Amount for NAA Membership USD \_\_\_\_\_**

*Fees for memberships are non-refundable.*

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

## 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 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

### CHAPTER OPTIONS:

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

- ☐ **Asian Pacific**
- ☐ **Japan**
- ☐ **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. Details to be provided later.

## TRAVEL

Special car rental fares 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.

## HOTELS

We have arranged some great hotels at very good rates! See the conference website for details.

## YOUR FULL CONFERENCE REGISTRATION INCLUDES:

- Admission to all sessions and the trade show.
- Admission to the President's Reception.
- Conference Bag, Abstract USB 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.

Stay in touch with the program developments for

# AQUACULTURE AMERICA 2014

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

photo by Tim Thompson





# TENTATIVE SCHEDULE

## Sunday, February 9

Registration Open	11:00am - 5:30pm
Exhibitor Move-in	11:00am - 6:00pm
Poster Set-up	1:00pm - 5:30pm

## Monday, February 10

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 - 3:00pm
Refreshment Break	3:00pm - 3:30pm
Sessions	3:30pm - 5:00pm
Happy Hour	5:00pm - 6:00pm
Presidents Reception	6:00pm - 9:00pm

## Tuesday, February 11

Registration Open	7:30am - 5:00pm
Sessions	8:30am - 10:00pm
Refreshment Break	10:00am - 10:30am
Sessions	10:30pm - 12:30pm
Trade Show	10:00am - 6:00pm
Lunch (On your own)	12:30pm - 1:30pm
Sessions	1:30pm - 4:30pm
Poster Session	4:30pm - 6:00pm
Happy Hour	4:30pm - 6:00pm
NAA Auction	6:00pm - 8:00pm
Student Reception	7:00pm - 9:00pm

## Wednesday, February 12

Registration Open	8:00am - 3:00pm
Sessions	8:30am - 10:00am
Trade Show	10:00am - 4:00pm
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
Exhibitor Move-out	3:30pm - 7:00pm
Sessions	3:30pm - 5:30pm
Closing Happy Hour	5:30pm - 6:30pm

