



AUGUST 15-18, 2022

ST. JOHN'S, NEWFOUNDLAND AND LABRADOR, CANADA



ST. JOHN'S CONVENTION CENTRE

AQUACULTURE CANADA AND WAS NORTH AMERICA 2022







Details coming soon to the following websites: aquacultureassociation.ca | was.org | naia.ca



Aquaculture Canada WAS North America



St. John's, Newfoundland and Labrador, Canada



The World Aquaculture Society (WAS), Aquaculture Association of Canada (AAC) and Newfoundland Aquaculture Industry Association (NAIA) are excited to co-host this world class, international event; surely to be the largest aquaculture conference and trade show in Canadian history.

The conference will feature hundreds of worldclass speakers and delegates from around the globe on the science, technology, business and social aspects of aquaculture. St. John's is located on the most eastern edge of North America, is Canada's oldest European settlement, and the region is home to some of the **most ecologically interesting** areas in the World. Nearby UNESCO heritage sites and wildlife and nature conservancies make for exciting daily excursions. Historic and archival locations (one of the 4 corners of the Earth, Viking Settlements, etc.) are within 2 day excursions. This city, famous for its hospitality, music and culinary experiences is a quick trip across the Atlantic from Europe, and easily accessible from all other parts of North America, and the globe, by air. St. John's is also home to internationally recognized centres in aquaculture and fisheries science, with Memorial University's Fisheries and Marine Institute and Faculty of Science leading the way.

Aquaculture Canada and WAS North America 2022 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 that St. John's and Newfoundland and Labrador have to offer.

We look forward to showcasing St. John's and the surrounding area to delegates.

A CRITICAL TRADE SHOW FOR AQUACULTURISTS!

With 100 booths, Aquaculture Canada and WAS North America 2022 will have the largest aquaculture trade show in Canada! This is your opportunity to see the latest in products and services for the aquaculture industry. It is the place to visit current suppliers and make new contacts. To grow your business and keep pace with the technological advancements in the industry – this is the time and place to do it!

George Street Photo: Michel Rathwell, Flickr

SOCIAL EVENTS

The program will include engaging and exciting social and networking events to enhance your experience and business opportunities. Meet old friends and new acquaintances, relax and enjoy yourself in the best of hospitality and entertainment that Newfoundland and Labrador. and St. John's have to offer. Events being planned include the Welcome Reception to open the conference, the AAC annual Dr. Joe Brown BBQ in support of aquaculture students, a Newfoundland Kitchen Party, and finally a evening Gala dinner.

Details and costs of these events to be confirmed soon.



TECHNICAL PROGRAM COVERS THE LATEST RESEARCH

The Aquaculture Canada and WAS North America 2022 program committee is building an extensive technical program featuring special sessions, and various symposia and workshops on all of the species and issues facing aquaculturists around the world. Sample topics will include:

Special Topics

Cleaner Fish Fish Welfare Aquaculture Monitoring Technologies Aquaculture Biotechnology Fish and Shellfish Physiology **Recirculating Aquaculture** Systems Mussel and Oyster Culture Sea Lice: Control and Mitigation Public Perception and Trust Indigenous Partnerships / Engagement Law, Regulations and Policy Human Resource Challenges Marine Safety / Regulatory Requirements Communications and Advocacy Municipal Leader Forum Governmental Town Hall CEO's Workshop **Culinary Sesson** Women in Aquaculture Innocvation Norway: Global Growth and the 'Blue Planet' Biorefining / Bioprocessing / Valuization Material Management, Processing and Utilization Aquaculture Services -'Show and Tell' Product Traceability and Food Safetv Aquaculture in an Era of Climate Change edna Wild-Culture: Ecological Interactions Wild Culture: Genetic Interactions

Harmful Algal Blooms

The Integration of Offshore Ocean Aquaculture with Renewable and Non-Renewable Resources Environmental Impact Monitoring Modelling in Support of Aquaculture Ecosystem Management Aquatic Invasive Species

Crustaceans

Shrimp Culture Shrimp Nutrition Shrimp Health & Disease Macrobrachium Other Crustaceans

Finfish

Salmonids Tuna Flatfish Freshwater Finfish (e.g. tilapia, catfish, bass, percids etc.) Marine Finfish Larval Fish Culture Zebrafish Other Speices

Shellfish

Scallops Oysters Clams Mussels Other Shellfish

Other Species

Algae / Seaweeds Sea Urchins Sea Cucumbers Ornamentals Endangered Species

Nutrition

Finfish Nutrition Shellfish Nutrition Feeds and Feedstuffs Live Feed (incl. copepod culture) Nutraceuticals, Probiotics and Clinical Diets Incorporating Plant-Based Ingredients Alternative Feed Ingredients Feed Management and Safety

Aquatic Animal Health and Disease

Parasites Bacterial Diseases Viral Diseases Biosecurity Epidemiology Vaccines Therapeutants and Other Treatments

Production Systems

Open Ocean (Offshore) Aquaculture IMTA / Integrated Aquaculture Freshwater Pond Aquaculture Small Scale Aquaculture and Aquaponics Urban Aquaculture Hatchery Technology Larval Culture / Production

Aquaculture Engineering

usse

Water Quality & Effluents Recreational and Ornamental Pond Management Biofloc Technologies and Applications Fish Transport Cage Design and Mooring Systems Land-Based Aquaculture

Genetics and Reproduction

Fish Reproduction Broodstock Culture, Selection and Management Shrimp, Finfish and Shellfish Breeding: Genetics Genetic Engineering

Economics and Marketing

Market Driven Aquaculture: Developing and Sustaining an Industry Aquaculture Economics Organic Aquaculture: Future Opportunities Certification Risk Management

Global Aquaculture

Latin American and Caribbean Aquaculture Aquaculture in Asia / Pacific Aquaculture in India Aquaculture in Africa



TENTATIVE SCHEDULE

Monday, August 15

Registration Open	11:00 - 17:30
Exhibitor Move-in	
Poster Set-up	13:00 - 17:30
Opening Reception	

Tuesday, August 16

Registration Open	7:30 - 17:00
Exhibitor Move-in	8:00 - 10:00
Poster Set-up	8:00 - 10:00
Conference Welcome	8:30 - 9:10
Plenary Session	9:10 - 10:10
Refreshment Break	10:10 - 10:50
Trade Show & Posters Open	10:00 - 18:00
Sessions	10:50 - 12:50
Lunch (On your own)	12:50 - 14:00
Sessions	14:00 - 17:00
Happy Hour & Posters	17:00 - 18:00
Joe Brown BBQ/Live Auction	

Wednesday, August 17

Registration Open	8:00 - 17:00
Plenary Session	8:30 - 9:30
Trade Show	9:30 - 18:00
Refreshment Break	9:30 - 10:10
Sessions	10:10 - 12:30
Lunch (On your own)	12:30 - 13:40
Sessions	13:40 - 17:00
Happy Hour & Posters	17:00 - 18:00
NL Kitchen Party 2020	19:00 - 22:00

Thursday, August 18

Registration Open	8:00 - 15:00
Plenary Session	8:30 - 9:30
Trade Show	9:30 - 12:30
Refreshment Break	9:30 - 10:10
Sessions	10:10 - 12:30
Lunch (On your own)	12:30 - 13:30
Exhibitor Move-out	12:30 - 16:00
Sessions	
Refreshment Break	14:50 - 15:20
Sessions	15:20 - 17:00
Gala Reception	
Gala Dinner	



The Battery neighbourhood with Signal Hill in the background. Photo: Michel Rathwell, Flickr

CALL FOR PAPERS - DEADLINE: March 15, 2022

Aquaculture Canada and WAS North America 2022 encourage the submission of both high quality oral and poster presentations. All abstracts must be in English – the official language of the conference.

Oral presentations will be 20 minutes. Authors of studies involving proprietary products or formulations should present this information in workshops or the trade show. Oral presentations will be restricted to the use of 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 Canada and WAS North America 2022 cannot subsidize registration fees, travel or hotel costs.

No Abstract Book will be printed – The Abstract Book will be available online.



Colourful downtown St. John's. Photo: Michel Rathwell, Flickr

ATTENDEE REGISTRATION FORM

Aquaculture Canada and WAS North America 2022

August 15-18, 2022 - St. John's, Newfoundland, Canada

Online registration is preferred at www.was.org (click on the Aquaculture Canada and WAS North America 2022 logo)

PLEASE PRINT CLEARLY OR TYPE ALL REQUESTED INFORMATION

BADGE INFORMATION: (As you want your name badge to read – No titles, please - Limited to 40 Letters & Spaces)

First Name ______Surname (Family Name)_____

Company or Institution _____

CONTACT INFORMATION: Email _____

Postal Address							
City/State	Prov	Postal Code	Cou	ntry_			
Phone	Fax	Title: (circl	e one)	Dr.	Mr.	Ms.	

(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 FULL CONFERENCE & TRADE SHOW	Register by June 30, 2022	Register after June 30, 2022	Trade Show is included in the Full Conference
In order to receive the Pre-Registration discount rate,	Registration Rate		
MEMBER RATE* STUDENT MEMBER RATE* Include Student I.D.	□ CND \$500 □ CND \$250	□ CND \$600 □ CND \$300	To qualify for Member Rate, you must complete the
Non-Member Rate Student Non-Member Rate Include Student I.D.	□ CND \$600 □ CND \$300	□ CND \$700 □ CND \$350	Association Memberships section on the reverse side.
Spousal Rate (must accompany full reg.) Name	□ CND \$250	□ CND \$300	TOTAL REGISTRATION FEE CND\$
TRADE SHOW PASS (if not a full conference regin Good for 3 days admission to exhibits only – A	-	TOTAL TRADE SHOW PA	.SS CND\$
DR. JOE BROWN BBQ (in aid of AAC Student Er	dowment Fund) Aug. 16 (Lt	d. # Tickets Avail) CND\$40 1	OTAL BBQ CND\$
Registration fees include tickets to the Kitche Gala Dinner (Aug. 18). Please indicate by chec		ding.	☐ Kitchen Party ☐ Gala Dinner
MEMBERSHIP DUES: Enter amount from Mem	bership Application on o	ther side if applicable.	TOTAL MEMBERSHIP DUES CND\$
Please do not mail registration after July 15, 2 After these dates bring this form with you to			TOTAL AMOUNT CND\$
Registration Confir	mation and Receipt will	be e-mailed after processi	ng.

CANCELLATION POLICY: Cancellation of registration must be received - in writing - no later than July 24, 2022. 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 July 24, 2022 or for "no shows". After July 24, 2022, 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 ACWNA 2022.

Cheq Visa Mastercard American Express Discover Diner's Club

Card	Expiration Date	Sec. Code	For bank transfer details,
Name on Card	Date	_Signature	contact us.

Address for payments in CND: ACWNA 2022 PO Box 1031, Torbay, NL A1K 1A0 Tel: +1 760 751 5005 Fax: +1 760 751 5003 Email: worldaqua@was.org Email: jmburry@nl.rogers.com

Mrs.

ASSOCIATION MEMBERSHIPS: Please check all boxes for associations for which you are a current member. Membership in any of these associations qualifies you for Member Rate* Registration Fees. You can join an association at any time before registering to qualify for Member Rate.

 African Chapter of WAS Americas Tilapia Alliance American Veterinary Medical Association AQUABIO Aquacultural Engineering Society Aquaculture Association of Canada Aquaculture Association of South Africa Aquaculture Feed Industry Association Aquaculture Without Frontiers Asian Fisheries Society 	 Egyptian Aquaculture Society European Aquaculture Society Fish Culture Section - AFS 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 National Aquaculture Association National Shellfisheries Association 	 Newfoundland Aquaculture Industry Association Sociedad Brasileira de Acuicultura Society of Aquaculture Professionals (India) South African Aquaculture Society Spanish Aquaculture Association (SEA) Striped Bass Growers Association US Trout Farmers Association World Aquaculture Society World Aquatic Veterinary Medical Association
☐ Asian Fisheries Society ☐ China Society of Fisheries	□ National Shellfisheries Association	Association Zebrafish Husbandry Association

MEMBERSHIP APPLICATIONS NEW APPLICATION RENEWAL

AQUACULTURE ASSOCIATION OF CANADA Web: http://aquacultureassociation.ca/join-us/

MEMBERSHIP CATEGORY: (Indicate only one)

□ Organizational (CND \$300/yr) □ Student (CND \$50/yr)

□ Individual (CND \$100/yr)

Retired (CND \$50/yr) *Signature of Professor or copy of Student ID required* section on opposite side of this form.

Total Amount for AAC Membership CND \$ _____ Please enter this amount under "Membership Dues"

NEWFOUNDLAND AQUACULTURE INDUSTRY ASSOCIATION Web: www.naia.ca | Email: Roberta@naia.ca

 REGULAR MEMBER: Voting membership is open to individuals representing an aquaculture enterprise that holds a valid aquaculture license in NL, (Price TBD).
 ASSOCIATE MEMBER: New voting individual membership for

ASSOCIATE MEMBER: Non-voting individual membership for suppliers, industry supporters and enterprises (CND\$500/YR)

Total Amount for NAIA Membership CND \$_____

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

WORLD AQUACULTURE SOCIETY

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 | Web: www.was.org

MEMBERSHIP CATEGORY: (Indicate only one)

□ Individual (Electronic JWAS) CND \$84.5/yr) Applies to an individual only

 \Box Individual (E Access) (CND \$58.5/yr) Applies to an individual only

Student (Electronic JWAS) (CND \$58.5/yr) (Copy of Student ID or Signature of Professor required)

 \Box Sustaining (Electronic JWAS) (CND \$136.5/yr) Applies to any one individual from a company

Corporate (Electronic JWAS) (CND \$331.5/yr) Allows all employees of one company to attend meeting at Member Rate

 \Box Lifetime (Electronic JWAS only) (CND \$1300 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/Carribean

□ United States (USAS) □ None (CND \$6.5)

You can add extra Chapters for CND \$8.45

Total Amount for WAS Membership CND\$ _____ Please enter this amount under "Membership Dues" section on opposite side of this form. Fees for memberships are non-refundable.

HOTELS

We have arranged for fantastic rates at various hotels in the downtown St. John's area, including the host hotel Delta St. John's. Please visit the conference website for details.

LOCAL AQUACULTURE FACILITY TOURS:

Please note that we will not be arranging tours. If you wish to tour one of the local facilities please contact the appropriate person below.

Ocean Sciences Centre:

Danielle Nichols, Research Marketing Manager/Program Coordinator, Department of Ocean Sciences, Memorial University. Email: dnichols@mun.ca

Marine Institute:

Heather Burke Director, Centre for Aquaculture and Seafood, Email: heather.burke@mi.mun.ca

FULL CONFERENCE REGISTRATION INCLUDES:

Admission to all conference sessions and the trade show

Admission to the Opening Reception

Admission to Kitchen Party

Admission to Gala Dinner

Conference Bag and Show Directory

Refreshment Breaks and Happy Hour

Students receive the full registration package. To qualify for the student rate, a copy of your student I.D. is required.

Only pre-registered attendees are guaranteed materials.

FOR MORE

Aquaculture Canada and WAS North America 2022 Conference Management PO Box 1031, Torbay, NL, Canada A1K 1AO Tel: +1-760-751-5005 Fax: +1-760-751-5003 Email: jmburry@nl.rogers.com OR worldaqua@was.org REGISTER EARLY AND \$AVE!

Ocean Sciences Centre

INSTRUCTIONS FOR PREPARATION OF ABSTRACTS

Abstract Submission Deadline March 15, 2022

Expanded Abstract Format - Please refer to the sample.

- 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.



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 Frank- fort, KY 40601 Imuzinic@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 temperature 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 inves- tigated as an aquaculture species in this country and very little information exists on their putritional requirements and practical diet formulations. Since diet costs can be as much as 20% of the operating expenses for an aquaculture enterprise, it is imperative that the least 50% of the operating expenses for an aquaculture requirements of the species. The present study was conducted in a recir- culating system with newly-hatched juvenile (mean individual plastic mesh culture units. Individual units were contained within fiberglass tanks, each containing an individual water line. Water was recirculated through biological and mechanical filters. Water temperature was maintained at 27-29°C and lighting was provided by overhead fluorescent celling lights on a 14:10 box		1 inch margin (2.54 cm)								
Carl D. Webster, Lukas Manomaitis, and David B. Rouse Aquaculture Research Center Kentucky State University Frank- fort, KY 40601 Imuzinic@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 temperature 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 inves- tigated as an aquaculture species in this country and very little information exists on their hutritional requirements and practical diet formulations. Since many crustaceans require tecithin 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 70% of the operating expenses for an aquaculture enterprise, it is imperative that the least to a practical diet for red claw crayfish. An 8-week feeding trial was conducted in a recir- culating system with newly-hatched juvenile (mean individual weight of 0.2 g) red claw, each stocked in individual plastic mesh culture units. Individual units were contained within fiberglass tanks, each containing an individual water line. Water temperature biological and mechanical filters. Water temperature was maintained at 27-29°C and lighting was provided by overhead fluorescent ceiling lights on a 14:10 hour lightchark cycle. Ammonia, nitric, dissolved oxyeen.	Cherax quadr	icarinatus FED PRACTICAL DIET	'S WITH A	ND W	ITHO					
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was to examine the effects of growth performance of newly-hatched juvenile red claw when fed four practical	practical diets include meal, shrimp meal, w	ed menhaden fish meal, soybean rheat flour, vitamin and mineral	Panal weight (g Weight pain (% SOB: (%)fey) Burntnal (%)	6.974 0.3384a 5.746 78.0	1.66 4	444	5.119 2454a 5.41a 80.0			
newly-hatched juvenile red claw when fed four practical diets with or without cholesterol and lecithin. Other practical diets included menhaden fish meal, soybean		w crayfish fed a practical diet witho er final weight, percentage weight g fed all other diets (Table 2). These 1	ain, and spe	ecific g	growth 1	rate	(SGR)			

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

(click on the Aquaculture Canada and WAS North America 2022 logo)

If you are unable to submit your abstract online, contact the Conference Manager for alternative methods at: worldaqua@was.org or Fax: +1-760-751-5003