Aquaculture 2022

Come one, Come all, for Aquaculture Large and Small



February 28 - March 4, 2022 Town and Country Resort & Conference Center San Diego, California









CO-SPONSORS



Hosted By: California Aquaculture Association



ASSOCIATE SPONSORS

Aquacultural Engineering Society Aquaculture Association of Canada Aquaculture Feed Industry Association Catfish Farmers of America Global Aquaculture Alliance International Association of Aquaculture
Economics and Management
Latin America & Caribbean Chapter WA
US Trout Farmers Association
World Aquatic Veterinary Medical Association
Zebrafish Husbandry Association



Aquaculture 2022

Every three years, the Triennial is held somewhere in the United States. In 2022, the Triennial returns to sunny San Diego – one of America's favorite cities.

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 4,000 attendees from over 90 countries and even more countries are expected to have attendees at AQUACULTURE 2022. The Triennial combines the annual meetings of the Fish Culture Section of the American Fisheries Society, World Aquaculture Society, National Shellfisheries Association, and the National Aquaculture Association. In addition to the annual meetings of the main sponsors, look what else is happening at AQUACULTURE 2022!

- AQUACULTURE AMERICA Annual Meeting of USAS, the U.S. Chapter of World Aquaculture Society and the Aquaculture Suppliers 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 working groups, government agencies and related aquaculture activities
- Program with technical sessions and producers seminars covering virtually all species grown in 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 2019 in New Orleans where it was pronounced a huge success by over 3,000 people who attended. Don't miss this Triennial!

FOR MORE INFORMATION

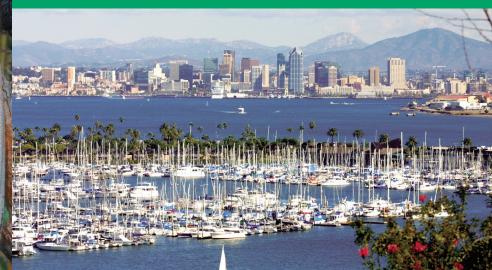
Aquaculture 2022

Conference Management Office
P.O. Box 2302

Valley Center, CA 92082 USA

Questions: Tel: +1-760-751-5005 Fax: +1-760-751-5003

worldagua@was.org



Plenary Speaker

How Sustainable Is Aquaculture?

Prof. Roz Naylor, Stanford University Aquaculture 22: World Aquaculture Society Meeting San Diego, CA: March 1, 2022



Prof. Roz Naylor will discuss her professional and personal journey in assessing the sustainability of aquaculture over the past two decades. Her comments will reflect insights from two reviews on aquaculture published in Nature, the first in 2000 ("The effect of aquaculture on world fish supplies") and the second in 2021 ("A 20-year retrospective review of global aquaculture). She will discuss the important role of professional collaborations as well as her work on aquatic foods as part of

the global food system in shaping her views. The talk will explore major areas of achievement as well as persistent challenges along the path toward a sustainable aquaculture sector.

Rosamond (Roz) Naylor is the William Wrigley Professor of Earth System Science, Professor (by courtesy) in Economics, and founding Director of the Center on Food Security and the Environment at Stanford University. She received her PhD from Stanford University in applied economics, her MSc in economics from the London School of Economics, and her dual BA degrees in economics and environmental science from the University of Colorado. Her research focuses on policies and practices to improve global food security and protect the environment on land and at sea. She and her students have been involved in field-level research worldwide, and she has published widely on issues related to aquaculture, global food systems, and food policy. She currently co-chairs The Blue Food Assessment, an international initiative aimed at providing a comprehensive scientific evaluation of the sustainability, nutrition, equity, and justice dimensions of aquatic foods cultured and captured in freshwater and marine environments within the global food system. She is a Fellow of the Ecological Society of America, a Pew Marine Fellow, and a Leopold Leadership Fellow. She is also the President of the Board of Directors for Aspen Global Change Institute and a member of the Scientific Advisory Committee for Oceana.

Sessions By Day

Tuesday, March 1

Tuesday, March 1	
Plenary	8:30 AM - 10:00 AM
Spotlight Talks	11:00 AM - 12:30 PM
Aquatic Veterinary Medicine	11:00 AM - 12:30 PM
Shrimp Nutrition	
Mussels	11:00 AM - 12:30 PM
PITIFC-VI – Day 1	11:00 AM - 5:00 PM
RAS	11:00 AM - 5:00 PM
Zebrafish - Day 1	11:00 AM - 5:00 PM
ONE HEALTH Epigenomes and	
Microbiomes: From Soil to People	11:00 AM - 5:00 PM
Down on the Farm	11:00 AM - 5:00 PM
Macroalgae Aquaculture - Supporting	
an Emerging Industry	11:00 AM - 5:00 PM
International Association of Aquaculture	
Economics and Management	
- Economics and Markets - Day 1	11:00 AM - 5:00 PM
Federal Actions Supporting U.S. Aquaculture	
Workshop on Presentation Preparation/Graphics	
Art of Science Presentation	
Fish Health - Contributed	
Catfish	
Clams - Contributed	1:30 PM - 5:00 PM
Wednesday, March	2
Flatfish	
Optimizing Ecosystem Services Associated	
with Shellfish Aquaculture	8:30 AM - 10:00 AM
Larval Nutrition of Finfish	8:30 AM - 12:30 PM

Sessions By Day Wednesday continued

International Association of Aquaculture
Economics and Management – Economics and Markets – Day 2
Drug Updates and Indexing
PITIFC-VC – Day 2
The Shrimp Genome & Epigenome (ShrimpENCODE) Project8:30 AM - 5:00 PM
Zebrafish - Day 2 8:30 AM - 5:00 PM
Aquaponics - Special Session 8:30 AM - 5:00 PM
Offshore Aquaculture
Will Do Another Grants Panel 8:30 AM - 5:00 PM
Life Support Systems10:30 AM - 12:30 PM
Shellfish Genetics and Genomics
Expanding the Horizons of Aquaculture
Through Culture of Emerging Species:
A Status Report
USDA Deep Dive
Workforce Development
Thursday, March 3
US Marine Finfish Aquaculture 8:30 AM - 10:00 AM
Regional Shellfish Seed Biosecurity
Program (RSSBP)
Wild Culture Interactions: Ecological and Genetic 8:30 AM – 10:00 AM
Alternative Protein for Seafood Production Systems . 8:30 AM – 12:30 PM
StriperHub
Policy & Regulatory - Contributed
US Trout Farmers Association Trout Forum
Value of Veterinary Services 8:30 AM - 12:30 PM
Olympia Oysters8:30 AM – 3:00 PM Shrimp Health and Disease in Honor of
Don Lightner 8:30 AM – 5:30 PM
Social License and Perceptions of Aquaculture11:00 AM - 3:00 PM
Shellfish Disease11:00 AM – 5:30 PM California's Aquaculture Journey: Where We've
Traveled / Where We're Headed11:00 AM - 5:30 PM
Germplasm Repositories 1:30 PM - 3:00 PM
Finfish Biology - Contributed
AES Session
Utilizing Veterinarians for Bottom Line
Aquaculture Regulations: Navigating Cost,
Complexity and Consequences
Oysters - Contributed
The Seafood Service Sector and Aquaculture:
A Panel on Perceptions and Purchasing 3:30 PM - 5:30 PM Getting it Right: A Guide to Successful
Supplementation for Recreation, Restoration,
and Recovery 3:30 PM - 5:30 PM
Friday, March 4
Vibrio (Human Health)8:30 AM - 10:00 AM
Finfish Genetics8:30 AM – 10:00 AM East Coast Shellfish Restoration and Conservation 8:30 AM – 12:30 PM
Shrimp and Other Crustaceans - Contributed 8:30 AM - 12:30 PM
Scallops 8:30 AM - 12:30 PM
Genetic Engineering
Aquaculture Opportunity Areas - Updates
Fish Nutrition and Feeds - Contributed8:30 AM - 5:00 PM
Parasites of Shrimp and Fish8:30 AM – 5:00 PM
Aquaponics - Freshwater
Vibriosis in Aquaculture
Tilapia
Ecology and the Environment - Contributed1:30 PM - 3:00 PM Abalone1:30 PM - 5:00 PM
Harmful Algal Blooms (Others and Cyanobacteria)1:30 PM - 5:00 PM
Marine Protected Resources Risk Mitigation
Techniques1:30 PM - 5:00 PM Aquaculture for Ecosystem Outcomes1:30 PM - 5:00 PM
Aquaculture 1011:30 PM = 5:00 PM Aquaculture 101
Aquaculture - General Contributed
Climate Change in Aquaculture - Panel Discussion 3:30 PM - 5:00 PM

Aquaculture 2022

Sessions by Day

5:00 - 6:00										Closing Happy Hour			5:00 - 6:00	5:0
6 units 5:00		Mitigation	General Contributed		Outcomes	Blooms					Change Panel		5:00	6 units
3:30 -		Resources Risk	Aquaculture		Ecosystem	Algal					Climate		3:30 -	
6 units 3:00	T-	Protected	Environment	Aquaculture for Aquaculture 101	Aquaculture for	Harmful	Abalone	Fish	Contributed	Freshwater		•	3:00	6 units
1:30 -		Marine	Ecology and					and	Feeds	_	Aquaculture	Outreach	1:30 -	
8 units 12:30	Tilapia		Contributed	Conservation	Areas - Updates	in Aquaculture		Shrimp	and	Aquaponics	Đ.	Extension	12:30	8 units
10:30 -		Engineering	Crustaceans	Restoration and	Opportunity	Vibriosis		of	Nutrition	_	Change	Education	10:30 -	
6 units 10:00	Genetics	Genetic	and Other	Shellfish	Aquaculture	(human health)	Scallops	Parasites	Fish	_	Climate	Aquaculture	10:00	6 units
Fri Mar 4 8:30 -	Finfish		Shrimp	East Coast		vibrio							8:30 -	Fri Mar 4
6:30 - 9:30										Presidents Reception			6:30 - 9:30	6:3
8 units 5:30		Consequences	Contributed	Contributed	Future Growth						Bottom Line	Service Sector	5:30	8 units
3:30 -	Getting It Right	Navigating Cost	Biology	Oyster	Drivers of			Lightner	Grant	Session	Veterinarians for	Seafood	3:30 -	
6 units 3:00		Regulations:	Finfish		Repositories	Journey		Don	NOAA Sea	Engineering	Utilizing	of Aquaculture	3:00	6 units
1:30 -		Aquaculture			Germplasm	Aquaculture	Disease	In Honor of		Aqucultural		and Perceptions	1:30 -	
6 units 12:30		Contributed			Initiatives	Califomia's	Shellfish	Disease	Systems		Services	Social License	12:30	6 units
11:00 -	Forum	Regulatory		Oysters	Planning			and	Production	_	Veterinary		11:00 -	
6 units 10:00	Trout	Policy and	Aquaculture	Olympia	and Shellfish	Contamination	Seed Biosecurity	Shrimp Health	for Seafood	StriperHub	Value of	Interactions	10:00	6 units
ThuMar3 8:30 -	USTFA		US Marine Finfish		Aquaculture	Shellfish	Shellfish	-3	Alternative Protei			Wild Culture	8:30 -	Thu Mar 3
6:00 - 8:30										NAA Auction			6:00 - 8:30	6:0
5:00 - 6:00									ours	Posters and Happy Hours			5:00 - 6:00	5:0
14 units 5:00									Reprised				5:00	14 units
	Ornamentals		Species	Genomics		and SK	Development	Project	Old Coots	_	Deep Dive			
1:30 -			Emerging	Genetics and		Sea Grant	Workforce	ENCODE)	Knowledge from	_	USDA		1:30 -	
8 units 12:30	Support Systems		continued	Shellfish		Inclusion		(Shrimp		Session			12:30	8 units
10:30 -	Life	continued	Markets		Continued	and		Epigenome	of Finfish	Special	and Indexing	Aquaculture	10:30 -	
6 units 10:00	Flatfish	PITIFC-VI	Economics and	Ecosystem	Zebrafish	Diversity	Echinoderms	Genome and	Nutrition	Aquaponics	Updates	Offshore	10:00	6 units
WedMar 2 8:30 -			MBANI	Optimizing				Shrimp	Larval		Drug		8:30 -	Wed Mar 2
7:00 - 10:00									NSA Fundraiser	Student Reception & NSA Fundraiser			7:00 - 10:00	7:00
- 00									ours	Posters and Happy Hours			5:00 - 6:00	5:0
14 units 5:00						Industry	Contributed				Aquaculture	Workshop	5:00	14 units
	Catfish		Markets	Farm		Emerging	Clams	Microbiomes	Contributed	_	U.S.	Presentation		
1:30 -			Economics and	on the		Supporting an		Epigenomes &	Fish Health	_	Supporting	Art of	1:30 -	
6 units 12:30	Nutrition	PITIFC-VI	IAAEM	Down	Zebrafish	Aquaculture	Mussels	ONE HEALTH	Veterinary Meds	RAS	Federal Actions	Talks	12:30	6 units
11:00 -	Shrimp					Macroalgae			Aquatic	_		Student Spotlight	11:00 -	
10:00													10:00	
Tue Mar 1 8:30 -	Plenary in Pacific Ballroom Tue Mar 1	Plena									lroom	Plenary in Pacific Ballroom	8:30 -	Tue Mar 1
Day/Time	80 seats	200	107	120	200	80	90	200	130	400 seats	400	400	Day/Time	Da
	Palm 2	Pacific E	Palm 7	Palm 5&6	Pacific D	Palm 1	Palm 8	Pacific C	Palm 3&4	Town & Country D	Town & Country C	Town & Country B		



ATTENDEE REGISTRATION FORM

Aquaculture 2022

February 28 - March 4 • San Diego, California

Return address for payments in USD:

AQUACULTURE 2022 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

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		
NAME BADGE INFORMATION: (As you want your n	ame badge to read – No titles,	please)		
First Name	SURNA	ME (FAMILY NAME)		
Company / Institution				
(Limited to 40 Letters	• •			
Country				
MAILING INFORMATION: Email				
Address				
City	State / Prov	Postal Code	Country _	
Tel	Fax		Title: (circle one) Dr.	Mr. Ms. Mrs.
(Include country and area code)	(Include o	country and area code)		
REGISTRATION FEES: In order to receive the disco	ount rates as listed below, this	form and payment must be re	eceived by the date listed.	
TYPE OF REGISTRATION Check the appropriate boxes	Register by January 21, 2022	Register by February 15, 2022	Register after February 15, 2022	* To qualify for Member Rate you must complete the
MEMBER RATE*	US\$ 495	US\$ 595	US\$ 695	Association Memberships section on the reverse side.
STUDENT MEMBER RATE* Include copy of Student I.D.	US\$ 260	US\$ 260	US\$ 325	Section on the reverse side.
Non-Member Rate	US\$ 590	US\$ 690	US\$ 790	Trade Show is included in the
Student Non-Member Rate Include copy of Student I.D. You can join WAS on the reverse side and use the Member Rate.	US\$ 330	US\$ 330	US\$ 390	Full Conference Registration Rate.
Spouse Rate	US\$ 395	US\$ 495	US\$ 595	TOTAL REGISTRATION FEE US\$
TRADE SHOW PASS		(Trade sho	 ow pass is included with the Fu	
Good for 3 days admission to exhibits only - March 1, 2, 3		US\$ 50	TOTAL TRADE SHOW PASS	US\$
INDUSTRY TOURS See website for current tour in	nformation			
MEMBERSHIP DUES - Enter amount from Member	ership Application on other side if a	applicable.	TOTAL MEMBERSHIP DUES	US\$
Do not mail registration after Jan. 31, 2	•		TOTAL ABAQUINT HO	
After those dates, bring this form with			TOTAL AMOUNT US	
Registration Confi	mation and Re	ceipt will be en	nailed after proc	essing.
CANCELLATION POLICY: Cancellation of registra to a 20% handling fee. Refunds are processed afte After February 1, 2022, no refunds will be made for travel emergencies. Fees for memberships are no	er the conference. No refur professional or personal er	nd will be made for cance	ellations received after Februa	ary 1, 2022 or for "no shows".
PAYMENT METHOD: All fees must be paid	to the order of AQUACULTUR	E 2022.		
Check #	Visa Masterca	rd American Exp	press	
Card #		Expiration Date	Security Code	
Name on Card		Signature		Date

For bank transfer details, contact us.

REGISTRATION FORM - SIDE 2

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Name		
ASSOCIATION MEMBERSHIPS: P	itions qualifies you for the M	ssociations for which you are a <u>current</u> member. Member Rate* on the Registration Fees. You can he Member Rate.
 □ Aquacultural Engineering Society □ Aquaculture Association of Canada □ Aquaculture Without Frontiers □ Asian Fisheries Society □ California Aquaculture Association □ China Society of Fisheries □ Egyptian Aquaculture Society □ European Aquaculture Society 	☐ Fish Culture Section - AFS ☐ Global Aquaculture Alliance ☐ Korean Aquaculture Society ☐ Malaysian Fisheries Society ☐ National Aquaculture Association ☐ National Shellfisheries Associatio ☐ Sociedad Brasileira de Acuicultur ☐ Society of Aquaculture Profession	on
MEMBERSHIP APPLICATIONS	☐ NEW APPLICATION	□ RENEWAL
All FCS membe	Membership for Current AF ers must be full members of the A membership dues online	
WORLD AQUACULTUF For details on the different type Tel: +1-225-578-3 MEMBERSHIP CATEGORY: (Indicate on Individual (Electronic JWAS) (USD 65/yr) Applies to an individual (Electronic JWAS) (USD 45/yr) Applies to an individual (Electronic JWAS) (USD 45/yr) (Copy of Student ID Student (Electronic JWAS) (USD 45/yr) Applies to any of Corporate (Electronic JWAS) (USD 105/yr) Applies to any of Corporate (Electronic JWAS) (USD 105/yr) Allows all employed Lifetime (Electronic JWAS only) (USD 1000 with no chapter Lifetime (Electronic JWAS only) (USD 1100 with one chapter	es of memberships and option 137 Fax: +1-225-578-349 ly one) lividual only only or Signature of Professor required) one individual from a company oyees of one company to attend meeting at Me) Applies to an individual only	Pins, please contact the WAS home office at 93 Email: judya@was.org CHAPTER OPTIONS: One chapter incuded in membership. Mark the chapter you choose. Africa Asian Pacific Korea Latin American/Carribean
Fees for memberships are non-refundable	_	otal Amount for WAS Membership USDs amount under "Membership Dues" section on opposite side of this form.
	www.shellfish.org	ptions please contact the NSA office at:
Regular (USD 95/yr) Student (USD 95/yr) Sustaining (USD 200/yr) Includes subscription to the Journal of Shellfish Research	50/yr)	Signature of Professor or copy of Student ID required Total Amount for NSA Membership USD_ 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: +1-850-216-2400 Fax: +1-850-216-2480 Email: naa@thenaa.net Web: www.thenaa.net

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 for fantastic rates at the recently renovated Town and Country Resort and Conference Center. You can reserve your room by phone or on their website.

Check the conference website for details.

OUR FULL CONFERENCE REGISTRATION INCLUDES:

- Admission to all conference sessions and the trade show
- Admission to the receptions
- Conference Bag and Show Directory
- Refreshment Breaks and Happy Hour
- Abstract Book on USB
- 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.

WORKSHOP

Statistics in Aquaculture Workshop: Moving Beyond ANOVA: Common Problems in the Analysiss of Aquaculture Data

February 28, 2022 9:00 am - 4:00 pm

Workshop Content

"The focus will be on applied statistics with very little theory or equations"

Instructor: Todd Steury

See the website for more details: www.was.org

Pricing Base Price - \$300.00

US Chapter of WAS Member** - \$150.00 US Chapter of WAS Student Member - \$75.00 **WAS members can join USAS - only \$5.00

CAA TOURS

FEBRUARY 28 (9:00AM - 12:30PM): MORNING LEON RAYMOND, JR., MARINE FISH HATCHERY TOUR

Summary: A two hour, behind the scenes tour of the Leon Raymond, Jr., Marine Fish Hatchery located in Carlsbad, California. This unique Hubbs-SeaWorld Research Institute facility, which was built in 1995, is the home base for their white seabass stock enhancement program. Tour participants will see all aspects of this working marine fish hatchery including broodstock holding, early larval rearing, and juvenile production systems, as well as tagging operations. The tour bus will leave the conference site at 9:30am and will return at 1:00pm.

Guests: Up to 54

Time: 3.5 hours (9:00am - 12:30pm)

Price: \$75 per person

FEBRUARY 28 (12:30PM - 4:00PM): AFTERNOON LEON RAYMOND, JR., MARINE FISH HATCHERY TOUR

Summary: A two hour, behind the scenes tour of the Leon Raymond, Jr., Marine Fish Hatchery located in Carlsbad, California. This unique Hubbs-SeaWorld Research Institute facility, which was built in 1995, is the home base for their white seabass stock enhancement program. Tour participants will see all aspects of this working marine fish hatchery including broodstock holding, early larval rearing, and juvenile production systems, as well as tagging operations. The tour bus will leave the conference site at 9:30am and will return at 1:00pm.

Guests: Up to 54

Time: 3.5 hours (12:30pm - 4:00pm)

Price: \$75 per person

Stay in touch with the program developments for

Aquaculture 2022

through our Web Page at:

www.was.org
https://fishculture.fisheries.org
www.shellfish.org



TENTATIVE SCHEDULE

Monday, February 28

Exhibit Set-up	10:00 –	6:00
Registration Open		
Welcome Reception		

Tuesday, March 1

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Registration Open 7:30 – 5:00
Opening Ceremonies & Plenary Session . 8:30 – 10:00
Refreshment Break10:00 – 11:00
Sessions
Trade Show Open10:00 - 6:00
Lunch (on your own)12:30 - 1:30
Sessions 1:30 - 5:00
Happy Hour & Posters 5:00 - 6:00
Student Reception & NSA Auction 7:00 - 9:00

Wednesday, March 2

Registration Open	7:30 - 5:00
Sessions	8:30 – 10:00
Trade Show Open	10:00 - 6:00
Refreshment Break	10:00 – 10:30
Sessions	10:30 – 12:30
Lunch (on your own)	12:30 - 1:30
Sessions	1:30 - 5:00
Happy Hour & Posters	5:00 - 6:00
NAA Auction	6:00 - 7:30

Thursday, March 3

Registration Open	7:30 -	5:00
Sessions	8:30 -	10:00
Trade Show Open	10:00 -	1:30
Refreshment Break	10:00 -	11:00
Sessions	11:00 –	12:30
Lunch (on your own)	12:30 -	1:30
NSA Members Luncheon	12:30 -	2:00
Sessions	1:30 -	3:00
Exhibit Move-out	1:30 -	5:00
Refreshment Break	3:00 -	3:30
Sessions	3:30 -	5:30
Presidents Reception	6:00 -	8:00

Friday, March 4	
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 - 5:00
Closing Happy Hour	5:00 - 6:00

