



Food For The Future

FRIDAY, February 24

PLENARY

Friday, February 24 8:00 AM - 10:00 AM Salon D

Chair: Dave Cline

8:00 Opening and Awards

8:45 STUDENT SPOTLIGHT PRESENTATION PREVIEWS

See Full Presentations in Galeries 1 Room at 11:00 on Friday

First Place Abstract Winner

Helen Montague

OUTCOMES OF *IN VITRO* FERTILIZATION WITH FROZEN-THAWED BLUE CATFISH SPERM AND IMPLICATIONS FOR GENE BANKING

Second Place Abstract Winner

Marianne Parent

TIME-SERIES ANALYSIS OF *Lepeophtheirus salmonis* AMONG NEW BRUNSWICK SALMON FARMS (2016 TO 2021)

Third Place Abstract Winner

Amanda Matthews

Suaeda linearis AN EMERGING SUPERFOOD SEA VEGETABLE

Plenaries

9:00 Daisy Berg

GROCERY CHAIN CHANGES IT'S TUNE TO INCLUDE AQUACULTURE

9:30 Tracy Fanara

A MODERN TAKE ON SCIENCE COMMUNICATION

VIRAL DISEASES

Friday, February 24 11:00 AM - 12:30 PM Salon D

Chair: Suja Aarattuthodi

FRIDAY

- 11:00 Kyle Garver**, Amy Long, Francis LeBlanc, Jean-René Arseneau, Nellie Gagné, Katja Einer-Jensen, Jan Lovy, Mark Polinski, Simon Jones
DISTRIBUTION AND PATHOGENICITY OF TWO CUTTHROAT TROUT VIRUS GENOTYPES IN CANADA
- 11:15 Malina Loehrer**, Gael Kurath, David Kennedy, Hannah Brown, Andrew Wargo
FITNESS OF AN EMERGENT VIRUS IN RAINBOW TROUT AQUACULTURE
- 11:30 Elizabeth Robinson**, Mingli Zhao, Eric Schott, Julie Lively
CSRV1 TRANSMISSION AMONG BLUE CRABS IN SOFT SHELL BLUE CRAB *Callinectes sapidus* AQUACULTURE
- 11:45 Suja Aarattuthodi**, Lester Khoo, Brian Bosworth, Ganesh Kumar
CATFISH VIRUSES: PROFILING AIDS MANAGEMENT STRATEGIES
- 12:00 Mark Polinski**, Stewart Johnson, Lenora Turcotte
MULTIPLEX PCR AND MINION SEQUENCING FOR DIRECT WHOLE GENOME ASSEMBLY OF AQUATIC VIRUSES FROM TISSUE AND ENVIRONMENTAL SALMPLES: A CASE STUDY INVOLVING PRV-1

SEAFOOD SAFETY

Friday, February 24 11:00 AM - 12:30 PM Studio 8

Chair: Carla Schubiger

- 11:00 Andreia Rodrigues**, Sílvia Pires, Mariana Gama, Carla Patinha, Eduardo Silva, Pedro Bem-Haja, Rui Rocha, Amadeu Soares, Teresa Baptista
HOW CAN SEASONALITY CHANGE THE ACCUMULATION OF METALS IN CLAMS PRODUCED IN THREE DISTINCTIVE AREAS OF PORTUGAL?
- 11:15 Mathewos Temesgen Kebede**, Lemmi Geleta
CONSUMERS' HEALTH RISK ASSESSMENT FROM SOME HEAVYMETAL BIOACCUMULATION IN COMMON CARPS *Cyprus carpio* FROM KOKA LAKE, ETHIOPIA
- 11:30 Sharmeen Khan**
SEAFOOD TRACEABILITY AND FRAUD
- 11:45 Juan L Silva**, M. Gabriela Hidalgo, Shecoya White, Angelica Abdallah Ruiz, Meredith Maynard
STANDARDS FOR POSSIBLE FISH & SILURIFORMES CONTAMINATION SHOULD BE BASED ON RISJK ASSESSMENT AND NOT APPLIED TO ALL THE SAME

AQUACULTURE THROUGH THE YEARS: HOW I GOT HERE!

Friday, February 24 11:00 AM - 5:00 PM Galeries 4

Chair: Angela Caporelli

11:00 Angela Caporelli

Intro: "I never wanted to work in an office!" With a BS from URI and many years later, a MS from Kentucky State, with a whole lot of shifts in between, including a 3.5 year Peace Corps experience in central Africa, Angela has worked nationally and internationally for over 35+ years in fisheries and aquaculture!

11:20 Carl Kittel

Carl has a BS degree in Marine Biology from Texas A&M University and has spent 40 years in aquaculture, culturing over 30 species of aquatic organisms and working in a variety of countries, climates and organizations. He is and has been very involved in numerous societies and associations including AFS, WAS and NAA. Previous work included serving as President and CEO of a fish production company, managing an Aquaculture Development and Training Center in Guam, consulting as a Shrimp Hatchery and Aquaculture Specialist on several development projects in Indonesia, Bangladesh, and India as well as private sector projects in the Philippines, Indonesia, and Malaysia.

11:40- Bob Robinson

The Domestic Aquaculture Industry as I have known it! Sharing accumulated "Tribal Knowledge" of successes and failures and what I have learned in this 40 year journey.

12:00 Katie Harris

Katie was raised on a trout farm on a remote 7000 acre ranch in northern California. She never intended to end up being a trout farmer herself. Fast forward: married and a few kids later and over a decade and she is now the President and General Manager of Mt. Lassen Trout Farm. She is past president of the U.S. Trout Farmers Association and also sits on various boards both in education and agriculture. She is extremely proud to be a second generation trout farmer and loves being active in the aquaculture industry.

12:30 LUNCH

1:30 LaDon Swann

"Never pass up an opportunity for a joy ride: How Peace Corps shaped my life and career". LaDon Swann is the director of the Mississippi-Alabama Sea Grant Consortium and the Sea Grant Network Aquaculture Liaison. In the national role as a Sea Grant Aquaculture Liaison, LaDon works to strengthen Sea Grant's role in sustainable aquaculture. LaDon has conducted research on shellfish aquaculture and habitat restoration, and has many years of experience designing, delivering and evaluating adult education programs. LaDon also served in the U.S. Peace Corps as an aquaculture volunteer in Togo, West Africa.

1:50 Neil Sims

FROM WILD TO FARMED – HOW IN THE WORLD I GOT HERE, AND WHERE I THINK I'M GOING

2:10 Nancy Lightowler Caruso

Founder, Executive Director, Get Inspired Inc.

"KEEPING MY HANDS WET: 30 YEARS OF WORKING IN AQUACULTURE"

Little did I know that raising fish in my cramped, shared bedroom as a kid, that it would shape my entire life. When I was 10 years old, I knew I wanted to be a marine biologist. Confident in my goal to become the next Jacques Cousteau, I quickly learned of another degree option that was right up my alley... Aquaculture! After studying both in college, I have spent my career involved in aquaculture. From the catfish farms of Mississippi to restoring kelp and abalone in the Pacific, I have had many twists and turns on my path and have even taught aquaculture too.

2:30 Lou D'Abramo

"Sometimes it's difficult to separate chance from destiny". Lou's path was challenging as he tried to unite and live his dual passion for ecology and aquaculture. He is a retired Giles Distinguished Professor of Wildlife, Fisheries and Aquaculture, and Graduate Dean Emeritus and Associate Vice President for Academic Affairs Emeritus at Mississippi State University. He received his MS and PhD degrees in Ecology and Evolutionary Biology from Yale University. His research has primarily focused on the development of environmentally and economically sustainable management practices for several aquaculture species with emphasis in nutritional requirements, feed development, feeding practices and response to climate change. He is a former President of the World Aquaculture Society (1992-1993) and the National Shellfisheries Association (2005-2007) and a former Associate Director of Mississippi-Alabama Sea Grant Consortium (2003-2008).

2:50 Amy Riedel-Stone

President and owner of Aquatic Equipment & Design Inc., Amy Stone has over 20 years of experience with designing, building and managing aquaculture and aquaponics greenhouses as well as zoo and aquarium filtration systems. She has managed hatcheries, live feeds and grow-out for marine finfish as well as an aquaponics greenhouse. She previously worked at Aquatic Eco-systems for over 14 years before opening her own company. As a leader in the industry, Amy is active on several boards, especially NAA.

3:10 Jim Steeby

Jim grew up in southern Michigan, earned a BS degree in biology at Michigan State University and, yearning to travel, applied to the Peace Corps, landing in the fish culture program headed to India, along with seven other volunteers ready to save the world. He extended his two years in India to another year in Cameroon West Africa spawning common carp and Tilapia. On to Auburn University for a MS degree in Aquaculture working with Dr. Claude Boyd and Tom Lovell, it could get no better! Dr. Craig Tucker and Dr. Robert Busch allowed Jim to pursue his PhD and work directly impact fish farmers. In total, Jim worked in Mississippi for 33 years with the catfish industry, all while connecting research and extension professionals across the U.S. and the world, these opportunities have made all the difference.

3:30 Marty Riche

"Against the Odds, That Sound's like a Dare!!"

3:50 Panel Discussion of all Presenters and guests

Angela Caporelli <angela.caporelli@ky.gov>; Lou D'Abramo <loudabramo@gmail.com>; Katie Harris <katie@mtlassentrout.com>; Carl Kittel <Carl.Kittel@tpwd.texas.gov>; Nancy Lightowler Caruso <kelp lady@hotmail.com>; Marty Riche <mriche@fau.edu>; Robert Robinson <bob.r@kascomarine.com>; Neil Sims <neil@ocean-era.com>; Jim Steeby <jsteebyphd@yahoo.com>; Amy Stone <amy@aquaticed.com>; LaDon Swann <Ladon.Swann@usm.edu>; Richard C. Bryant <Richard.bryant@kysu.edu>

AQUACULTURE ECONOMICS

Friday, February 24 11:00 AM - 5:00 PM Galeries 2

Chairs: Ganesh Kumar, Frank Asche

- 11:00 Taryn Garlock**, Frank Asche
ECONOMIC POTENTIAL OF ON-GROWING LOBSTERS IN FLORIDA
- 11:15 Hauke Kite-Powell**, Erick Ask, Simona Augyte, David Bailey, Julie Decker, Clifford Goudey, Gretchen Grebe, Yaogang Li, Scott Lindell, Domenic Manganelli, Michael Marty-Rivera, Crystal Ng, Loretta Roberson, Michael Stekoll, Schery Umanzor, Charles Yarish
SCALE EFFECTS AND PRODUCTION COSTS FOR MACROALGAE FARMS
- 11:30 Duncan Knowler**, Kimberly Irwin, Ryan Trenholm, Wolfgang Haider, Rober Martinez-Espineira
ASSESSING POLICY AND TECHNOLOGY PREFERENCES FOR PRO-ENVIRONMENTAL SALMON AQUACULTURE IN BRITISH COLUMBIA
- 11:45 Sveinn Agnarsson**, Gerardo Diaz, Juliana Arias, Unn Laksá
OFFSHORE PRODUCTION OF BLUE MUSSELS *Mytilus edulis*: A SWEDISH PROFITABILITY STUDY
- 12:00 Fernando Gonçalves**, Jonathan van Senten, Michael Schwarz, Shraddha Hegde
ECONOMIC CONTRIBUTIONS OF THE VIRGINIA SEAFOOD INDUSTRY
- 12:15 Inna Golfand**
POTENTIAL FOR SALMON AQUACULTURE DEVELOPMENT IN THE UNITED STATES
- 12:30 LUNCH**
- 1:30 Frank Asche**, Rudresh Pandey, Bård Misund, Hans-Martin Straume
PRODUCTION GROWTH, COMPANY SIZE AND CONCENTRATION: THE CASE OF SALMON
- 1:45 Md. Akhtaruzzaman Khan**, Md. Emran Hossain, Max Nielsen, Rasmus Nielsen
IMPACT OF CLIMATIC AND NON-CLIMATIC FACTORS ON SHRIMP PRODUCTION: EMPIRICAL EVIDENCE FROM BANGLADESH
- 2:00 Christian Brayden**, Struan Coleman
FARMING SEAWEED – IS IT WORTH IT? USING FINANCIAL BENCHMARKING TO ASSESS SEAWEED FARMING PROFITABILITY
- 2:15 Hans-Martin Straume**
IMPACTS OF FOREIGN BUSINESS COSTS ON NORWEGIAN SALMON EXPORTS
- 2:30 Matt Parker**
AN ONLINE TOOL FOR BUSINESS ECONOMIC MODELING; TRANSLATING THE TECHNICAL TO UNDERSTANDABLE FOR INDUSTRY
- 2:45 David Love**, Andrew Thorne-Lyman, Zach Conrad, Jessica Gephart, Frank Asche, Dakoury Godo-Solo, Acree McDowell, Elizabeth Nussbaumer, Martin Bloem
AFFORDABILITY INFLUENCES NUTRITIONAL QUALITY OF SEAFOOD CONSUMPTION AMONG INCOME AND RACE/ETHNICITY GROUPS IN THE UNITED STATES

- 3:30 Adams Ceballos**, Frank Asche, Andrew Ropicki
INVASION EXTERNALITIES AND FIRM HETEROGENEITY: THE CASE OF SEA LICE
- 3:45 Ivar Gaasland**
NORWEGIAN SALMON EXPORT – DO NORWEGIAN EXPORTERS PRICE DISCRIMINATE BETWEEN BUYERS?
- 4:00 Nicole Kirchhoff**, Andrew Pruhs, Brad Gentner
FULLY COMPREHENSIVE WARMWATER MARINE BAITFISH RETAILER AND ECONOMIC OPPORTUNITIES SURVEY IN FLORIDA
- 4:15 Abhipsita Das**, Henry Kinnucan
ESTIMATING THE EFFECTS OF GENERIC ADVERTISING ON MARKET DEMAND: AN ADL APPROACH
- 4:30 Jingjing (Tina) Tao**, Taylor L. Bradford, Kwamena K. Quagrainie
THE FEASIBILITY OF PROCESSING FISH IN LOCAL FACILITIES FOR LOCAL FOOD SYSTEMS
- 4:45 Andini Ekaputri**, PingSun Leung, Stuart Nakamoto, Shannon Sand, Armando García Ortega, Shaun Moss, Cheng Sheng Lee
FEASIBILITY ASSESSMENT OF A LOCAL FEED MILL FOR AQUACULTURE IN HAWAII

GETTING IT RIGHT: CONSERVATION AQUACULTURE FOR RECOVERY, RESTORATION AND SUPPLEMENTATION

Friday, February 24 11:00 AM - 5:00 PM Galleries 6

Chairs: Joshua Patterson, Ann Gannam, Taylor Lipscomb

Co-organized by AFS Fish Culture Section

- 11:00 Taylor Lipscomb**, William Ardren, Nathan Wilke
PROPAGATION FOR RECOVERY AND RESTORATION: A REVIEW OF TWENTY PRIORITY PROGRAMS
- 11:15 Darien Mizuta**, Halley Froehlich, Jono Wilson
THE CHANGING ROLE AND DEFINITIONS OF AQUACULTURE FOR ENVIRONMENTAL PURPOSES
- 11:30 Kieran T. Smith**, Kanav Khosla, Amey S. Joshi, Tim Humphrey, Kalliopi Loutradi-Rolenc, Guebum Han, Suhasa B. Kodandaramaiah, Nicholas Phelps, John Bischof
THE NEED FOR SEED: INNOVATIVE METHODS FOR CRYOPRESERVATION AND PROPOGATION OF AQUATIC ANIMALS FOR FISHERIES, CONSERVATION, AND AQUACULTURE
- 11:45 Desmond J. Maynard**
BALANCING NATURAL AND ARTIFICIAL SELECTION IN CAPTIVE REARING PROGRAMS
- 12:00 Brandi Symons**, Sonia Mumford
CONSERVATION PROPAGATION IN EASTERN NORTH CAROLINA
- 12:15 Megan Davis**, Raimundo Espinoza, Edna Díaz Negrón, Marie Garcia, Chalier Dones Ortiz, Paola Sotomayor Landrón, Carlos Velazquez, Julio Ortiz
COMMUNITY-BASED NAGUABO AQUACULTURE CENTER IN PUERTO RICO

12:30 LUNCH**1:30 Shawn Young, Nathan Jensen****OUT** APPLICATIONS OF PARENTAL BASED TAGGING TO RESTORE KOOTENAI RIVER WHITE STURGEON AND BURBOT**1:45 Dan Sampson**SETTING THE STAGE: APPLYING EFFECTIVE BROOD DEVELOPMENT TECHNIQUES FOR INCREASING PROBABILITY OF SUCCESS WITH THE REINTRODUCTION OF EXTRIPATED ARCTIC GRAYLING *Thymallus arcticus* IN MICHIGAN**2:00 Dan Sampson**BIOSECURITY: CONTAINMENT STRATEGY USED DURING MICHIGAN'S ARCTIC GRAYLING *Thymallus arcticus* BROOD DEVELOPMENT**2:15 Sonia Mumford, Jimmie Garth**LAKE STURGEON *Acipenser fulvescens* RESTORATION: A COOPERATIVE EFFORT IN SOUTHEASTERN UNITED STATES**2:30 Aaron Switzer**

REARING ATLANTIC SALMON IN A FLOW THROUGH FACILITY DESIGNED FOR REARING PACIFIC SALMON

2:45 Dan Sampson

A REVIEW AND CRITIQUE OF NORCAN'S "GATLIN GUN" STYLE FISH FEEDING SYSTEM APPLICATION AT MICHIGAN DNR'S THOMPSON STATE FISH HATCHERY

3:00 Ann Gannam, John Chan, Cody Slauch, James BarronDEVELOPMENT OF REARING METHODS FOR JUVENILE PACIFIC LAMPREY *Entosphenus tridentatus* TO BE USED IN RESEARCH**3:15 Gibson Gaylord, Justin Crow, Jason Ilgen**DIETARY FORTIFICATION OF TURKESTAN COCKROACHES *Shelfordella lateralis* FOR FEEDING ENDANGERED TOADS**3:30 Joshua Patterson, Aaron Pilnick**

THE ROLE OF SEA URCHIN AQUACULTURE IN A MISSION TO RESTORE SEVEN ICONIC REEFS IN THE FLORIDA KEYS

3:45 Aaron Pilnick, Keri O'Neil, Md Hassan, Joshua PattersonFIRST INVESTIGATIONS OF SETTLEMENT DYNAMICS FOR THE ECOLOGICALLY IMPORTANT LONG-SPINED SEA URCHIN *Diadema antillarum***4:00 Adriane Michaelis, Suzanne Bricker, Jordan Hollarsmith, Julie Rose, Seth Theuerkauf**
SHELLFISH AND SEAWEED AQUACULTURE ECOSYSTEM SERVICES: INFORMING FUTURE RESEARCH AND MANAGEMENT NEEDS**4:15 Festus Adeosun, Isaac Omoniyi, Olamide Adeosun**

ASSESSMENT OF HOUSEHOLD LIVELIHOOD DIVERSIFICATION AND FISHERIES CONSERVATION STRATEGIES AMONG FISHERMEN IN COASTAL AREAS OF OGUN STATE, NIGERIA

4:30 Nick Merchant

MICHIGAN DNR MODERNIZES HATCHERY ALARMING SYSTEMS FROM PC BASED SYSTEM TO A CONTROLLER SYSTEM, EMBRACING CELLULAR TECHNOLOGY

MACROALGAE

Friday, February 24 11:00 AM - 5:00 PM Galeries 5

Chairs: Melissa Good, Anoushka Concepcion

FRIDAY

11:00 Introduction and Overview

Environmental and Ecological Seaweed Insights

11:15 Cody Carlson, Korbyn Ellenwood, Dzenis Zilkic, Joe Xiong, Michael Salazar
EVALUATING TUMBLING EFFICIENCY OF DIFFERENT AIR DIFFUSERS ON THE MEAN GROWTH OF *Ulva* AND TURKISH TOWEL SEAWEEDS

11:30 Maria Teresa Gutierrez-Wing, Jack C. Koch, Mason Bailey, Yue Liu, Lucia Arregui, Terrence R. Tiersch
HIGH THROUGHPUT CRYOPRESERVATION TO SAFEGUARD ALGAE GENETIC RESOURCES

11:45 Dan Delago, Simona Augyte, Maggie MacMahon, Neil Sims, Jennica Hawkins
NOCTURNAL NUTRIENT PULSING EFFECTS ON SPECIFIC GROWTH RATES OF HAWAIIAN MACROALGAE IN HIGH CURRENT ENVIRONMENTS

12:30 LUNCH

1:30 Mahmoud Hafezieh
SODIUM ALGINATE PRODUCTION FROM IRANIAN MARINE BROWN SEAWWED *Sargassum illicifolium* – ANALYZE CHEMICALLY AND TOTAL PRODUCTION COST

Expansion and Efficiencies in Farmsite Production

1:45 Toby Sheppard-Bloch, Ashley Hamilton, Michelle Stephens
EXPANDING ACCESS TO HIGH-QUALITY SUGAR KELP SEED THROUGH NURSERY FACILITY IMPROVEMENTS

2:00 Struan Coleman, Adam St. Gelais, Tobias Dewhurst, David Fredriksson, Michael MacNicol, Kelly Cole, Damian Brady
LARGE SCALE, OFFSHORE KELP PRODUCTION IN NORTH AMERICA: IDENTIFYING SCALING PATHWAYS AND R&D PRIORITIES FROM NURSERY TO HARVEST

2:15 David Bailey, Scott Lindell, Clifford Goudey, Domenic Manganelli, Hauke Kite- Powell, Charles Yarish, Loretta Roberson, Kendall Barbery, Lindsay Olsen, Tobias Dewhurst, Beau Perry, Alf Pryor, Nick Mangini, Michael Stekoll
LESSONS LEARNED ON A SCALABLE COASTAL MARCROALGAL FARM

2:30 Kalani Ortiz, Rafael Cuevas-Uribe
EXAMINING THE GROWTH BULL KELP *Nereocystis luetkeana* FROM HATCHERY TO LONG LINE CULTIVATION IN HUMBOLDT BAY, CALIFORNIA

2:45 Vasu Jayaprakas
A PILOT SCALE MASS CULTURE PROGRAM FOR *Dunaliella salina* FOR ACHIEVING HIGHEST PRODUCTION LEVELS

3:00 Ava Salmi, Luke Gardner, Steven Cunningham, Evan Simpson, Michael Graham, Scott Hamilton, Stacey Gunter, Kenneth Kalscheur, Michael Schuppenhauer
OPTIMAL BIOMASS AND BROMOFORM PRODUCTION IN *Gracilaria parvispora*: A PILOT SCALE EXPERIMENT USING ONSHORE AQUACULTURE

- 3:15 Simona Augyte**, Maggie MacMahon, Daniel Delago, Makanahale Emmsley, Jenna Lowell-Hawkins, Neil Sims
LAND-BASED CULTIVATION OF TROPICAL RED MACROALGAE WITH A FOCUS ON PRODUCTION

Growing A Successful Seaweed Industry

- 3:30 Anoushka Concepcion**, Gabriela Bradt, Meg Chadsey, Antoinette Clemetson, Melissa Good, Catherine Janasie, Dawn Kotowicz, Stephanie Otts, Joshua Reitsma, Jaclyn Robidoux, Theresa Talley
NURTURING THE SUCCESSFUL GROWTH AND MATURATION OF THE DOMESTIC SEAWEED AQUACULTURE INDUSTRY
- 3:30 Diego Valderrama**, Karl Froscheiser
CARBON DIOXIDE REMOVAL THROUGH SEAWEED AQUACULTURE: ASSESSING THE EVIDENCE FROM LIFE CYCLE ASSESSMENTS
- 3:45 Tammy Warner**, Robert Pomeroy
BUSINESS AND ECONOMIC PLANNING FOR SEAWEED AQUACULTURE SYSTEMS IN THE UNITED STATES
- 4:00 Catherine Janasie**, Stephanie Otts
DEVELOPING POLICY CONSENSUS TO FACILITATE STATE REGULATION OF SEAWEED AS FOOD PRODUCT
- 4:15 Michael Ciaramella**, Stephanie Otts, Catherine Janasie, Anoushka Concepcion
NAVIGATING THE REGULATORY FRAMEWORK AROUND SEAWEED MARKETING AND PROCESSING
- 4:30 Sara Ebersole**, Angela Bowers
SUSTAINABLE OCEAN FARMING AND APPLIED FISHERIES EDUCATION IN ALASKA
- 4:45 Grace Collery**, Samantha Garwin, Lindsay Olsen
BUILDING THE DOMESTIC MARKET FOR SEAWEED: LESSONS LEARNED FROM FIVE YEARS OF VALUE CHAIN COORDINATION

OFFSHORE AQUACULTURE

Friday, February 24 11:00 AM - 5:00 PM Studio 9

Chairs: Tyler Sclodnick, Abigail Bockus

- 11:00 Tyler Sclodnick**, Bela Buck, Abigail Bockus, Bill Silkes, Asa Strand, Daniel Wiczorek, Eva Strothotte, Hans Bjelland, Heidi Føre, Joao Ferreira, Kevin Heasman, Nicholas Scott, Nancy Nevejan, Nils Goseberg, Paul Dobbins, Sander van den Burg, Michael Chambers, Max Troell, David Fredriksson, Tobias Dewhurst
WORKING TO ESTABLISH DEFINITIONS OF THE TERMS “OFFSHORE”, “OPEN OCEAN”, AND “EXPOSED”
- 11:15 Kristy L. Beard**, Phaedra Doukakis, Kristine Cherry
AQUACULTURE OPPORTUNITY AREAS: A NEW APPROACH TO U.S. AQUACULTURE DEVELOPMENT
- 11:30 Andrew M. Richard**, Kip Tyler, Steven Andrews Jr.
INTERAGENCY COORDINATION FOR OFFSHORE AQUACULTURE IN THE U.S. GULF OF MEXICO: A REGIONAL MODEL FOR ESTABLISHING EFFICIENCIES IN THE PERMITTING PROCESS FOR AQUACULTURE

- 11:45 Neil Anthony Sims**
WHAT THEY DON'T KNOW CAN INDEED HURT: WHY OCEAN ERA IS JOINING THE COALITION FOR SUSTAINABLE AQUACULTURE
- 12:00** PANEL ON POLICY ALIGNMENT
- 12:30 LUNCH**
- 1:30 Brittany Beauchamp, Johannie Duhaime, Anaïs Lacoursière-Roussel, G. Jay Parsons**
CANADA'S AQUACULTURE MONITORING PROGRAM
- 1:45 Steve Naylor**
THE EVOLUTION AND INNOVATION OF NET PEN CULTURE IN THE GREAT LAKES
- 2:00 Tyler Sclodnick, Jennie Korus**
SITE SELECTION FOR OPEN OCEAN AQUACULTURE
- 2:15 Kent Satterlee III, Dennis Peters**
USER CONFLICTS ASSOCIATED WITH MARINE AQUACULTURE IN THE GULF OF MEXICO
- 2:30 Dennis J. Peters, Neil A. Sims**
THE VELELLA EPSILON PROJECT: PIONEERING OFFSHORE AQUACULTURE IN THE SOUTHEASTERN GULF OF MEXICO; CHAPTER 5 – FINALIZING PROJECT PERMITTING AND PREPARING FOR DEPLOYMENT: ACT II
- 2:45 Corey Sullivan, Langley Gace**
UTILIZING NEW FARMING LOCATIONS VIA "DUCK-AND-COVER" AQUACULTURE
- 3:00 David Fredriksson, Adam St. Gelais, Richards Sunny, Matthew Bowden, Igor Tsukrov**
ASSESSING FATIGUE LOADS FOR KELP FARM MOORING LINES
- 3:30 Mikaela Freeman, Lysel Garavelli**
SUSTAINABLE DEVELOPMENT THROUGH CO-LOCATION: OFFSHORE AQUACULTURE AND MARINE RENEWABLE ENERGY
- 3:45 Michael MacNicoll, Tobias Dewhurst, Struan Coleman, David Fredriksson, Adam St. Gelais, Kelly Cole, Eric Laufer, Damian Brady**
QUANTIFYING THE STRUCTURAL REQUIREMENTS OF AN OPEN OCEAN KELP CULTIVATION FARM FOR CARBON DIOXIDE REMOVAL
- 4:00 Eliza Harrison**
THE POTENTIAL FOR OFFSHORE SEAWEED FARMING IN SOUTHERN CALIFORNIA
- 4:15 Zach Moscicki, Pete Lynn, Toby Dewhurst, Beth Zotter, Michael Chambers, Jon Pompa, Melissa Landon, Igor Tsukrov, Michael MacNicoll, Noah MacAdam, Rob Swift, Louis Gitelman**
INSIGHTS FROM A PILOT SCALE DEPLOYMENT OF A NOVEL KELP CULTIVATION SYSTEM FOR EXPOSED AND OFFSHORE ENVIRONMENTS
- 4:30 Jonathan Demmer, Simon Neill**
FROM ONSHORE TO OFFSHORE AQUACULTURE: HOW CAN NUMERICAL STUDIES HELP BLUE MUSSELS *Mytilus edulis* SHELLFISHERIES?
- 4:45 Kyle Morrison**
DEEPCHILLING: MAXIMIZING YIELD AND FRESHNESS WITH A SUBZERO COLD CHAIN

RESILIENCE IN THE SEAFOOD SUPPLY CHAIN THROUGH NOAA FUNDED COMMUNITY BASED AQUACULTURE

Friday, February 24 10:00 AM - 5:00 PM Salon C

Chair: Clifford Cosgrove

FRIDAY

10:00 WELCOME AND INTRODUCE SESSION AND CLIMATE CHANGE SURVEY

Session Chairs: Dan Wieczorek, Science Coordinator, NOAA Office of Aquaculture; Mark Rath, Aquaculture Manager, NOAA Sea Grant; Cliff Cosgrove, S-K Program Manager; Derek Orner, Moderator, NMFS

The survey will be conducted throughout the conference using a phone app to capture aquaculture climate conversations and concerns with the U.S. aquaculture industry with the intent of using the data to inform decision making and policy development.

10:15 Empowering resilience through training, research, and technical capacity building in Alabama

Melissa L. Partyka, PhD., Auburn University

Oyster farming in Alabama is a small but growing part of the local seafood economy. However, there are multiple environmental, regulatory, and technical challenges that can make building a successful business far from guaranteed. Our project seeks to empower oyster farmers and improve the resilience of their businesses through training to help navigate these many hurdles along with support for microbiological testing, and research to improve the way that the growing areas are managed and regulated.

10:30 Conversion of fish trimmings and skins to value-added fish meal and fish oil to support sustainability

Michael Joseph, Assistant Professor & Extension Specialist, Restage Department of Poultry Science, North Carolina State University

This NOAA-funded research is aimed at promoting sustainability amongst fish growers and the fish processing industry. The fish trimmings and fish skins generated as co-products in commercial fish processing industries are not sent for rendering in many instances. The small volume of these co-products generated does not make it an economical proposition to send to the rendering facility, instead these end in landfills (after sending a smaller quantity to pet food manufacturers). This project will showcase lab scale conversion of fish trimmings and skins into fish meal and fish oil which can be scaled up and the fish processing industry can do its own fish meal and fish oil production. Thus, the process will boost sustainability efforts and improve bottom line revenue for the fish processors.

10:45 Alabama Off Bottom Oyster Wet Storage and Depuration Facility Pilot Project Using Vacuum Air Lift™ (VAL) Technology

Doug Ankersen, President Ankers Subsea LLC

Vacuum Air Lift™ (VAL) is an innovative, efficient technology for wet storage and depuration of the farmed oysters during closures. VAL has a higher capacity, smaller footprint, and uses 50% less energy than the traditional depuration processes.

11:00 Advancement of Atlantic Croaker (*Micropogonias undulatus*) aquaculture

Nicole Kirchhoff, Live Advantage Bait LLC

Atlantic Croaker, native to the Atlantic and Gulf State regions, have high potential for multi-purpose aquaculture development, including live baitfish, food fish, and restoration. This project aimed to facilitate commercial development of this species through year-round reproduction and refining market economics.

11:15 Fortifying a Resilient Seafood Supply Chain in the Great Lakes Region

Lauren N. Jescovitch, Titus Seilheimer, Theodore Willis, Amy Shambach, Amy J. Schrank, and the GLAC team

The Great Lakes Aquaculture Collaborative (GLAC) works together in order to foster relevant, science-based initiatives that support aquaculture industries in the Great Lakes region that are environmentally responsible, competitive, and sustainable. Starting in 2019, GLAC has provided a centralized location for regular discussions, research, and events that are developed to meet the needs of industry as guided by state advisory groups. GLAC has also facilitated collaboration within the Great Lakes Sea Grant network for additional aquaculture work, such as Sea Grant's COVID-19 Rapid Response projects and the Great Lakes Fresh Fish Finder, which led to the creation of more robust industry needs assessments. Moving forward, funding of GLAC 2.0 will continue to meet the needs of state aquaculture business advisory groups formed under GLAC, as well as be a conductor for coordinating a broader, regionally funded Sea Grant research proposal for aquaculture. These projects have created aquaculture awareness using a regional, diversified, and strategic approach.

11:30 Snappers, oysters and fish nutrition; how Saltonstall-Kennedy has supported aquaculture development in Hawai'i and the U.S. Affiliated Pacific Islands for over 30 years

Jennica Lowell- Hawkins, Research Director, Ocean Era Inc.

Since the mid 1990's the S-K program has funded research on a wide range of aquaculture topics from new species development to animal nutrition. The results of these projects continue to encourage food security and sustainability in Hawai'i and the Pacific region.

11:45 Development and demonstration of integrated Aquafort multitrophic aquaculture in the north central Gulf of Mexico

Reginald B. Blaylock, Ph.D, Thad Cochran Marine Aquaculture Center, U of S. MS

A multidisciplinary team from the Dauphin Island Sea Lab, the University of Southern Mississippi, the University of New Hampshire, NOAA's Coastal Aquaculture Siting and Sustainability Program, Mississippi-Alabama Sea Grant, and Kelson Marine, Inc. has conducted spatial planning, initial site selection and surveys, and initial stakeholder engagement to support the deployment of an Aquafort in coastal waters of Mississippi and/or Alabama that will integrate the culture of fish, mollusks and macro-algae to promote economic diversity and environmental sustainability. Further work with permitting agencies, environmental assessment, and stakeholder engagement aims for deployment and demonstration by late 2022.

12:00 Oyster Farming Resilience Index

Russell Grice, LaDon Swann, Steve Sempier, Tracie Sempier, Stephen Deal

Commercial oyster farming has many challenges even during the best of times. To increase the opportunity for success and recovery during extraordinary events the Oyster Farming Resilience Index (OFRI) was developed recently by a team at the Mississippi Alabama Sea Grant Consortium (MASGC). The OFRI is a self-assessment tool developed for oyster farmers to serve as a simple and inexpensive method of predicting if individual businesses are prepared to maintain operations during and after disasters. In recent years, the industry has experienced everything from hurricanes, significant environmental events to COVID which closed restaurants for an extended period of time.

The OFRI is designed to be completed by farmers. However, Sea Grant staff are willing to meet individual farmers to assist in completing the OFRI and all conversations are confidential. When the OFRI is used, each farm should consider the farm's level of preparedness for both large- and small-scale events. Being able to withstand and adapt to events before they happen has become a focal point for businesses and industries. Recognizing the vital role that planning, reparation and collaboration play in developing and executing strategies is essential in building a resilient business.

This brief presentation will cover the major sections of the tool and provide contact information for those that would like to learn more or have questions about any of the indices.

12:15 Engaging women in IMTA production in Puerto Rico

Ralph G. Turingan, PhD

In this presentation, we will discuss the development of a nonformal curriculum for the training and education of Puerto Rican women in marine aquaculture (funded by the Gulf States Marine Fisheries Commission) using the IMTA system developed in the Isla Magueyes Marine Laboratories of the University of Puerto Rico (funded by the NOAA-SK program).

12:30 LUNCH

1:30 Welcome and Introduce Session and Climate Change Survey

Dan Wiczorek: Science Coordinator, NOAA Office of Aquaculture; Cliff Cosgrove: S-K Program Manager

The survey will be conducted throughout the conference using a phone app to capture aquaculture climate conversations and concerns with the U.S. aquaculture industry with the intent of using the data to inform decision making and policy development.

1:45 Finding Co-Culture Opportunities in Biofouling on Shellfish Farms: A Story of Seaweed and Basket Cockles in the Salish Sea

Emily Buckner, Puget Sound Restoration Fund

What does it look like to turn lemons into lemonade? This talk will discuss the process of finding creative and positive solutions for addressing biofouling challenges on intertidal shellfish farms, showcasing how shellfish farmers, tribal nations and upland farmers are working together in Washington State to increase connectivity and resilience in their environment and community.

2:00 Focusing research in support of a resilient, sustainable US aquaculture industry by asking communities what they need

Bill Walton, President, United States Aquaculture Society
Acuff Professor of Marine Science and Shellfish Aquaculture Program Coordinator, Virginia Institute of Marine Science

To meet the challenge of advancing a resilient and sustainable U.S. aquaculture industry, research needs to be focused on areas where there are opportunities for actionable outcomes. Increasingly, funding programs such as the National Marine Fisheries Service's Saltonstall-Kennedy program are prioritizing industry needs. This change calls for a switch from writing proposals and then seeking letters of support from industry to instead starting the entire process by talking with and listening to industry members in the aquaculture community about what outcomes they desire.

- 2:15 Gulf of Mexico Oyster Genetics and Breeding Research Consortium: SALT (Selection of Aquaculture Lines with improved Traits) Project**
Eric Saillant, Associate Professor, University of Southern Mississippi, Gulf Coast Research Laboratory

The SALT consortium aims to support the aquaculture industry in the Gulf of Mexico with eastern oysters bred for improved performance in different salinity environments. The program is evaluating the effectiveness of a common garden approach where families are mixed at fertilization and reared communally at multiple field sites representing high and low salinity environments until phenotyping. Molecular pedigrees obtained post-harvest are used to estimate breeding values in a walk back selection approach. Challenge experiments are also in progress to estimate heritability and genetic correlations for tolerance to high temperature and acute low salinity stresses assessed at the juvenile and adult stages. The research team works in collaboration with a business advisory council to discuss objectives of the program and orient activities to meet the demand of the industry.

- 2:30 Exploring Efficient Ways to Process Seaweed in Alaska**
Kathryn Carovano, Saltwater Inc
The presentation will describe an S-K grant funded project to address recognized bottlenecks – lack of processing options and absence of markets – that inhibit the expansion of the commercial seaweed sector in Alaska.
- 2:45 Promoting the Resurgence of the New Jersey Oyster Through Shell Recycling**
Nicole Haines, the American Littoral Society

A pilot project approach that will benefit the New Jersey fishing community by increasing the demand for local oysters by supplementing present marketing capacity, establishing a public understanding and educating consumers on the value of oyster growing businesses in restoring water quality and ecological quality in coastal waters and relieving pressure on local wild capture fisheries.

- 3:00 Hybridization in Clams to Achieve Efficiency and Larger Markets**
Tawainga W. Katsvairo, PhD, Southeastern SeaProducts Inc

We are growing hybrids of *M. campechiensis*, the southern quahog, and *M. mercenaria*, the traditional commercial clam. We expect the hybrids to be better adapted.

- 3:15 Evaluating Native Macroalgae Species of the Southeast U.S. and Caribbean Regions for Use in Integrated Multi-Trophic Aquaculture (IMTA)**
Haley Lasco, University of Miami, Rosenstiel School

- 3:30 Growing roots for a Sustainable Seafood Hub in South Central Los Angeles, California**
Dr. Amalia Aruda Almada, USC Sea Grant

The seafood industry in California has successfully focused on supplying specialty retailers and restaurants that primarily serve higher-income consumers; such a business model does not adequately take into account middle- and lower-income consumers and perpetuates existing deficiencies in seafood access and consumption among low-income populations. Our project will build upon a pilot effort established in early 2020 that developed a partnership between a local aquaculture producer, Holdfast Aquaculture; researchers from USC Sea Grant, SDSU, and USC; and a non-profit community organization headquartered in South Central Los Angeles, Community Services Unlimited. We will leverage the development of an in-person community seafood festival event and educational materials to support trust-building and partnership development across suppliers, restaurateurs and community-based organizations to catalyze access to nutritional, culturally appropriate, and sustainably grown aquaculture products among lower-resourced food insecure communities in South Central Los Angeles.

3:45 Empowering Seafood Servers to Tell the Stories of Aquacultured Oysters: Update on the Oysters Essentials Training Program

Bethany A. Walton, Executive Director, Oyster South

We are conducting a two-year program that targets seafood restaurant professionals to increase their understanding of the differences among oyster varieties and their ability to answer customer questions. Trainings are being conducted in eight southern U.S. coastal states as well as six 'foodie' cities across the U.S.; in the training, servers are given an 'oyster compass' as a tool to help remember how to differentiate oysters.

4:00 Furthering the Conversation for Resilience in the Seafood Supply Chain through Community Based Aquaculture

Town Hall Style Discussion with the day's presenters

ZEBRAFISH DAY 1

Friday, February 24 11:00 AM - 5:00 PM Riverview 2

Chair: Bobbi Baur

- 2:00 INTRODUCTION** Aquaneering
 ZIRC UPDATE Eryn Loucks/ZIRC
 UAB COURSE UPDATE Ryan Centini/U Alabama Birmingham
 ZHA UPDATE and Stewardship Award Josh Barber/Columbia
- 2:30 Veterinary Care for Zebrafish: What's Changed Since 2008**
 George Sanders/U Washington
- 3:00 Disease Monitoring**
 Speaker TBA
- 3:45 Recirculating Embryo Chamber Inserts**
 Jeff Wyatt/Rochester University
- 4:15 Fish BioAcoustics**
 Kelly Boyle/U New Orleans

FEDERAL SUPPORT FOR THE EXPANSION OF U.S. AQUACULTURE

Friday, February 24 11:00 AM - 5:00 PM Galleries 3

Chairs: Gabriela McMurtry, Caird Rexroad, Paul Zajicek

- 11:00 Opening Remarks**
 Michael Rubino, Jeffrey Silverstein, Sebastian Belle
- 11:10 Federal Perspective: U.S. Aquaculture's Role in Mitigating the Impacts of Climate Change**
 Ken Riley
- 11:30 Industry Perspective: U.S. Aquaculture's Role in Mitigating the Impacts of Climate Change**
 Bob Rheault

- 11:50 National Aquaculture Development Plan**
Jeffrey Silverstein
- 12:00 Strategic Plan for Aquaculture Economic Development**
David O'Brien
- 12:10 Annual Report for the Regulatory Efficiency Task Force**
Kristine Cherry
- 12:20 Annual Report for the Science Planning Task Force**
Caird Rexroad
- 12:30 LUNCH**
- 1:30 Interagency Roundtable**
Moderated by Session Co-chairs
- 3:00 Breakout Groups**
Moderated by Session Co-chairs, co-lead by Federal and Industry Representatives:
Group 1 Charlie Conklin, Tim Sullivan, Kip Tyler, Joel Bader
Group 2 Geno Evans, Jen Matysczak, Chuck Weirich
Group 3 Mike Freeze, Brianna McGuffie, Eric Landis, Dave Miko
Group 4 Jim Parsons, Mark Rath, Kathleen Hartman
Group 5 Paul Zajicek, Chelsea Durant, Travis Averill
- Breakout Questions:**
What are the major challenges in your aquaculture sector?
Why is your industry critical for mitigating the impacts of climate change?
How has federal research and development impacted your business?
How have changes in aquaculture regulatory efficiency impacted you?
What are your thoughts on the proposed economic development action items?
- 3:50 Breakout Groups Report**
Moderated by Session Co-chairs
- 4:20 Closing**
Michael Rubino, Jeffrey Silverstein, Sebastian Belle

INNOVATIONS IN AQUACULTURE

Friday, February 24 11:00 AM - 5:00 PM Studio 7

Chair: Jessie Sanders

Bringing New Ideas and Concepts to Aquaculture Management Practices.

- 11:00 EFFORTS TO ADVANCE FISH FARM FISH HEALTH BY THE NEW AQUACULTURE OUTREACH VETERINARIAN IN THE NORTH CENTRAL STATES**
Myron Kebus, Thomas Loch
- 12:30 LUNCH**
- 1:30 ENGAGING THE ANTI-AQUACULTURE CONTINGENT ON TWITTER – AS A PROFESSIONAL: WHY DO IT AND WHAT CAN WE LEARN?**
Hugh Mitchell

- 2:30 TOOLBOX FOR DIFFICULT DISCUSSIONS: HOW TO HAVE PRODUCTIVE CONVERSATIONS WITH USEFUL RESULTS APPLIED TO AQUACULTURE**
Jessie Sanders, Meghan Bergeron
- 3:00 LEVERAGING CAHPS: DECLARING PREMISES FREEDOM FOR EXPORTING AQUACULTURE FACILITIES**
Kathleen Hartman, USDA APHIS VS
- 3:15 CAHPS: HELPING MAKE AQUACULTURE HEALTH INSPECTION DECISIONS EASIER**
Kathleen Hartman, USDA APHIS VS
- 3:30 GUT HEALTH AND WHY IT MATTERS IN AQUACULTURE**
Jessica Koppien-Fox

STUDENT SPOTLIGHT AND PANEL DISCUSSION

Friday, February 24 11:00 AM - 12:30 PM Galeries 1

Chairs: Gulnihal Ozbay, Julia Grenn, Alyssa Stasse, Li Sun (Alyson) Chin

- 11:00 STUDENT SPOTLIGHT PRESENTATION PREVIEWS**
See Full Presentations in Galeries 1 Room at 11:00 on Friday

First Place Abstract Winner

Helen Montague

OUTCOMES OF *IN VITRO* FERTILIZATION WITH FROZEN-THAWED BLUE CATFISH SPERM AND IMPLICATIONS FOR GENE BANKING

Second Place Abstract Winner

Marianne Parent

TIME-SERIES ANALYSIS OF *Lepeophtheirus salmonis* AMONG NEW BRUNSWICK SALMON FARMS (2016 TO 2021)

Third Place Abstract Winner

Amanda Matthews

Suaeda linearis AN EMERGING SUPERFOOD SEA VEGETABLE

- 11:30 Student Panel Discussion**
Panelists: Bill Walton, Nasir Kureshy and Alex Laferriere

IMMUNOLOGY - STRESS

Friday, February 24 1:30 PM - 3:00 PM Salon D

Chair: Ken Cain

- 1:30 Ahmed Mustafa**
AQUACULTURE: IT IS TIME TO FOCUS ON THE QUALITY
- 1:45 Nahian Fahim, Ahmed Mustafa, Kusum Parajuli, Honey Win, Soufanieh Pierre**
PHAGOCYTTIC AND LYSOZYME ACTIVITY OF SEA URCHINS *Arbacia punctulate* IN DIFFERENT PHYSICAL AND CHEMICAL STRESSED CONDITIONS
- 2:00 Kusum Parajuli, Nahian Fahim, Janeen Dahouk, Soufanieh Pierre, Ahmed Mustafa**
PHYSIOLOGICAL AND BEHAVIORAL STRESS RESPONSES IN SEA STAR *Luidia clathrata* INDUCED BY HEAT AND ARM AMPUTATION

IN-POND RACEWAYS - SPLIT-PONDS

Friday, February 24 1:30 PM - 5:00 PM Studio 8

Chair: John Hargreaves

FRIDAY

- 1:30 Jesse Chappell**, Esau Arana, Philip Kemp, Zhou Enhau, Lukas Manomaitis
GLOBAL DEVELOPMENT OF IN-POND RACEWAY SYSTEMS: AN ENHANCED EFFICIENCY POND AQUACULTURE PRODUCTION APPROACH
- 1:45 Jesse Chappell**, Terry Hanson, Esau Arana, Philip Kemp, David Cline, Enhua Zhou, Lukas Manomaitis
THE DEVELOPMENT AND ON-LINE AVAILABILITY OF THE IN-POND RACEWAY SYSTEM MANUAL
- 2:00 Esau Arana**, Mildred Avila, Oscar Botero, Jesse Chappell, Diana Pazos
TILAPIA *O. niloticus* PRODUCTION EVALUATION BETWEEN HIGH, LOW STOCKING DENSITIES IN TRADITIONAL PONDS AND IPRS
- 2:15 David E. Brune**, John Hargreaves
OXYGEN AND NITROGEN DYNAMICS IN ENHANCED CATFISH PRODUCTION SYSTEMS
- 2:30 James Brown**, Ken Semmens
IMPACT OF FLOATING RACEWAYS ON WATER QUALITY IN A KENTUCKY WATERSHED POND
- 2:45 Morgan Cheatham**, Ganesh Kumar
RESEARCH VERIFICATION OF 4 COMMERCIALY UTILIZED SPLIT-POND DESIGNS
- 3:00 Jesse Chappell**, Terry Hanson, Zhou Enhau, Philip Kemp, Esau Arana, David Cline, Lukas Manomaitis
ECONOMICS OF IN-POND RACEWAY SYSTEMS – A GLOBAL PERSPECTIVE
- 3:15 Kenneth Semmens**
DEVELOPING A PROTOCOL TO ESTIMATE DAILY RATION AT A CONSTANT LEVEL BELOW SATIATION
- 3:30 Matthew A. Smith**
YELLOW PERCH CULTURED IN OHIO SPLIT PONDS
- 3:45 Tyler McKay**, Dawson Armstrong, James Brown, Ken Semmens
PRELIMINARY OBSERVATIONS ON GROWTH OF MALE AND FEMALE LARGEMOUTH BASS IN PONDS AND FLOATING RACEWAYS
- 4:00 Dawson Armstrong**, Kenneth Semmens
SUSPENDED FLOATING RACEWAY DESIGN, CONSTRUCTION, AND PRELIMINARY EVALUATION OF A 9.5 CUBIC METER SYSTEM
- 4:15 Kenneth Semmens**
REVIEW OF FLOATING RACEWAYS WITH A PERSPECTIVE FOR THE SMALL FARM

GENERAL SHELLFISH

Friday, February 24 1:30 PM - 5:00 PM Galleries 1

Chairs: Matthew Gray, Bill Walton

- 1:30 Rebekah Woodburn**, Adriane Michaelis, Barry Costa-Pierce, Zachary Miller-Hope
ZONED LEASING IMPACT ON SHELLFISH AQUACULTURE INDUSTRY DEVELOPMENT: A CASE STUDY ON FLORIDA'S AQUACULTURE USE ZONE
- 1:45 MacKenzie Tackett**, Helen Montague, Jim Stoeckel, Scott Rikard, Andrea Tarnecki, Ian Butts
BROODSTOCK CONDITIONING SALINITY IMPACTS SPERM QUALITY IN EASTERN OYSTER *Crassostrea virginica*
- 2:00 Andrew Kim**, Ava Salmi, Matthew Hoehn, Matthew Hess, Evan Simpson, Luke Gardner, Michael Graham, Scott Hamilton
OPTIMIZING AERATION RATE AND FEED CONCENTRATIONS FOR THE LARVICULTURE OF PURPLE HINGED ROCK SCALLOPS *Crassedoma gigantea*
- 2:15 Julianne Grenn**, William Walton
EFFECT OF BIOFOULING AND STOCKING DENSITY ON MICROCLIMATE IN OFF-BOTTOM OYSTER CULTURE GROW-OUT BAGS
- 2:30 Fred Cunningham**, Guiming Wang, Paul Burr, Jason Tappa, Madeline Redd, Jason Glover, Brian Dorr
COMPARING AVAILABLE DETERRENT METHODS TO REDUCE DOUBLE-CRESTED CORMORANTS ATTEMPTS TO ROOST ON FLOATING OYSTER CAGES
- 2:45 Shannon Hood**, Katherine McFarland, Louis Plough
ASSESSING PHYSIOLOGICAL AND MOLECULAR RESPONSES OF *Crassostrea virginica* TO WEEKLY DESICCATION TREATMENTS
- 3:00 Adrián A. Morales-Guadarrama**, Salvador Villasuso-Palomares, Miguel A. Tripp-Valdez, Clara E. Galindo-Sánchez, Carmen G. Paniagua-Chávez
THE EFFECT OF POLIDORIDS AND CO₂-CARBONATE SYSTEM ON GENE EXPRESSION OF PACIFIC OYSTER *Magallana gigas* BROODSTOCK CONDITIONED IN A RAS
- 3:15 Julie Le Ray**, Béatrice Bec, Annie Fiandrino, Lauryn Olla, Franck Lagarde, Nicolas Cimiterra, Vincent Ouisse, Sylvain Rigaud, Julie Régis, Marion Richard
DOES THE DECOUPLING OF PELAGIC AND BENTHIC COMPARTMENTS HAVE AN IMPACT ON ANOXIA TRIGGERING IN COASTAL LAGOON?
- 3:30 Kevin Marquez Johnson**, Matthew Van Prooyen, Nicholas Zarate, Rita Ventura, Jake Ethington, Megan Dotterweich, Kristin Hardy
HYPOXIA EXPOSURE OF PACIFIC OYSTER SEED INCREASES SURVIVAL TO SUBSEQUENT ANOXIA STRESS
- 3:45 Thomas Kiffney**, Binbin Jiang, Gabe Hesketh, Romain Lavaud, Emmanuel Boss, Damian Brady
SATELLITE DRIVEN OYSTER AQUACULTURE SITE SELECTION IN MAINE: FROM SUITABILITY INDEXES TO COUPLED GROWTH MODELS

- 4:00 Richards C. Sunny**, David Fredriksson, Matthew Bowden, Igor Tsukrov, Alex Knysh, Michael Chambers, Bill Silkes
NUMERICAL MODELING OF CONTINUOUS MUSSEL LONGLINES IN NEW ENGLAND OFFSHORE WATERS
- 4:15 Marcus Teat**, Jaqueline Maina, Theresa Venello, Gulnihal Ozbay
EASTERN OYSTERS RESTORATION, RECRUITMENT, AND THEIR IMPACT ON SPECIES DIVERSITY AND WATER QUALITY IN REHOBOTH BAY, DELAWARE
- 4:30 Kayla Roy**, Kristin Aquilino, Alyssa Walter, Kate Roetcisoender, Luke Gardner
WHITE ABALONE *Haliotis sorenseni* RESTORATION AQUACULTURE: AN ASSESSMENT OF FORMULATED DIETS AND PROBIOTICS
- 4:45 Christina LoBuglio**, Caroline Golightly, Meghan Capps, Scott Rikard
LITTLE DAUPHIN BAY OYSTER RESTORATION: REEF ENHANCEMENT OF *Crassostrea virginica* THROUGH AQUACULTURE TECHNIQUES
- 5:00 Reza Ovissipour**, Thet Aung, Shabnam Jeibouei
OUT ESTABLISHING A PRIMARY CELL LINE FROM THE EASTERN OYSTER *Crassostrea virginica* FOR DEVELOPING CULTIVATED OYSTER

PHYSIOLOGY

Friday, February 24 3:00 PM - 4:00 PM Salon D

Chair: Todd Sink

- 3:00 Reza Ovissipour**, Amity Banavar, Palak Garg, Reyhaneh Sarkarat, Shabnam Jeibouei,
OUT Sheida Hashemi, Mohammad Zarei
CULTIVATED SEAFOOD: FROM CELL TO FORK
- 3:15 Konrad Dabrowski**, Kevin Fisher, Mackenzie Miller
PURPOSES OF TETRAPLOIDY AND DISTANT HYBRIDIZATION IN FISH: KOI CARP (FEMALE) × GOLDFISH (MALE) EXAMPLE
- 3:30 Jamie Mankiewicz**, Beth Cleveland
CHARACTERIZATION OF LEPTIN RECEPTOR DEFICIENT RAINBOW TROUT *Oncorhynchus mykiss*
- 3:45 Andre Seale**, Fritzie Celino-Brady, Jason Breves
INVOLVEMENT OF THE GH/IGF SYSTEM IN SEXUAL SIZE DIMORPHISM IN TILAPIA
- 4:00 Amit Sinha**, Nicholas Romano
PROTECTIVE EFFECT OF ELEVATED WATER HARDNESS IN CHANNEL CATFISH FOLLOWING CHRONIC CHALLENGE WITH HIGH ENVIRONMENTAL AMMONIA AND SALINITY STRESS

SATURDAY, February 25

INTEGRATED MULTITROPHIC AQUACULTURE

Saturday, February 25 8:30 AM - 10:00 AM Salon E

Chairs: Michael Chambers; Michael Coogan

- 8:30 Yuanzi Huo**, Kevin Stuart, Federico Rotman, Mark Drawbridge
THE INTEGRATED CULTURE OF FISH, MUSSELS, SEA CUCUMBERS, AND
MACROALGAE IN A MODULAR INTENSIVE LAND-BASED RECIRCULATING IMTA
SYSTEM: PERFORMANCE AND WASTE REMOVAL EFFICIENCIES
- 8:45 Mark Drawbridge**, Yuanzi Huo, Erica Fanning, Torre Polizzi, Leslie Booher
PERFORMANCE OF *Ulva lactuca* IN A LAND-BASED INTEGRATED MULTI-TROPHIC
AQUACULTURE (IMTA) SYSTEM WITH WHITE SEABASS *Atractoscion nobilis*
- 9:00 Michael Acquafredda**, Beth Phelan
EVALUATING THE FEASIBILITY AND SUSTAINABILITY OF AN INTEGRATED MULTI-
TROPHIC RECIRCULATING AQUACULTURE SYSTEM USING STRIPED BASS *Morone*
saxatilis, SAND WORMS *Alitta virens*, AND SEA BEANS *Salicornia bigelovii*
- 9:15 Noah Kolander**, Scott Hamilton, Luke Gardner, Mike Graham, Andrew Kim, Maya deVries
AN INVESTIGATION OF ABALONE AND SEAWEED CO-CULTURE TO MITIGATE
OCEAN ACIDIFICATION EFFECTS
- 9:30 Haley Lynn Lasco**, Ronald H. Hoenig, Carlos E. Tudela, Jazmine O. Evans,
Daniel D. Benetti, Hilary G. Close, John D. Stieglitz
EVALUATING NATIVE MACROALGAE SPECIES OF THE SOUTHEAST U.S. AND
CARIBBEAN REGIONS FOR USE IN INTEGRATED MULTI-TROPHIC AQUACULTURE
(IMTA)
- 9:45 Michael Chambers**, Erich Berghahn, Mike Doherty, Gunnar Ek, Arron Jones
NOVEL INTEGRATED MULTITROPHIC AQUACULTURE PROJECTS IN THE GULF OF
MAINE, GULF OF MEXICO, PUERTO RICO, AND THE NORTHERN MARIANA ISLANDS

ECHINODERMS

Saturday, February 25 8:30 PM - 10:00 AM Galleries 5

Chair: Luke Gardner

- 8:30 Darien Mizuta**, William Walton, David Cerino, Richard Snyder
CO-CULTURE OF SEA URCHINS AND OYSTERS: A NATURE-BASED SOLUTION
APPROACH FOR BIOFOULING CONTROL
- 8:45 Ellena Negrete**, Emily Durham, Edgar Hernandez, Rowan Feltges, Nolan Santala
COMPARISON OF GONADAL GROWTH IN PURPLE URCHINS *Strongylocentrotus*
purpuratus USING THREE DIFFERENT DIETS
- 9:00 Bertha Patricia Ceballos-Vázquez**, Ailet Vives, María Dinorah Herrero-Pérezrul,
Tamara Rubilar, Roberto Civera-Cerecedo
EFFECT OF FORMULATED DIETS ON THE GONAD QUALITY OF THE SEA URCHIN
Tripneustes depressus

ORNAMENTALS

Saturday, February 25 8:30 PM - 11:00 AM Studio 9
Chairs: Michelle Walsh, Matt DiMaggio, Michael Schwarz
Co-organized by AFS Fish Culture Section

- 8:30 Timothy Currier**, Jose Reyes-Tomassini, Megan Williams
COMPARISON OF INDUCTION AND RECOVERY TIMES UNDER TWO DIFFERENT TEMPERATURES IN THE FALSE PERCULA CLOWNFISH *Amphiprion ocellaris* USING THE ANAESTHETIC AQUI-S® 20E
- 8:45 Casey Murray**, Olivia Markham, Eva Domas, Matthew DiMaggio
EXAMINING THE DIGESTIVE PHYSIOLOGY OF LARVAL *Betta splendens* TO IMPROVE LARVAL CULTURE PROTOCOLS
- 9:00 Katie E. Hiew**, Chatham K. Callan
EFFECTS OF SEX RATIO ON YELLOW TANG *Zebrasoma flavescens* BROODSTOCK MANAGEMENT
- 9:15 Olivia I. Markham**, Casey A. Murray, Sarah W. Hutchins, Matthew A. DiMaggio
EFFECTS OF ENVIRONMENTAL MANIPULATIONS ON SURVIVAL, GROWTH, AND FEEDING INCIDENCE OF LARVAL *Dascyllus auripinnis*
- 9:30 Quenton Tuckett**, Jeffrey Hill
BEST MANAGEMENT PRACTICES AND ESCAPEMENT OF ORNAMENTAL FISH FROM AQUACULTURE FACILITIES IN FLORIDA
- 9:45 Jessie Castanier**, David Portnoy, John Scarpa, Simon Geist, Jesse Gilbert
UNLOCKING AQUARIUM REEF FISH EGG AND LARVAL IDENTIFICATION WITH DNA BARCODING
- 10:00 BREAK**
- 10:30 Spencer Davis**, Chatham Callan
IMPROVING COPEPOD PRODUCTION EFFICIENCY: A BOTTOM-UP APPROACH TO INCREASE MARINE FINFISH AQUACULTURE YIELDS
- 10:45 Sarah Hutchins**, Casey Murray, Olivia Markham, Brad Gemmell, Matthew DiMaggio
MOD YOUR PODS: IMPROVING FEEDING SUCCESS OF MARINE LARVAL FISHES BY MODIFYING COPEPODS' ESCAPE RESPONSES

ROBOTICS IN AQUACULTURE

Saturday, February 25 8:30 AM - 11:30 AM Balcony L
Chairs: Allen Pattillo, Matt Parker

- 8:30 Allen Pattillo**, Xiaomin Lin, Yiannis Aloimonos
SIMULATION BASED OYSTER DETECTION
- 8:45 Mohammad Mahfujul Haque**, Ben Belton, Hazrat Ali, Amir Pouyan Nejadhashemi, Ricardo Hernandez, Khondker Murshed-e-Jahan, Hannah Ferriby
HARNESSING MACHINE LEARNING TO ESTIMATE AQUACULTURE'S CONTRIBUTIONS TO THE ECONOMY OF SOUTHWEST BANGLADESH

- 9:00 Lucas Caetano Meireles Pereira**, Bruna Guterres, Amanda Mendes, Kaue Sbrissa, Francisca Vermeulen, Lisl Lain, Marié Smith, Javier Martinez, Lucie Novoveska, Silvia Botelho, Paulo Drews, Nelson Duarte, Vinicius Menezes, Marcelo Pias
PERFORMANCE ANALYSIS OF EMBEDDED AI FOR PHYTOPLANKTON CLASSIFICATION
- 9:15 Mathew Zimola**, Peter Gale, Caitlyn Parsons
THE IMPORTANCE OF CREATING SUPPORTIVE TECHNOLOGY FOR RAS AND FLOW-THROUGH SYSTEMS
- 9:30 Chandler Smith**
USING REAL-TIME DATA MONITORING AND COLLECTION TO ACCESS FISH HEALTH AND CONDUCT SITE SURVEYS: AN INTRODUCTION TO THE BEACON®
- 9:45 Robin Littlefield**, Ben Weiss, David Bailey
RAPID OUT-PLANTING OF SEAWEED FARMS WITH AUTOMATED LINE SEEDERS
- 10:00 BREAK**
- 10:30 Ethan Weber**, Paul Wills, Bing Ouyang
EVALUATING ENVIRONMENTAL VARIABLES THAT INFLUENCE POND DISSOLVED OXYGEN TO INFORM PREDICTION MODEL DEVELOPMENT
- 10:45 William Fairman**, Paul S. Wills, James E. Garvey, Anthony Davis, Md. Arshadul Karim, Bing Ouyang
DEVELOPMENT AND FIELD TESTS OF HYBRID AERIAL UNDERWATER ROBOTIC SYSTEM (HAUCS) PAYLOAD FOR AUTONOMOUS DATA COLLECTION
- 11:00 Steve Pattison**, Mark Rice, Emily Caffrey, Robert Summers
AUTOMATING OYSTER AQUACULTURE WITH THE SUN

ALTERNATIVE FEEDS

Saturday, February 25 8:30 AM - 12:30 PM Salon D

Chair: Wendy Sealey

- 8:30 Gibson Gaylord**, Thomas Welker, Madison Powell, Steven Rawles
PHYTASE CAN REDUCE THE NEED FOR PHOSPHORUS SUPPLEMENTATION IN RAINBOW TROUT *Oncorhynchus mykiss* FEEDS
- 8:45 Brian Small**, Md. Sakhawat Hossain
INSECTS AND TROUT: EVALUATION OF MEALWORM PROTEIN AS A FISHMEAL REPLACEMENT FOR RAINBOW TROUT *Oncorhynchus mykiss*
- 9:00 Ronald Johnson**, Bernadita Anulacion, Pete Nicklason, Frank Sommers
USE OF MEALWORMS AS AN ALTERNATIVE INGREDIENT IN FISH FEEDS
- 9:15 Nicholas Romano**, Amit Sinha, Ashely Selman, Gde Pande, Surjya Datta, Carl Webster, Fernando Yamamoto
IMPROVEMENTS TO GROWTH AND INTESTINAL HISTOMORPHOLOGY IN TILAPIA BY DIETARY INCLUSIONS OF BLACK SOLDIER FLY *Hermetia illucens* LARVAE FRASS DEPENDS ON THE TYPE

- 9:30 Sidra Nazeer**, Khanh Nguyen, Magida Tabbara, Scott Tilton, Allen Davis
USE OF HIGH PROTEIN DISTILLER'S DRIED GRAIN WITH YEAST IN PRACTICAL DIETS FOR THE TILAPIA *Oreochromis niloticus*
- 9:45 Ewen McLean**, Kelly Campbell, Frederic Barrows
EVALUATION OF KRILL MEAL AS A FEED PALATANT FOR ATLANTIC SALMON *Salmo salar* (L., 1758) FED FISHMEAL AND FISH OIL-FREE DIETS

10:00 BREAK

- 10:30 Heikki Kesitalo**, Margareth Øverland, Jamie Hooft, Dominic Mensah, Liv Torunn Mydland, Byron Morales-Lange
PEKILO®: A MYCOPROTEIN IMPROVES GROWTH PERFORMANCE AND IMMUNE RESPONSE OF ATLANTIC SALMON
- 10:45 Emmanuel Ajani**, Halwart Mathais, Bamidele Omitoyin, Amrit Bart, Oluwafemi Ajayi, Yuan Xinhua, Austin Stankus, Gray Burtle, Kazeem Kareem, Esengudue Greg Fonsah, Babatunde Oduntan, Leramo Georgina, Yahaya Abubakar, Johpaul Ikwuemesi, Lawani Arungu
APPARENT DIGESTIBILITY COEFFICIENTS OF BY-PRODUCTS IN INTEGRATED RICE AND FISH FARMING (RICE BRAN AND FISH OFFAL MEAL) FED TO THE AFRICAN CATFISH *Clarias gariepinus* (BURCHELL, 1822) AND *Oreochromis niloticus* (LINNAEUS, 1758) JUVENILES
- 11:00 Mosunmola Lydia Adeleke**
STATUS OF LOCAL FISH FEED MILLS IN NIGERIA: THE CASE OF AKURE METROPOLIS
- 11:15 Abere Fenta Getie**
PRODUCTION OF MICROALGAE AND THEIR POTENTIAL USE AS HATCHERY FEEDS IN AQUACULTURE

WOMEN IN AQUACULTURE

Saturday, February 25 8:30 AM - 12:30 PM Balcony J

Chair: Angela Caporelli

- 8:30 Jasmine Iniguez:** Assistant Professor for a new Aquaculture program at College of the Redwoods in Northern California.

Jasmine is assisting with the development of the program while also working directly with local aquaculture industry partners. As a new faculty member, she looks forward to networking with the dedicated women in the industry. LA VIDA CON LOS PECES - LIFE WITH THE FISHES

- 8:55 Amy Riedel-Stone:** President & Owner Aquatic Equipment & Design Inc.

Amy Stone has over 20 years of experience with designing, building and managing aquaculture and aquaponics greenhouses as well as zoo and aquarium filtration systems. She has managed hatcheries, live feeds and grow-out for marine finfish as well as an aquaponics greenhouse. She previously worked at Aquatic Eco-systems for over 14 years before opening her own company. As a leader in the industry, Amy is active on several boards, especially NAA.

9:20 Nancy L. Caruso: Founder and Executive Director of Get Inspired, Inc.

Nancy studied Marine Biology with an emphasis in aquaculture and has taught aquaculture to over 10,000 students over the last 20 years through her ocean restoration programs in California. Nancy founded Get Inspired, a nonprofit organization with a mission to Inspire stewardship and curiosity for the natural world through the exploration of science. She has been working on restoration projects to restore the kelp, green abalone, white seabass, and Pismo clams by teaching students to grow them in their classrooms and training volunteer divers to help her in the field.

9:45 Afton Vigue: Outreach & Development Specialist, Maine Aquaculture Association

Having grown up in a traditional fishing family on the coast of Maine, Afton is familiar with the ways in which gender roles can impact women in the seafood sector, primarily by devaluing their contributions, limiting their choices, and making them seem invisible. Working in aquaculture, she has discovered and connects with a network of amazing women who are not only uplifting one another, but also fighting hard to increase racial and gender representation in the seafood sector as a whole.

10:10 Anoushka Concepcion: Associate Extension Educator with the Connecticut Sea Grant Program, Avery Point Campus in Groton, CT

"It was on a trip to India to visit family when we passed by a fish farm. My father said I should be using my degree in Marine Biology to grow fish to feed the people in our village." Anoushka is a faculty member in UConn's Department of Cooperative Extension focusing on marine aquaculture, including seaweed. Anoushka collaborated with industry and regulators specifically with the development of guidance on issues associated with seaweed grow-out and processing, market development and permitting. She consults, carries out responsive research, organizes workshops for industry and the public, and presents at various research conferences.

10:35 Chelsea Walling: Extension and Research Associate- Aquaculture, College of Agriculture, Community and the Sciences, Kentucky State University

WOMEN ASPIRE AND EXCEL THROUGH AQUACULTURE CAREERS

As a first generation college student, it can seem overwhelming to advance your education because assistance and experience may be limited. It is important in this industry, especially for women, to find successful mentors and receive guidance from those that have paved the way. Having a network of female aquaculture professionals can facilitate enhanced collaboration and create lasting relationships that can help to advance careers and overall industry knowledge.

11:00 Sahar Mejri: "The world of aquaculture through several countries and challenges"

Sahar Mejri is an Assistant Research Professor at HBOI, FAU, in reproductive and developmental biology of fish. Sahar is from Tunisia in North Africa. She left her country to North America for her graduates' studies in 2009. She earned a master's and PhD from UQAR-ISMER in Quebec, CA in Biological Oceanography in 2011 and 2016, respectively. She started a postdoc at University Laval, QC, for one-year following her PhD, and moved to Florida in 2017 for another postdoc at HBOI-FAU. Since 2019, Sahar has been an assistant professor at HBOI-FAU.

**11:25 Akinyemi Abisola: "ASSESSING POWER PLAY AND GENDER AMONG FISH
OUT MARKETERS IN SOUTHWEST STATES OF NIGERIA"**

Male and female in most developing countries of the world do not contribute to fish marketing the same way, due to power dynamics. Female also contribute to marketing activities but may not be the key decision makers regarding fish management strategies, product uses and sales. Awareness on gender studies among fish marketers has increased, but with diverse and limited depth of data analyses. However, assessing factors that influence power play and fish sales among fish marketers are usually not included in the gender roles of fish marketers. Therefore, the study was aimed to analyze the socio- economic characteristics of fish marketers and identify the determinants of power play among fish marketers in Lagos and Oyo States, Nigeria.

Angela Caporelli: Wrap up and interesting comments

11:55 Panel Discussion with participants: All, pending no conflicts and- Imani Black imanib@mianpo.org; Julie Kuchepatov julie@seafoodandgenderequality.org; Katie Harris katie@mtlissentrout.com; Anoushka anoushka.concepcion@uconn.edu , Rebecca Lochmann, Hutchins, Sarah W swoolley@ufl.edu, Jasmine-Iniguez@Redwoods.edu, chelsea.walling@kysu.edu, abisoladipo@yahoo.com, and many more.
All welcome!

THE 4TH ANNUAL U.S. MARINE FINFISH AQUACULTURE SESSION

Saturday, February 25 8:30 AM - 12:30 PM Salon A

Chairs: Marty Riche, Sahar Mejri, Omolota Betiku

- 8:30 Caird Rexroad, III**
Introduction
- 8:45 Kenneth Riley**, Charles Weirich, Mark Rath, James Morris, Jr.
NOAA'S EFFORTS TO ADVANCE MARINE FINFISH AQUACULTURE DEVELOPMENT IN THE U.S.
- 9:00 Michael Rust**
CAN WE USE STEPPING STONE TECHNOLOGIES TO GET OCEAN BASED FISH CULTURE MOVING?
- 9:15 John Stieglitz**, Ronald Hoenig, Carlos Tudela, Luiz Anchieta da Silva, Daniel Benett
STRATEGIES FOR SUCCESSFUL DEVELOPMENT OF MARINE FISH SPECIES FOR AQUACULTURE
- 9:30 Marty Riche**, Paul S. Wills, Sahar Mejri, David Bradshaw, Carlie Perricone, Laura King
ESTABLISHING SEEDSTOCKS FOR THE U.S. MARINE FINFISH INDUSTRY
- 9:45 Kevin Fitzsimmons**, Kelly B. Campbell, Ewen McLean, Frederic T. Barrows
F3: ACCELERATING THE RACE TO REPLACE THE FISH IN FISH FEED
- 10:30 H-Michael Habte-Tsion**, Marty Riche, Sahar Mejri, Joseph J. Myers, David Bradshaw, Carlie Perricone, Paul S. Wills
THE EFFECTS OF CLAM MEAL SUBSTITUTION ON THE GROWTH, DIGESTION CAPACITY AND HEALTH OF FLORIDA POMPANO *Trachinotus carolinus*

- 10:45 Omolola Betiku**, Marty Riche, H-Michael Habtesion, Sahar Mejri, Brandon McHenry, Joseph J. Myers, Paul S. Wills
NUTRIENT AVAILABILITY FROM CLAM MEAL AND HEMP MEAL IN FLORIDA
POMPANO *Trachinotus carolinus*
- 11:00 Halleluyah Ademilua**, Omolola Betiku, Marty Riche, Paul S. Wills
A COMPARATIVE GROWTH RESPONSE OF FLORIDA POMPANO *Trachinotus carolinus*
AND RED DRUM *Sciaenops ocellatus* TO HEMP PROTEIN ALTERNATIVE DIETS WITH/
WITHOUT TAURINE SUPPLEMENTATION
- 11:15 Nicole Kirchoff**
COMMERCIAL AVAILABILITY OF SEED FOR NON-ORNAMENTAL WARM WATER
MARINE FISH

AQUACULTURE KNOWLEDGE FROM OLD COOTS: THIRD EDITION

Saturday, February 25 8:30 AM - 12:30 PM Galeries 6
Chair: Bob Robinson

- 8:30 Keep the White Side Down and Other Lessons Learned**
Gary Fornshell – Owner, Aquaculture Results LLC
- 9:00 Opportunities Lost and Found**
Dave Conley – Director Corporate communications, AquaBounty Technologies, Inc.
- 9:30 If You Get Lucky...Don't Screw it Up - Lessons learned from 50 years in the Trout Industry**
Ken Cline – Former owner of Cline Trout Farms
- 10:30 How Fish Health has Evolved**
Dr. Myron Kebus – Regional Aquaculture Outreach vet., MI State University
- 11:00 Just Do Something**
Dr. Dave Smith – President & Owner, Freshwater Farms of Ohio
- 11:30 Some Early Experiences in Managing Aquaculture Wastewater**
Charles (Sandy) Harris – General Director, Aqua Projects International

AQUACULTURE ECONOMICS - CONTINUED

Saturday, February 25 8:30 AM - 12:30 PM Galeries 2
Chairs: Ganesh Kumar, Frank Asche

- 8:30 Audun Iversen**, Andreea Laura Cojocaru, Thomas Nyrud, Roy Robertsen, Lotte Leming Rognsås, Per Fredrik Johnsen, Oddbjørn Grønvik, Svenung Fjose, Atle Blomgren, Øystein Fjelldal
THE GROWING IMPORTANCE OF AQUACULTURE: THE CASE OF NORWEGIAN SALMON
- 8:45 Erling Vårdal**
CURRENCY CHOICES OF NORWEGIAN EXPORTERS OF AQUACULTURE PRODUCTS

- 9:00 Lijun Liu**, James Anderson, Frank Asche
RISKIER THAN YOU THINK? UNCERTAINTY IN SHRIMP AQUACULTURE
- 9:15 Md. Akhtaruzzaman Khan**, Md. Emran Hossain, Ali Shahaab, Rasmus Nielsen, Max Nielsen, Imtiaz Khan
AN OVERVIEW OF SHRIMP SECTOR IN BANGLADESH: WAY TO ENTRY INTO INDUSTRY 4.0
- 9:30 Robert Rebnor**
EXCHANGE RATE PASS-THROUGH IN NORWEGIAN AQUACULTURE EXPORTS
- 9:45 Robert Botta**, João-Pedro Ferreira, Edward Camp, Christa Court, Andrew Ropicki
ECONOMIC CONTRIBUTIONS OF FLORIDA'S AQUACULTURE INDUSTRIES: FOOD FISH COMMODITY GROUP
- 10:00 BREAK**
- 10:30 Jose Fernandez Polanco**, Ignacio Llorente, Jose Luis Fernandez Sanchez
SUBSTITUTION ACROSS WHITE FARMED FISH IN THE MEDITERRANEAN MARKETS
- 10:45 Lianqun Sun**, Ganesh Kumar
FACTORS INFLUENCING U.S. RETAIL SEAFOOD MARKET SALES
- 11:00 Madan M. Dey**, M. Saidur Rahman, M. Akhtaruzzaman Khan, M. Farid Dewan, K.H.M. Nazmul Hussain Nazir, Pratheesh O. Sudhakaran
WILLINGNESS TO PAY FOR SAFER FOOD: EVIDENCE FROM AN EXPERIMENTAL AUCTION OF FISH IN BANGLADESH
- 11:15 Roberto Cardenas**, Adams Ceballos, Frank Asche
THE SOCIOECONOMIC IMPACT OF SALMON AQUACULTURE IN CHILE
- 11:30 Subodh Raj Pandey**, Pratheesh Omana Sudhakaran
DETERMINING THE FACTORS AFFECTING CONSUMER WILLINGNESS TO PAY FOR SEAFOOD SAFETY DECISIONS IN TEXAS, UNITED STATES
- 11:45 José Fernandez Polanco**
LIFE CYCLE OF AN ANCIENT OYSTER FARMING BUSINESS: THE CASE OF LAKE LICRINUS (85 BC - 79 AD)
- 12:00 Sarah Bodenstein**, Isabelina Nahmens, Brian R. Callam, Terrence R. Tiersch
SIMULATION ANALYSIS OF HIGH-THROUGHPUT OYSTER CRYOPRESERVATION AT THREE SCALES OF PRODUCTION

AQUACULTURE EDUCATION, EXTENSION, TECHNOLOGY TRANSFER

Saturday, February 25 8:30 AM - 12:30 PM Studio 8
Chairs: Forrest Wynne, Matt Smith, David Cline, Angela Caporelli

- 8:30 David Cline**
BUILDING A BETTER POWER POINT PRESENTATION
- 8:45 Emma Hauser**, Tyler Firkus, Chris Hartleb
CULTURE MANUAL ACCOMPANIED BY HOW-TO VIDEOS TO HELP GUIDE AN
EMMERGING WALLEYE *Sander vitreus* INDUSTRY
- 9:00 Matt Parker**
DEVELOPING A RELEVANT TOOL FOR STAKEHOLDERS: STORIES IN FRUSTRATION
- 9:15 Catherine Frederick**, Jim LaChance, Laura Rickard, Nathan Smith
MULTI-COUNTY ASSESSMENT ON LOCAL PERSPECTIVES AND SITE SUITABILITY
OF COMMERCIAL RAS OPERATIONS IN MARYLAND, MAINE, AND BEYOND
- 9:30 Kieran Smith**, Lauren Jescovitch, Elliot Nelson, Barbara Evans, Amy Schrank
WHAT DO CONSUMERS KNOW ABOUT AQUACULTURE? SURVEY FINDINGS FROM
THOSE WHO EDUCATE CONSUMERS
- 9:45 Bernadette Fregene**, Harrison Charo-Karisa, Rodrigue Yossa, Paul Bolorunduro,
Ajibola Olaniyi, Ahmed Khan
TECHNOLOGIES FOR SUSTAINABLE AQUACULTURE DEVELOPMENT IN AFRICA:
WHAT NOW?
- 10:00 BREAK**
- 10:30 Barbara Evans**, Elliot Nelson
AQUACULTURE WORKSHOPS: TEACHING THE TEACHERS
- 10:45 Lauren Jescovitch**, Elliot Nelson
AQUACULTURE LITERACY IN 360: A VIRTUAL TRIP TO INDONESIA FISH FARMS
- 11:00 Zachary Gordon**, Meghana Parikh, Dale Parsons, Eric Robillard, Kira Dacanay,
Bob Schuster, Gary Wikfors
THE COLLABORATIVE BENEFITS OF THE NOAA NEFSC - SEA GRANT CONNECTION:
AN EXAMPLE INVESTIGATING POOR GROWTH OF HARD CLAMS IN NEW JERSEY
- 11:15 Hayley Lemoine**, Laura Tiu, Dennis Peters, Sarah Lester
WORKING ON THE VELELLA EPSILON PROJECT: A GRADUATE STUDENT
EXPERIENCE
- 11:30 Forrest Wynne**
MENTORING A BEGINNING SMALL-SCALE CATFISH FARMER: YEAR ONE
- 11:45 Marius Nicolini**, Oistein Thorsen, Murilo Henrique Quintiliano, Ralf Onken
AQUACULTURE WELFARE ASSESSMENT – A BOTTOM-UP APPROACH TO
AQUACULTURE IMPROVEMENT
- 12:00 David E. Brune**
ZERO-DISCHARGE AQUACULTURE AS AN ECONOMIC OPPORTUNITY FOR
MIDWESTERN FARMERS

SATURDAY

SHRIMP HEALTH AND DISEASE

Saturday, February 25 8:30 AM - 12:30 PM Galleries 3

Chair: Arun Dhar

- 8:30 Breno Fragomeni**
GENOMIC SELECTION APPROACHES TO DEVELOP DISEASE-RESISTANT SHRIMP
- 9:00 Kathleen Hartman**, Lori Gustafson, Thomas Waltzek
APHIS VS. GUIDANCE ON SAMPLING AND POOLING FOR SHRIMP HEALTH INSPECTIONS
- 9:30 Paul Schofield**, Tanner Padilla, John Foscue, Arun Dhar
REVIEW OF *IN VIVO* *Enterocytozoon hepatopenaei* (EHP) PROPAGATION FOR USE IN EXPERIMENTAL CHALLENGE STUDIES USING *Penaeus vannamei*
- 9:45 Thi Huynh**
ENGINEERING AN INFECTIOUS cDNA CLONE OF *Laem Singh virus* INFECTING SHRIMP TO DEVELOP A VIRAL VECTOR TO DELIVER ANTIVIRAL THERAPIES
- 10:00 BREAK**
- 10:30 Rod Russel Alenton**, Hung Mai, Arun Dhar
RNA-BASED TARGETED THERAPEUTICS REACH UNDERWATER THROUGH AN ORAL DELIVERY PLATFORM USING A SHRIMP VIRAL VECTOR
- 10:45 Arun Dhar**, Roberto Cruz-Flores, Hung Mai, Janet Warg
COMPARISON OF REAL-TIME PCR ASSAY PERFORMANCE FOR DETECTING *Decapod penstylhamaparvovirus 1* IN PENAEID SHRIMP
- 11:00 Arun Dhar**, Janet Warg, Hung Mai, Paul Schofield, Richard Clayton
VALIDATION OF A REAL-TIME PCR ASSAY IN DETECTING INFECTIOUS HYPODERMAL AND HEMATOPOIETIC NECROSIS VIRUS (IHNV) IN PENAEID SHRIMP
- 11:15 Luke Keeton**, Susan Knudson, Noti Chaitanya
MICROBIAL POPULATION DYNAMICS IN PONDS FROM INDIA WITH WHITE FECES SYNDROME COMPARED TO PAIRED PONDS WITHOUT THE SYNDROME

AQUATIC ANIMAL DRUG UPDATES

Saturday, February 25 8:30 AM - 2:45 PM Studio 7

Chairs: Julie Shroeter, Alan Johnson

- 8:30 FDA Center for Veterinary Medicine's Aquaculture Strategic Plan and Center Updates**
Jennifer Matysczak; FDA/CVM
- 9:00 The New Animal Drug Approval Process: Highlight on Conditional Approval and Presubmission Conferences**
Jennifer King; FDA/CVM
- 9:15 First Steps: Turning Your Fish Health Program into a Promising Drug Development Project**
Eric Landis; FDA/CVM

- 9:30 AADAP Research Program Updates**
Niccole Wandelaar; USFWS-AADAP
- 9:45 Efficacy of Chloramine-T to Control Mortality due to External Columnaris Disease Caused by *F. Columnare* in Juvenile Late Fall Chinook Salmon**
Julie Schroeter; USFWS-AADAP
- 10:00 BREAK**
- 10:30 INAD Update**
Paige Maskill; USFWS-AADAP
- 10:45 Summary of Application Process with Spawning Implant for Indexing**
Nicole Kirchoff; Live Advantage Bait, LLC
- 11:00 17-MT Indexing for Ornamental Fish**
Craig Watson; UF/IFAS Tropical Aquaculture Laboratory
- 11:30 Alternatives to Antibiotics: New and Old**
Charles Stewart-Bates; OH State University College of Veterinary Medicine/OR State University Fisheries Management Graduate Certificate program
- 12:00 Antibacterial Activity of Sea Urchins (*Arbacia punctulate* and *Strongylocentrotus droebachiensis*) Body Wall Extracts Against Gram Positive and Gram Negative Pathogenic Bacteria**
Ahmed Mustafa; Purdue University
- 12:30 Feminization of Male Brown Trout *Salmo trutta* by Estradiol Addition to Feed at Several Treatment Dosages and Durations**
Dan Schill; Fisheries Management Solutions, Inc.

ZEBRAFISH DAY 2

Saturday, February 25 8:30 AM - 5:00 PM Riverview 2

Chair: Bobbi Baur

BASIC HUSBANDRY SESSION

- 8:30 Zapped? A Deeper Dive Into What We Know and Don't Know About UV Disinfection for Zebrafish Aquaculture Systems**
Hugh Hammer, U Pittsburgh
- 9:00 Ready for Anything: Designing Adaptable Systems for Non-Model Organisms**
Brittany Walsh, Harvard U

FISH DISEASES SESSION– Coordinated by Dr. Michael Kent/Oregon State University

- 9:30 Pseudoloma in Swamp Guppies in Grenada**
Corbin Schuster, ZIRC
- 9:50 Early Detection of Pseudocapillaria using qPCR**
Connor Leong, Oregon State U
- 10:10 A Case of *Mycobacterium haemophilum* in Medaka**
Katy Murray, ZIRC
- 10:30 BREAK**

- 11:00 Zebrafish (Aquatics) Facility Management: In a Post COVID World**
Kara Maloney, Children's Hospital Boston
- 11:20 Making the Right Call: Procedural Communication with Researchers on Sick Fish**
Joseph Mat Schech, Baylor College of Medicine
- 11:40 Using Cryopreservation for Line Maintenance**
Meghan Aguirre, Cryogenetics
- 12:00 Review of Interesting Cases – Past Two Years**
Michael Kent, Oregon State U
- 12:30 LUNCH**
- KEYNOTE SPEAKER**
- 1:30 The Gut Microbiome: Fishing for Answers**
Dr. Thomas Sharpton, Oregon State University
- 2:30 Replacement of Dietary Fish Protein with Bacterial Single Cell Protein Results in Decreased Adiposity Coupled With Liver Expression Changes in Female Zebrafish**
Michael Williams, U Alabama Birmingham
- 2:50 The Effect of Bacterial Based Single-Cell Protein on the Gut Microbial Composition, Predicted Functional Profiles, and Taxonomic Co-Occurrence networks on Zebrafish**
George Green, U Alabama Birmingham
- 3:10 Keeping Your Facility Clean: Standard Laboratory and Cleaning Protocols**
Josh Barber, Columbia University
- 3:30 BREAK**
- 4:10 The Effects of Social Isolation on Stress, Neurochemical Signaling, and Feed Intake in Zebrafish**
Aubrey Dissinger, Southern Illinois University
- 4:30 Development and Analysis of Novel Handling Methods and Husbandry Solutions to Increase Replicability and Reproducibility in Zebrafish Research**
Robert Gerlai, U Toronto Mississauga
- 5:00 TOWN HALL MEETING** (*Sponsored by Aquaneering*)

SHELLFISH MARICULTURE

Saturday, February 25 10:30 AM - 12:30 PM Galleries 1

Chair: Jason Walsh

This session will consist of a moderated discussion between five policy professionals involved in shellfish leasing and management as well as allow for Q&A between panelists and audience members. The panel will discuss current and future opportunities for collaboration and information-sharing across states. They will explain barriers to expansion from a business perspective in their state and share innovative practices that have been useful in facilitating growth. Panelists will consist of: Portia Sapp (*Florida Division of Aquaculture*), Russell "Rusty" Grice (*Mississippi-Alabama Sea Grant Consortium*), Bill Walton (*Virginia Institute of Marine Science*), Matt Parker (*University of Maryland*), and Owen Mulvey-McFerron (*NC Division of Marine Fisheries*).

BRACKISH WATER AQUAPONICS

Saturday, February 25 10:30 AM - 12:30 PM Salon E

Chairs: Jill Fisk, Leo Fleckenstein

- 10:30 Andrew Ray**, Jill Fisk, Leo Fleckenstein
EDIBLE AND MARKETABLE PLANT SPECIES IN BRACKISH-WATER AQUAPONICS
- 10:45 Jonathan Kershaw**, Jill Fisk, Natalie Nieschwitz, Tara Hites, Leo Fleckenstein, Nathan Kring, Andrew Ray
THE EFFECT OF SALINITY ON HUMAN SENSORY CHARACTERISTICS OF KALE WINTERBOR F1 HYBRID *Brassica oleracea* GROWN IN DECOUPLED BRACKISH-WATER AQUAPONICS SYSTEMS
- 11:00 Paul Brown**, Yu-Ting Chu
SHRIMP AQUAPONICS RESEARCH AT PURDUE UNIVERSITY – OPTIMAL SALINITY, SHRIMP/PLANT RATIO, AND OPTIMAL DIETARY CRUDE PROTEIN
- 11:15 Amanda Matthews**, Megan Davis, Richard Baptiste, Paul Wills, Mike McCoy
Suaeda linearis: AN EMERGING SUPERFOOD SEA VEGETABLE
- 11:30 Megan Davis**, Raimundo Espinoza, Edna Díaz Negrón, Paola Sotomayor Landrón
SEA VEGETABLE AQUAPONICS IN PUERTO RICO
- 11:45 Leo Fleckenstein**, Jill Fisk, Andrew Ray
SALINITY TOLERANCE OF BELL PEPPER *Capsicum annuum* IN BRACKISH WATER
- 12:00 Barbara Evans**, Derek D. Wright, Benjamin J. Southwell, Emily Hebert
ACCUMULATION OF METAL IONS IN CLOSED LOOP AQUAPONICS

SATURDAY

PERCEPTIONS OF AQUACULTURE: BETWEEN THE FARM AND TABLE

Saturday, February 25 8:30 AM - 10:00 AM Galeries 1

Chairs: Bill Walton, Adriane Michaelis

Research and engagement efforts targeting the varied sectors that comprise, support, and interact with the aquaculture industry can strengthen the overall understanding of and work surrounding perceptions of marine aquaculture. Specifically, this session features the views and values of culinary professionals and the food service sector. Framed by a U.S.-focused seafood perceptions project, we will host a panel discussion that centers on preferences, purchasing, and overall perspectives from those involved with the purchasing, sale, and preparation of seafood. We consider the role of chefs, servers, wholesalers, and others affiliated with the food service sector in order to better understand how what happens *between* the farm and the table influences the seafood industry.

To bring a diverse and real-world perspective to these questions, we've brought together an exciting panel, including:

- Cortlandt Avila - Manager, Row 34, Boston, MA
- J.T. Mckissack - Sales Manager, Evans Meats and Seafood, Birmingham, AL
- Chris Miller - Manager, Pêche; New Orleans, LA
- Nicole Mills - Chef, Pêche; New Orleans, LA
- Michael-Ann Rowe - Seafood media and marketing expert; NYC
- Jeremy Sewall - Chef, Row 34; Boston, MA
- Frank Stitt - Chef and owner, Highlands Bar and Grill, Bottega, and Chez Fonfon, Birmingham, AL

8:30 WHAT DO YOU RECOMMEND? PURCHASING AND INFORMATION TRANSFER IN THE SEAFOOD SERVICE SECTOR

Adriane K. Michaelis and William C. Walton
Auburn University Shellfish Laboratory
150 Agassiz St.
Dauphin Island, AL 36528
adriane.michaelis@noaa.gov

To enable U.S. aquaculture expansion, it is imperative for aquaculture producers to understand potential markets and how to tailor their practices to reach those markets. Research demonstrates that consumers are potentially willing to pay higher prices for local, farmed, and branded marine products (Atlantic Corporation 2019; Brayden et al., 2018; Chen et al., 2017; Petrolia et al., 2014), however little has been done to understand the role of distributors, chefs, and restaurant staff in guiding consumer preferences, purchasing, and markets more broadly.

This study employed a nationwide effort to understand the factors that influence purchasing as well as knowledge transfer within the US seafood service sector. Using a pandemic-adjusted approach pairing semi-structured interviews with an online survey, seafood chefs, restaurateurs, restaurant purchasers, front of house staff, wholesalers/distributors, and retailers were targeted. Questions focused on the factors that guide purchasing (i.e., why do you buy the seafood that you buy?) and how seafood-related information is obtained and shared.

Results span a range of purchasing-related topics including: seafood information needs, access, and transfer; use of seafood certification programs; distinctions between wild and farmed products; geographic preferences; ranked factors influencing purchase; and U.S. seafood safety and sustainability. In addition, effects of the COVID-19 pandemic on present and future purchasing are considered.

By focusing on an understudied but potentially influential sector of the aquaculture industry, results from this project benefit: 1) aquaculture producers, who can realize how to better cultivate and/or market their product, 2) industry researchers and proponents who will have greater awareness of potential misconceptions and information needs, and 3) the seafood service sector, who in turn will have enhanced availability of desired aquaculture products and be better positioned to use accurate, science-based information to influence consumers' buying decisions.

8:45 SEAFOOD PERCEPTIONS AND PURCHASING: A FOOD SERVICE INDUSTRY PANEL

William C. Walton and Adriane K. Michaelis
Virginia Institute of Marine Science, William & Mary
1375 Greate Rd., Gloucester Point, VA 23062
walton@vims.edu

Culinary professionals, seafood purchasers, and others involved in the seafood service sector play a key decision-making role in the aquaculture industry. With the potential to impact seafood demand through direct purchasing as well as consumer guidance, engaging with these influential industry members to understand perspectives and the factors that shape purchasing in this sector is critical to advancing US aquaculture.

In this panel discussion, members and affiliates of the seafood service industry – including chefs, wholesalers, restaurant managers, and a seafood media and marketing expert – are invited to share their perspective in response to the research project used to introduce this session as well as contribute to a broader discussion of the potential to enhance U.S. aquaculture purchasing.

CATFISH - CATFISH HYBRIDS

Saturday, February 25 11:15 AM - 5:00 PM Studio 9

Chairs: Jimmy Avery, Luke Roy

- 11:15 Jimmy Avery**
STATUS OF THE U.S. FARM-RAISED CATFISH INDUSTRY – 2022
- 11:30 Hisham Abdelrahman**, William Hemstreet, Luke Roy, Terrill Hanson, Benjamin Beck, Anita Kelly
BASIC AQUACULTURE PRODUCTION DESCRIPTORS OF ICTALURID CATFISH RAISED IN COMMERCIAL FRESHWATER EARTHEN PONDS: A SEVEN-YEAR CASE STUDY FROM ALABAMA, USA
- 11:45 Morgan Cheatham**, Ganesh Kumar, Jimmy Avery, Jeff Johnson, Suja Aarattuthodi
ECONOMIC RISK OF COMMERCIAL CATFISH PRODUCTION PRACTICES
- 12:00 Morgan Cheatham**, Ganesh Kumar
PRODUCTION AND ECONOMIC EFFECTS OF CATFISH FEEDING FREQUENCIES
- 12:15 Lianqun Sun**, Ganesh Kumar, Carole Engle, Jonathan van Senten
TRENDS FOR U.S. CATFISH AND SWAI PRODUCTS IN RETAIL MARKETS
- 12:30 LUNCH**
- 1:30 Luxin Wang**, Anita Kelly, Luke Roy, Xiran Li, Hongye Wang, Hisham Abdelrahman
FACTORS SHAPING THE MICROBIAL POPULATIONS PRESENT ON FISH AND FISH PRODUCTS
- 1:45 Paul Burr**, Jimmy Avery, Garrett Street, Bronson Strickland, Brian Dorr
DOUBLE-CRESTED CORMORANT *Nannopterum auritum* USE OF CATFISH AQUACULTURE PONDS IN MISSISSIPPI

- 2:00 Fred Cunningham**, Guiming Wang, Ken Gruver, Paul Burr, Raleigh Middleton, Jason Tappa, Madeline Redd, Jason Glover, Brian Dorr
WHERE DO DOUBLE-CRESTED CORMORANTS GO AFTER ROOST DISPERSAL?
- 2:15 Shraddha Hegde**, Ganesh Kumar
BIRD PREDATION ON CATFISH FARMS: REGULATORY CONCERNS AND ECONOMIC IMPLICATIONS
- 2:30 Bradley Richardson**, Monica Wood, Monroe Walker, Grant Reifers, Todd Byars, Charles Mischke, Matt Griffin, David Wise
A SIMPLE, LOW-COST TRAP FOR MONITORING SNAIL POPULATIONS IN CATFISH AQUACULTURE PONDS
- 2:45 Charles Mischke**, Bradley M. Richardson, Ambika Tiwari, Matt J. Griffin, Junaid U. Rehman, Mohammad K. Ashfaq, N.P. Dhammika Nanayakkara, Ikhlas A. Khan, David J. Wise
EFFECTS OF MULTIPLE, LOW DOSE COPPER SULFATE TREATMENTS ON THE MARSH RAMS-HORN SNAIL *Planorbella trivolvis* AND THE GHOST RAMS-HORN SNAIL *Biomphalaria havanensis*
- 3:00 Bradley Richardson**, Charles Mischke, Monica Wood, Celene Slifka, Sujita Balami, Matt Griffin, David Wise
DIFFERENCES IN EGG PRODUCTION OF MARSH RAMSHORN SNAIL *Planorbella trivolvis* AND GHOST RAMSHORN SNAIL *Biomphalaria havanensis* BASED ON MATE AVAILABILITY
- 3:15 Ganesh Kumar**, Nathan Stone, Carole Engle, Shraddha Hegde, Luke Roy, Anita Kelly, Larry Dorman, Menghe Li, Matthew Recsetar
IS FEED CONVERSION RATIO A RELIABLE METRIC FOR CERTIFICATION? THE CASE OF U.S. CATFISH
- 3:30 Charles Mischke**, Bradley M. Richardson, David J. Wise, Ambika Tiwari
ROTENONE HAS LITTLE EFFECT ON WATER QUALITY, PHYTOPLANKTON, ZOOPLANKTON, OR MACROINVERTEBRATES IN AQUACULTURE NURSERY PONDS
- 3:45 Leticia Fantini-Hoag**, Jesse James, David P. Hernández, Hisham A. Abdelrahman, Anita M. Kelly, Allen D. Davis, Timothy J. Bruce, Sunni Dahl, Benjamin H. Beck, Larry Lawson, Luke A. Roy
EVALUATION OF WINTER-FEEDING STRATEGIES FOR CHANNEL CATFISH *Ictalurus punctatus* USING COMMERCIAL CATFISH FEEDS
- 4:00 Julia L. Palmer**, Jesse B. James, Peter C. Sakaris, Anita M. Kelly, Hisham A. Abdelrahman, Benjamin B. Beck, Luke A. Roy
USING FISHERIES TECHNIQUES TO ESTIMATE AGE AND GROWTH OF HYBRID CATFISH (*Ictalurus punctatus* female × *Ictalurus furcatus* male) FROM COMMERCIAL CATFISH FARMS
- 4:15 Peter Allen**, Amanda Daulong, Abby Vaughn, Shangshang Wang, Chelsie Dahlgren, Thu Dinh, Fernando Yamamoto
EFFECTS OF LOW TEMPERATURE ON PHYSIOLOGICAL PERFORMANCE AND TISSUE ENERGY STORAGE IN CATFISH
- 4:30 Brian Ott**, Les Torrans, Peter Allen
EFFECT OF HYPOXIA ON THE CHANNEL CATFISH TRANSCRIPTOME

- 4:45 Brian Bosworth**, Geoff Waldbieser, Brian Ott, Matt Griffin, Fernando Yamamoto, David Wise, Daniela Lourenco, Shogo Tsuruta, Andres Garcia
UPDATE ON THE AGRICULTURE RESEARCH SERVICE, WARMWATER AQUACULTURE RESEARCH SERVICE UNIT'S CHANNEL CATFISH GERMPLASM DEVELOPMENT AND RELEASE PROGRAM

SALMONIDS

Saturday, February 25 11:30 AM - 3:30 PM Galeries 3

Chair: Matt Hawkyard

- 12:00 Lianqun Sun**, Carole Engle, Ganesh Kumar, Jonathan van Senten
MARKET TRENDS FOR TROUT PRODUCTS IN THE U.S. RETAIL MARKET
- 12:15 René Alvestad**, Chris Noble, Ingrid Måge, Kristian H. Liland
QUALITY AND FISH WELFARE – LINKING CAUSES FOR QUALITY DOWNGRADING AND PRODUCTION RELATED DRIVERS IN NORWEGIAN ATLANTIC SALMON FARMING
- 12:30 LUNCH**
- 1:30 Marianne Parent**, Henrik Stryhn, K. Larry Hammell, Raphaël Vanderstichel
TIME-SERIES ANALYSIS OF *Lepeophtheirus salmonis* AMONG NEW BRUNSWICK SALMON FARMS (2016 TO 2021)
- 1:45 Paul Bangura**, Katriina Tiira, Petri T. Niemelä, Jaakko Erkinaro, Petra Liljeström, Anna Toikkanen, Craig Primmer
LINKING *vgl/3* GENOTYPE AND AGGRESSIVE BEHAVIOUR IN JUVENILE ATLANTIC SALMON *Salmo salar*
- 2:00 Vanessa Mella**, Ana Fernández, Ximena Navarro
PRE-SMOLT ATLANTIC SALMON MATURITY IN FRESH WATER: HOW TO TACKLE THE ISSUE
- 2:15 Vanessa Mella**, Ximena Navarro, Ana Fernández
LIGHT SPECTRUM DECOMPOSITION INDUCED BY TURBIDITY IN SALMON FARMED CONDITIONS
- 2:30 Gary Burr**, Alberta Aryee, Michael Lomas
USE OF MICROALGAE AS AN ASTAXANTHIN SOURCE IN ATLANTIC SALMON *Salmo salar* FEED
- 2:45 Khalid Freij**, Peggy Biga, Beth Cleveland
IMPROVING RAINBOW TROUT *Oncorhynchus mykiss* GROWTH PERFORMANCE THROUGH OPTIMIZATION OF DIET-EPIGENETIC INTERACTIONS

AQUACULTURE FOR ECOSYSTEM OUTCOMES - NOAA

Saturday, February 25 11:30 AM - 5:00 PM Balcony L

Chairs: Robert Jones, Ken Riley

- 11:30 Spatial Analytics Helps Anchor Aquaculture in the New Blue Economy**
Dr. Kenneth L. Riley, NOAA Fisheries
- 11:45 Aquawhere?: A Regional Analysis of Potential Constraints for Offshore Aquaculture Development in the U.S. EEZ**
Dr. James A. Morris Jr, NOAA National Centers for Coastal Ocean Science

- 12:00 Global Review of Megafauna Interactions with Marine Aquaculture Farms**
Dr. Gretchen E. Bath, NOAA National Centers for Coastal Ocean Science
- 12:15 Modeling Protected Species Distributions and Habitats to Inform Siting and Management of Pioneering Ocean Industries: A Case Study for Gulf of Mexico Aquaculture**
Dr. Alyssa L. Randall, NOAA National Centers for Coastal Ocean Science
- 12:30 LUNCH**
- 1:30 Synthesizing Ecosystem Services Data to Support Shellfish Aquaculture Management**
Dr. Julie M. Rose, NOAA Fisheries
- 1:45 Integrating Information on Beneficial Services Provided by Shellfish Aquaculture into The Aquaculture Permitting and Review Process**
Dr. Christopher Schillaci, NOAA Fisheries
- 2:00 Supporting Ecosystem Services of Habitat and Biodiversity in Temperate Seaweed (*Saccharina* spp.) Farms**
Emilly Schutt, University of New England
- 2:15 Following the Snail Trail: Interactions of The Marine Snail *Lacuna vincta* With Kelp Farms in The Gulf of Maine**
Cara Blaine, University of New England
- 2:30 The Nature Conservancy's Global Aquaculture Program**
Robert Jones, The Nature Conservancy
- 2:45 Siting and Management for The Growing Aquaculture Industry in Palau, African Great Lakes, And Mexico**
Sarah Jones, The Nature Conservancy
- 3:00 The Shellfish Growers Climate Coalition— what 270 small businesses have done to advocate for climate action and what they're going to do next**
Jackie Wilson, Bama Bay Oysters and Dauphin Island Sea Lab and Sally McGee, The Nature Conservancy
- 3:15 What Shellfish Farmers Want the Government to do to Reduce Climate Impacts on Their Businesses**
Bill Dewey, Taylor Shellfish and Sally McGee, The Nature Conservancy
- 3:30 Supporting Oyster Aquaculture and Restoration: An Overview and Look Ahead**
Rebekah Borgert, The Nature Conservancy
- 3:45 Best Practices for Ecosystem Services**
Dr. Bob Rheault, East Coast Shellfish Growers Association
- 4:00 The Potential for Restorative Aquaculture in South Florida and the Caribbean: Opportunities and Challenges**
Dr. John D. Stieglitz, University of Miami
- 4:15 Fish Production and Use of Oyster Aquaculture Gear in Comparison to Natural Habitats North and South of Cape Cod**
Kelsey Schultz, Northeastern University and Steve Kirk, The Nature Conservancy

- 4:30 The Greenwave Ocean Farming Hub: A Platform for Farmer Training and Collaboration**
Lindsay Olsen, GreenWave
- 4:45 Fostering Multisectoral Engagement to Identify Paths Forward for the U.S. Aquaculture Industry**
Madelyn Smith, Meridian Institute

MARINE FISH

Saturday, February 25 1:30 PM - 5:00 PM Salon A
Chair: Reginald Blaylock

- 1:30 Lee A. Fuiman**, Cynthia K. Faulk
DIFFERENTIAL GENE EXPRESSION RELATED TO MALPIGMENTATION IN SOUTHERN FLOUNDER *Paralichthys lethostigma*
- 1:45 Kerry Mesner**, Jason Lemus, Colin Shea
THE EFFECT OF ROTIFER LEVEL FED TO LARVAL RED DRUM *Sciaenops ocellatus* ON DIGESTIVE HEALTH
- 2:00 Halleluyah Ademilua**, Omolola Betiku, Marty Riche, Paul Wills
A COMPARATIVE GROWTH RESPONSE OF FLORIDA POMPANO *Trachinotus carolinus* AND RED DRUM *Sciaenops ocellatus* TO HEMP PROTEIN ALTERNATIVE DIETS WITH/ WITHOUT TAURINE SUPPLEMENTATION
- 2:15 Daren Garriques**, Jennica Lowell Hawkins, Catherine McTighe, Ian McComas, Christopher Chang, Dale Sarver, Neil Anthony Sims
Kyphosis vagiensis (NEUNE): A FISH WITH POTENTIAL FOR COMMERCIAL AQUACULTURE, ON-LAND OR OFFSHORE
- 2:30 Brittany Chesser**, Peter Allen
CONCLUDING THOUGHTS: FRESHWATER POND CULTURE OF GULF KILLIFISH *Fundulus grandis*
- 2:45 Nicole T. Kirchoff**
PERSPECTIVES FROM A COMMERCIAL MARINE BAITFISH HATCHERY AND FARM
- 3:00 Daniel Benetti**, Tyler Scodnick, Dennis Peters, Kent Satterlee, Ivan Puckett, Brian Quartano, Sara Hamann, Fabio dos Santos Neto, Jeena Bagget, Carlos Tudela
THE AQUACULTURE PERFORMANCE INDEX (APIX) APPLIED TO AQUACULTURE SPECIES SELECTION FOR THE STATION PADREOIL RIG OFFSHORE AQUACULTURE PROJECT
- 3:15 Michael Rust**
OUT CAN WE USE STEPPING STONE TECHNOLOGIES TO GET OCEAN BASED FISH CULTURE MOVING?
- 3:30 Shane Ramee**, Niccole Wandelea, Julie Schroeter, Marilyn Blair
ADVANCING AQUATIC ANIMAL DRUG APPROVALS FOR MARINE AQUACULTURE
- 3:45 Hongxia Gao**, Jinxin Zhou, Shuchuang Dong, Daisuke Kitazawa
SUSTAINABILITY ASSESSMENT OF MARINE FISH AQUACULTURE IN SEMI-CLOSED BAYS BASED ON AN INDEX

AQUACULTURE COMMUNICATIONS

Saturday, February 25 1:30 PM - 5:00 PM Galleries 6

Chair: Afton Vigue

- 1:30** **Jeanne McKnight**
FIGHTING THE HEADWINDS: CHANGING THE NARRATIVE ON AQUACULTURE IN THE PACIFIC NORTHWEST
- 1:45** **Afton Vigue**
LESSONS LEARNED FROM A PUBLIC RELATIONS CAMPAIGN FOR MAINE AQUACULTURE
- 2:00** **Emily De Sousa**
COMMUNICATING SEAFOOD ONLINE IN A TIKTOK ERA
- 2:15** **Imani Black**
THE FUTURE OF SEAFOOD: HOW AQUACULTURE CONNECTS LOCAL AND GLOBAL COMMUNITIES
- 2:30** **Julie Kuchepatov**
COMMUNICATING FOR IMPACT: THE POWER OF THE PODCAST
- 2:45** **Corinne Noufi**
AQUACULTURE IN MAINE PODCAST: CAN PUBLIC PERCEPTIONS CHANGE THROUGH AUDITORY NEWS ENGAGEMENT?
- 3:00** **Sarah Curry**
USING FILM TO CONNECT CONSUMERS AND CHEFS WITH SEAFOOD PRODUCERS: A FLORIDA PERSPECTIVE
- 3:15** **Bethany A. Walton**, Tom Bliss, Adriane K. Michaelis, Daniel Petrolia, Leslie Sturmer, William C. Walton
EMPOWERING SEAFOOD SERVERS TO TELL THE STORIES OF AQUACULTURED OYSTERS: UPDATE ON THE OYSTER ESSENTIALS TRAINING PROGRAM
- 3:30** **Brianna Shaughnessy**, Maggie Allen, Christos Michalopoulos
THE VALUE OF CROSS-SECTORAL PARTNERSHIPS IN BUILDING PUBLIC TRUST AND ENHANCING AQUACULTURE LITERACY
- 3:45** **Brianna Shaughnessy**, Christos Michalopoulos, Maggie Allen
FROM PLANNING TO PRACTICE: AN UPDATE ON THE EVOLUTION OF NOAA'S AQUACULTURE LITERACY EFFORTS
- 4:00** **Carissa Maurin**
DEVELOPING THE MAINE AQUACULTURIST – AN ONLINE KNOWLEDGE PORTAL
- 4:15** **Amy J. Schrank**, Donald R. Schreiner
ADVANCING THE GREAT LAKES AQUACULTURE COLLABORATIVE (GLAC)

SATURDAY

3-D PRINTING AND OPEN HARDWARE WORKSHOP

Saturday, February 25 1:30 PM - 3:30 PM Balcony J

Chair: Yue Liu

- 1:30 Terrence Tiersch**, M. Teresa Gutierrez-Wing, Yue Liu, Jack C. Koch
OPEN TECHNOLOGIES CAN PROVIDE NOVEL APPROACHES TO SUPPORT DEVELOPMENT OF GERMPLOASM REPOSITORIES TO SAFEGUARD THE GENETIC RESOURCES OF AQUATIC SPECIES
- 1:50 Jack Koch**, Lucia Arregui, Nick Coxe, Ally Oune, Maria Teresa Gutierrez-Wing
OPEN HARDWARE DEMONSTRATIONS
1) DEVICES FOR GERMPLOASM CRYOPRESERVATION
2) DEVICES FOR SAMPLE HANDLING AND QUALITY MANAGEMENT
3) EXAMPLES FOR APPLICATION IN AQUATIC SCIENCES
4) OUTREACH AND STEM
- 3:10 Yue Liu**, Maria Gutierrez-Wing, Terrence Tiersch
AN OPEN-HARDWARE MOVEMENT TO SUPPORT AQUACULTURE AND AQUATIC SCIENCES: WORKSHOP CONCLUSION AND QUIZ WITH AWARDS

AQUACULTURE 101

Saturday, February 25 10:30 AM - 5:00 PM Galleries 5

Chair: Kathleen Hartman

- 10:30 So you want to grow your farm? Farm financing basics and resources**
Christian Brayden, Project Manager, Maine Aquaculture Association
- 10:45 Understanding denitrification**
Olivia Markham, University of FL, IFAS, TAL
- 11:00 Tilapia Lake Virus Disease, Diagnostics, and Regulations in the United States**
Tom Waltzek, USDA APHIS VS
- 11:30 Building a Successful Base – How to Find and Use Relative Resources to Help You Succeed**
Emma Hauser, University of Wisconsin-Stevens Point
- 12:00 411: Import Controls for Aquaculture**
Alicia Marston, USDA APHIS VS
- 12:30 LUNCH**
- 1:30 Realistic Planning for New Aquaculture Businesses**
Shraddha Hegde, Texas A&M
- 2:00 Designing a Purposeful Aquaculture Health Plan**
Kathleen Hartman, USDA APHIS VS
- 2:30 A Site for Sori: Utilizing Novel Aquaculture Techniques to Test Bull Kelp (*Nereocystis luetkeana*) Restoration Techniques in a Northern California Sea Urchin Barren**
Andrew Kim, California Sea Grant
- 3:00 BREAK**

(Continued on next page)

3:30 **USDA Agriculture Marketing Service (AMS) Process Verification Program (PVP)**
Jeff Waite, USDA AMS

4:00 **American Unagi**
Sara Rademaker, American Unagi

RECIRCULATING AQUACULTURE SYSTEM TECHNOLOGY

Saturday, February 25 1:30 PM - 5:00 PM Salon E

Chair: Huy Tran

SATURDAY

1:30 **Ron Malone**, Connor Tiersch
MINIMIZING SALTWATER DISCHARGES FROM MARINE RAS SUPERNATANTS FROM BIOCLARIFIER BACKWASH WATERS AND SLUDGE MINERALIZATION

1:45 **Rakesh Ranjan**, Kata Sharrer, Scott Tsukuda, Christopher Good
ARTIFICIAL INTELLIGENCE-AIDED REAL-TIME FISH MORTALITY ALERT FOR RECIRCULATING AQUACULTURE SYSTEMS

2:00 **Rebecca Dupre**, Ryan Ardoin, Steven Lloyd, Brennan Smith
IMPROVING THE ACCURACY, PRECISION, AND CAPACITY OF OFF-FLAVOR ANALYTE DETECTION IN FISH TISSUE, FEED, AND FECES

2:15 **John Davidson**, Curtis Crouse, Christine Lepine, Christopher Good
EVALUATING THE EFFECTS OF NITRATE-NITROGEN (50–100 MG/L VS. 150–200 MG/L) ON POST-SMOLT ATLANTIC SALMON *Salmo salar* GROWTH, HEALTH, AND HEART RATE MEASURED BY BIOMONITORS

2:30 **Lindee Mason**, Ahmed Mustafa, Aparna Biswas, Sinthia Mumu, Honey Win, Michelle Selo-Ojeme, Soufanieh Pierre
PRODUCTION OF FISH PROTEIN FROM CONTINUOUS RECYCLING OF NUTRIENT-RICH WATER: AQUAPONICS

2:45 **Christopher Good**, Curtis Crouse, Anna Knight, John Davidson, Travis May
ASSESSING THE PERFORMANCE, HEALTH, WELFARE, AND PRODUCT QUALITY OF DOMESTICALLY AVAILABLE U.S. STEELHEAD STRAINS RAISED TO 4 KG IN A SEMI-COMMERCIAL SCALE RAS

3:00 **James Ward**, Janelle Hager, James Tidwell
EFFECTS OF FEED LOADING RATES ON GROWTH OF BIBB LETTUCE *Lactuca sativa* WITH NILE TILAPIA *Oreochromis niloticus* IN AQUAPONIC SYSTEMS

3:15 **John Derksen**, Nick Savidov
ENHANCED BENEFITS OF BIOCHAR FOR USE IN RECIRCULATING AQUACULTURE SYSTEMS

3:30 **Betty Anyanwu-Akeredolu**, Mosunmola Lydia Adeleke, Ayokunle A. Dada, O.A. Fagbenro
OUT PRODUCTION EFFICIENCY OF SOLAR AND PETROL POWERED GENERATOR RE-CIRCULATORY AQUACULTURE SYSTEMS FOR AFRICAN CATFISH *Clarias gariepinus* FINGERLINGS PRODUCTION

3:45 **Connor Tiersch**, Ron Malone, Maria Gutierrez-Wing
INTERIM SIZING GUIDELINES FOR SIZING AIRLIFTED PolyGeyser® RAS FOR THE MARINE SHRIMP *Litopenaeus vannamei*

- 4:00 Adam Wise**, Rhine Perrin, Ron Malone
ADDITION OF MICRO-C AS A CARBON SOURCE FOR DENITRIFICATION IN BEAD FILTERS
- 4:15 Marlon Greensword**, Ronald Malone
WATER CHARACTERIZATION AND BIOFILTER SIZING CRITERIA FOR OLIGOTROPHIC RAS HATCHERIES
- 4:30 Huy Tran**, Nam Tran, Chris Gupta
A NEW AIRLIFT DESIGN FOR LOW HEAD RAS
- 4:45 Igal Magen**
A NOVEL APPROACH FOR RECIRCULATING AQUACULTURE SYSTEM (RAS) BASED ON PHISICOCHEMICAL WATER TREATMENT PROCESS
- 5:00 Adriana Artiles**, Melissa Allen, Julianna Strangroom, Jordan Poley, Robert Baldwin, Jason Stannard, Klara Verbyla
BACTERIAL PROFILE AT A GLANCE IN A RAS SYSTEM – A TOOL FOR MONITORING AND ACTIONABLE PLANS

FEED INGREDIENTS

Saturday, February 25 1:30 PM - 5:00 PM Salon D

Chairs: Vikas Kumar, Marina Rubio Benito

- 1:30 Hoa Nguyen Duy**
PROTEIN SOLUTION AND APPROACHES FOR FISHMEAL REPLACEMENT IN DIETS OF THE SHRIMP AND MARINE FISH SPECIES
- 1:45 Krishna Singha**, Michael P. Phelps, Ken Overturf, Da Chen, Vikas Kumar
LONG-TERM FEEDING SOY-BASED DIETS SUPPLEMENTED WITH ADDITIVE MIXTURE IMPROVES GROWTH AND FILLET QUALITY OF RAINBOW TROUT
Oncorhynchus mykiss
- 2:00 Marina Rubio Benito**, Nicholas Romano, Vikas Kumar
MITIGATION OF SOYBEAN MEAL-INDUCED ENTERITIS IN RAINBOW TROUT
Oncorhynchus mykiss USING VITAMIN D AND GLUTAMINE AS DIETARY SUPPLEMENTS
- 2:15 Thomas Welker**, Keshun Liu, Ken Overturf, Frederic Barrows
EFFECT OF SOY PROTEIN PRODUCTS AND GUM INCLUSION IN FEED ON FECAL PARTICLE SIZE PROFILE OF RAINBOW TROUT
- 2:30 Wendy Sealey**, Scott Tilton, Abigail Bockus, T. Gibson Gaylord
EXAMINATION OF CORN FERMENTED PROTEINS TO REPLACE FISHMEAL IN JUVENILE RAINBOW TROUT DIETS
- 2:45 Juan F. Paredes**, Marty Riche, Sahar Mejri, David Bradshaw, Carlie Perricone, Michael Habte-Tsion, Paul S. Wills
EFFECTS OF DIETARY CARBOHYDRATE SOURCE IN FLORIDA POMPANO GROWTH AND NUTRITIONAL PHYSIOLOGY: *Trachinotus carolinus*

- 3:00 Mohammad Zarei**, Michael Schwarz, Reza Ovissipour
EXTRACTION YIELD, AMINO ACID COMPOSITION, AND FUNCTIONAL PROPERTIES OF PROTEIN EXTRACTED FROM SORGHUM BY ALKALINE AND NaOH-ETHANOL-REDUCING AGENT (NER) METHODS
- 3:15 Aubrey Dissinger**, Jacob Bowman, Giovanni Molinari, Karolina Kwasek
EFFECTS OF OREGANO ESSENTIAL OIL ON GROWTH PERFORMANCE OF ZEBRAFISH *Danio rerio* FED A HIGH INCLUSION SOYBEAN MEAL DIET
- 3:30 Luke Townsend**, Matt Hoehn, Kevin Hinterman, Luke Gardner, Ron Johnson, Mike Graham, Scott Hamilton
INVESTIGATION OF MONKEYFACE PRICKLEBACK *Cebidichthys violaceus* FOR COMMERCIAL FINFISH AQUACULTURE WITH ALTERNATIVE FEEDS
- 3:45 Piper Evans**, Vikas Kumar
ENHANCING THE SOYBEAN UTILIZATION IN ATLANTIC SALMON *Salmo salar* DIET VIA USING INSECT MEAL AS A COMPLEMENTARY INGREDIENT
- 4:00 Shafaq Fatima**, Ayesha Afzal, Hamna Rashid
EFFECT OF REPLACEMENT OF SOYBEAN MEAL BY BLACK SOLDIER FLY LARVA MEAL *Hermetia illucens* ON GROWTH AND AMINO ACIDS PROFILE IN *Labeo rohita*
- 4:15 Matt Hawkyard**, Michael Habte-Tsion, Wendy Sealey, Deborah Bouchard, Gary Burr
EVALUATING THE DIGESTIBILITY OF TWO INSECT MEALS PRODUCED WITH MEALWORM LARVAE IN THE DIETS OF ATLANTIC SALMON *Salmo salar*
- 4:30 Daniel Adams**, Vikas Kumar, Liz Koutsos
BENEFICIAL PROPERTIES OF INSECTS: ANTIMICROBIAL PEPTIDES, CHITIN, AND LAURIC ACID
- 4:45 Leandro Castro**, Peter Van Wyk, Craig Browdy
FEEDS AND FEEDING IN SUPER-INTENSIVE SHRIMP FARMING SYSTEMS

SURVEYS SHOW THAT SURVEYS NEVER LIE

Saturday, February 25 1:30 PM - 5:00 PM Galeries 2

Chair: Noah Boldt

Surveys are a useful tool to collect primary data from producers, processors, wholesalers, consumers, and others. Yet few aquaculture researchers are trained in survey methodologies that extend from the initial design of the survey, list frame development, sampling methodology, recruitment of participants, and interview methodologies. As a result, many surveys are poorly designed and administered, generating misleading or erroneous results. The proliferation of surveys through online platforms in recent years has led to high levels of survey fatigue, exacerbating the difficulty of obtaining reliable, valid results from surveys. This session aims to highlight some of the common pitfalls in survey design and implementation to increase awareness of the degree of due diligence required to generate robust, reliable, and valid data from surveys. Speakers with extensive experience in survey methodology from federal agencies and academic institutions will be featured followed by a panel composed of producers from across the country to share their thoughts about how and why they choose to respond to some surveys but not others.

- 1:30 Ganesh Kumar**
IS A SURVEY REALLY THE BEST WAY TO GET THE INFORMATION NEEDED?
- 1:50 Carole R. Engle**
HOW TO GENERATE FAKE DATA FROM SURVEYS?

- 2:20 Kwamena Quagrainie**
ARE YOU LEADING RESPONDENTS TO BIASED ANSWERS? HOW TO DESIGN SURVEY INSTRUMENTS FOR UNBIASED INFORMATION?
- 2:50 Travis Averill**
DO YOU HAVE A REPRESENTATIVE SAMPLE? LIST FRAME DEVELOPMENT AND SAMPLING DESIGN FOR SURVEYS
- 3:20 Shraddha Hegde**
WILL I VIOLATE RESEARCH OR BUSINESS ETHICS WITH MY SURVEY? HOW TO PROTECT CONFIDENTIALITY OF FARM DATA?
- 3:50 PRODUCER PANEL DISCUSSION**, Ganesh Kumar, Moderator
Paul Zajicek, National Aquaculture Association
Bob Rheault, East Coast Shellfish Association
Tom Houston, Harvest Select, Alabama

**MORE THAN TRAINING:
WORKFORCE DEVELOPMENT PROGRAMS TO MEET
THE NEEDS OF EMPLOYERS AND EMPLOYEES**

Saturday, February 25 1:30 PM - 5:00 PM Studio 8

Chairs: LaDon Swann, Christian Brayden

The session will define workforce development, share case studies of successful workforce programs and obtain audience input on how to improve workforce programs to meet the needs of employers and employees.

- 1:30 Establishing a Comprehensive Workforce Training System for Maine's Aquaculture Sector**
Carissa Maurin, Gulf of Maine Research Institute
- 1:45 Maine's Aquaculture Occupational Standards and Apprenticeships**
Christian Brayden, Maine Aquaculture Association
- 2:00 Innovation in Aquaculture Workforce Development Programming in Maine and Beyond**
M Scarlett Tudor, University of Maine Aquaculture Research Institute
- 2:15 Active Minority Engagement in Workforce Development**
Imani Black, Minorities In Aquaculture Founder & CEO
- 2:30 Carteret Community College Workforce Development**
David Cerino and Bryan Snyder, Carteret Community College, Morehead City, NC
- 2:45 Supporting a Strong Seafood Workforce through Food Safety**
Michael Ciaramella, New York Sea Grant
- 3:00 BREAK**
- 3:30 Aquaculture Farmhand Online Training Program**
Azure Cygler, Rhode Island Sea Grant
- 3:45 Lonoke Business Academy**
Jamie Anderson, I.F. Anderson Farms

- 4:00 **Catfish Industry Workforce Programs**
Jimmy Avery, Mississippi State University
- 4:15 **Sea Grant Aquaculture Leadership Academy**
LaDon Swann, Mississippi-Alabama Sea Grant Consortium
- 4:30 **Audience Input on Workforce Needs for the Aquaculture Industry**

**A TRIBUTE TO DR. ADDISON L. LAWRENCE:
CURRENT AND HISTORICAL PERSPECTIVES ON
SHELLFISH PHYSIOLOGY AND AQUACULTURE**

Saturday, February 25 1:30 PM - 5:00 PM Galleries 1
Chairs: Mark Lawrence, Lou D'Abramo, Dean Akiyama

SATURDAY

- 1:30 **Mark Lawrence**
OPENING REMARKS, MOMENT OF SILENCE
- 1:40 **Quenton Dokken**
STUDY WITH ADDISON L. LAWRENCE, A VISIONARY, SCIENTIST, TEACHER,
ADVOCATE, AND SALESMAN
- 2:00 **Lou D'Abramo**
FUTURE OF AQUAFEEDS
- 2:20 **Craig Browdy**
HISTORICAL PERSPECTIVES AND NEW DEVELOPMENTS IN SHRIMP LARVAL
FEEDS
- 2:40 **Allen Davis**
MINERAL NUTRITION, CEMENTING IN A CAREER!
- 3:00 **BREAK**
- 3:30 **Dean M Akiyama**
PRACTICAL CONSIDERATIONS FOR FORMULATING SHRIMP FEEDS
- 4:00 **Jack Crockett**
DEVELOPMENT OF SHALLOW WATER SHRIMP CULTURE BIOFLOC RACEWAY
SYSTEMS
- 4:30 **Misael Rosales**
THE TRANSFER OF SCIENTIFIC KNOWLEDGE INTO THE AQUACULTURE INDUSTRY:
A STORY OF SUCCESS

U.S. TROUT FARMERS ASSOCIATION FORUM

Saturday, February 25 2:45 PM - 5:00 PM Studio 7
Chair: Micheal Lee

A series of trout related presentations from the United States Trout Farmers Association followed by an association membership meeting.

- 2:45 **Outcrossing Captive Rainbow Trout Broodstock to Reduce Mortality in Progeny Exposed to IHNV**
Jesse Trushenski, Riverence

- 3:00 Market Trends for Trout Products in the U.S. Retail Market**
Lianqun Sun, Mississippi State University
- 3:15 Geosmin Accumulation in Rainbow Trout Through Dietary Exposure**
Rebecca Dupre, USDA
- 3:30 Growth, Fillet Yield, and Muscle Quality Traits are not Affected by a Genotype Diet Interaction in Rainbow Trout Consuming Diets that Differ in Lipid Content**
Beth Cleveland, USDA
- 3:45 Improving Trout Health in the North Central Region by Integrating Extension with the Development of Alternative Disease Prevention Methods**
Myron Kebus, MS, DVM, College of Veterinary Medicine, Michigan State University;
Thomas Loch, MS, PhD, Aquatic Animal Health Laboratory, Michigan State University
- 4:00 Understanding Columnaris Disease in Rainbow Trout Aquaculture
Jason Evenhuis, USDA
- 4:15 United States Trout Farmers Association Member Meeting
USTFA Members Only

LIFE SUPPORT SYSTEMS

Saturday, February 25 3:30 PM - 5:00 PM Galleries 3

Chairs: Travis Knorr

Co-organized by AFS Fish Culture Section

- 3:30 Paxton Spencer, Barbara Evans**
INTEGRATED MULTI-TROPHIC AQUACULTURE (IMTA) FOR LAND BASED SHRIMP PRODUCTION
- 3:45 Aaron Switzer**
EXPLORING THE LIFE SUPPORT SYSTEM OF A MICHIGAN DEPARTMENT OF NATURAL RESOURCES FISH STOCKING UNIT
- 4:00 George Tenhagen, Zachary Lehmann**
WATER SYSTEM VALVE IDENTIFICATION, DESCRIPTION AND SELECTION CRITERIA
- 4:15 Ronald Hoenig, John Stieglitz, Carlos Tudela, Daniel Farkas, Christopher Manley, Daniel Benetti**
LIFE SUPPORT SYSTEMS FOR RELIABLE HATCHERY PRODUCTION OF VARIOUS MARINE FINFISH SPECIES: AN OVERVIEW OF THE UNIVERSITY OF MIAMI EXPERIMENTAL HATCHERY FACILITY
- 4:30 Travis G. Knorr**
MOTE MARINE LABORATORY'S CLIMATE AND ACIDIFICATION OCEAN SIMULATOR; A LIFE SUPPORT SYSTEM DESIGNED TO CREATE FUTURE OCEAN CONDITIONS FOR THE STUDY OF VARIOUS MARINE LIFE

GENETIC RESOURCE AND CLIMATE CHANGE: USDA NATIONAL ANIMAL GERMLASM PROGRAM (USDA-NAGP)

Saturday, February 25 3:30 PM - 5:00 PM Balcony J

Chairs: Yue Liu, Terrence Tiersch, Maria Teresa Gutierrez-Wing

SUNDAY, February 26

NUTRITION – LIPIDS

Sunday, February 26 8:30 AM - 10:00 AM Galleries 3

Chairs: Rebecca Lochmann, Michele Jones

- 8:30** **Barbara Davis**, Pablo Berner, Malcolm Devine, Benita Boettner
OMEGA-3 CANOLA OIL (AQUATERRA®) SUPPORTS ATLANTIC SALMON GROWTH, PERFORMANCE AND ESSENTIAL FATTY ACID TISSUE ACCRETION ACROSS THE LIFECYCLE
- 8:45** **Jeongwhui Hong**, Jose Ortiz, Wendy Sealey, Brian Small
EFFECTS OF DIETARY ARACHIDONIC ACID ON GROWTH PERFORMANCE, NON-SPECIFIC IMMUNITY, AND INFLAMMATORY RESPONSES IN FRY AND SUB-ADULT RAINBOW TROUT
- 9:00** **Jose Ortiz**, Jeongwhui Hong, Diliara Lassonova, Brian Small
EFFECTS OF HIGH LATITUDE™ OIL INCLUSION ON FISH GROWTH, FILLET n-3 LC-PUFA CONTENT, SURVIVAL, AND HEALTH WHEN FED TO RAINBOW TROUT *Oncorhynchus mykiss* OVER A PRODUCTION CYCLE
- 9:15** **Michele Jones**, Rudy Nugroho, Rebecca Lochmann
DIETARY BLACK SOLDIER FLY LARVAL *Hermetia illucens* L. OIL IMPROVES FEED CONVERSION RATIO AND DISTINCTIVELY ALTERS THE FILLET FATTY ACID PROFILE OF NILE TILAPIA *Oreochromis niloticus*

REPRODUCTION AND HATCHERY SCIENCE

Sunday, February 26 8:30 AM - 10:00 AM Galleries 2

Chairs: Ian Butts, Ben Reading

- 8:30** **Lucia Arregui**, Jack C. Koch, M. Teresa Gutierrez-Wing, Terrence R. Tiersch
SPERM CRYOPRESERVATION IN *Xenopus laevis*: FROM PROTOCOLS TO PATHWAYS
- 8:45** **Nicholas Coxe**, Yue Liu, Lucia Arregui, Terrence Tiersch
SPERM CRYOPRESERVATION AND *IN VITRO* FERTILIZATION OF AXOLOTL *Ambystoma mexicanum* FOR REPOSITORY DEVELOPMENT
- 9:00** **Allyssa Oune**, Jack Koch, M. Teresa Gutierrez-Wing, Terrence Tiersch
VITRIFICATION AS AN ALTERNATIVE TO CONTROLLED-RATE FREEZING OF *Aplysia californica* LARVAE
- 9:15** **Helen Montague**, Hana Hess, MacKenzie Tackett, Savannah Britt, Larry Lawson, Gavin L. Aguilar, Luke A. Roy, Rex A. Dunham, Mathew Litvak, Ian A.E. Butts
OUTCOMES OF *IN VITRO* FERTILIZATION WITH FROZEN-THAWED BLUE CATFISH SPERM AND IMPLICATIONS FOR GENE BANKING
- 9:30** **Terrence Tiersch**, Yue Liu, Sarah Bodenstein, M. Teresa Gutierrez-Wing
CREATING OPEN-SOURCE ENVIRONMENTS FOR HARDWARE TO SUPPORT CRYOPRESERVATION AND REPOSITORY DEVELOPMENT FOR AQUATIC SPECIES

- 9:45 **Peter Thomas**, Teresa Bennett, Yefei Pang, Caroline Matkin, Aubrey Converse, Jing Dong
STIMULATION OF SOUTHERN FLOUNDER SPERM MOTILITY AND FERTILITY BY
DIRECT ACTIVATION OF INTRACELLULAR SIGNALING PATHWAYS
- 10:00 **Ruairi MacNamara**, Kevin Stuart, Alex Primus, Mark Drawbridge
EFFORTS TO IMPROVE SPAWNING CAPACITY AND JUVENILE QUALITY IN
CALIFORNIA HALIBUT *Paralichthys californicus*

CRUSTACEAN PRODUCTION

Sunday, February 26 8:30 AM - 10:00 AM Balcony N

Chairs: Melanie Rhodes, Allen Davis

- 8:30 **Mahala Gambill**, Mark Shirley, John Sonnier
MANIPULATING POST-HARVEST RICE FIELDS FOR MAXIMUMIZING SEASON-LONG
FOOD SUPPLY FOR POND RAISED RED SWAMP CRAWFISH *Procambarus clarkii* IN
LOUISIANA
- 8:45 **Gyanu Rana**, Andrew Ray
THE EFFECTS OF SYSTEM TYPE AND HORIZONTAL SUBSTRATE ADDITION ON
PACIFIC WHITE SHRIMP PRODUCTION *Litopenaeus vannamei* AND WATER QUALITY
IN RAS
- 9:00 **Aya S. Hussain**, Shrijan Bajracharya, D. Allen Davis
EVALUATION OF DIFFERENT STOCKING DENSITIES FOR NURSERY CULTURE OF
THE PACIFIC WHITE SHRIMP *Litopenaeus vannamei* IN A BIOFLOC SYSTEM
- 9:15 **Shrijan Bajracharya**, Allen Davis, Luke Roy
THE EFFECTS OF DIFFERENT FEEDING RATES ON PACIFIC WHITE SHRIMP
Litopenaeus vannamei IN A RECIRCULATING BIOFLOC CULTURE SYSTEM
- 9:30 **Leila M. Strebel**, Khanh Q. Nguyen, Adela N. Araujo, Trenton L. Corby, Melanie Rhodes,
Allen Davis
ON DEMAND FEEDING AND THE RESPONSE OF PACIFIC WHITE SHRIMP
Litopenaeus vannamei TO VARYING DIETARY PROTEIN LEVELS IN SEMI-INTENSIVE
POND PRODUCTION

WATER QUALITY

Sunday, February 26 8:30 AM - 10:00 AM Balcony J

Chair: Dayan Perera

- 8:30 **Shahid Rana**, Zubair Ahmed, Muhammad Farooq, Promy Virik, Norah Al-Mulhm
ECOGENOTOXICOLOGICAL EFFECTS OF WATER POLLUTION ON *Scamberomorus*
commerson AND ITS USE FOR EARLY TOXICITY SCREENING AND MONITORING IN
THE ARABIA GULF, NEAR DAMMAM, SAUDI ARABIA
- 8:45 **Saranya Anantapantula**, Alan Wilson
MOST TREATMENTS TO CONTROL ALGAL BLOOMS ARE NOT EFFECTIVE: META-
ANALYSIS OF FIELD EXPERIMENTS
- 9:00 **George L. Selden**
POTENTIAL IMPACT OF HERBICIDE OVERSPRAY ON PHYTOPLANKTON BLOOMS IN
ARKANSAS AQUACULTURE AND PRIVATE PONDS

- 9:15 Bamidele O. Omitoyin**, Mathias Halwart, Emmanuel Ajani, Amrit Bart, Oluwafemi Ajayi, Gray Burtle, Kazeem Kareem, Oluwafunke Oyebola
ASSESSMENT OF WATER UTILIZATION, WATER QUALITY PERFORMANCE AND NUTRIENT REQUIREMENT UNDER INTEGRATED RICE-FISH FARMING
- 9:30 Jennie Korus**, Tyler Scłodnick
HARMFUL ALGAE BLOOM MONITORING ON SALMON AQUACULTURE FARMS
- 9:45 Mark Johannemann**, Leo Fleckenstein, Andrew Ray
THE EFFECTS OF ENDOGENOUS VS. EXOGENOUS CARBON SOURCES AND WOODCHIP MEDIA IN DENITRIFICATION FILTERS COUPLED WITH SHRIMP PRODUCTION SYSTEMS

SERIOLA AQUACULTURE: LATEST ADVANCES IN FARMING

Sunday, February 26 8:30 AM - 10:00 AM Salon D

Chairs: Kevin Stuart, Mark Drawbridge

- 8:30 John Stieglitz**, Ronald Hoenig, Carlos Tudela, Daniel Benetti, Kevan Main, Mark Drawbridge, Kevin Stuart, Marty Riche, Sahar Mejri, Paul Wills
GLOBAL OVERVIEW OF *Seriola* spp. AQUACULTURE: ADVANCEMENTS AND REMAINING CHALLENGES
- 8:45 Li Sun Chin**, Kevin Stuart, Mark Drawbridge, David Bradshaw, Paul Wills, Sahar Mejri
YOU ARE WHAT YOUR PARENTS EAT: BROODSTOCK DIET INFLUENCE ON EGG QUALITY AND PRODUCTION IN CALIFORNIA YELLOWTAIL *Seriola dorsalis*
- 9:00 Kevin Stuart**, Scott Snyder, Mark Drawbridge
EVALUATION OF THREE DIFFERENT MICRODIETS FOR CALIFORNIA YELLOWTAIL *Seriola dorsalis*
- 9:15 Mark Drawbridge**, Kevin Stuart, Guillaume Salze, D. Allen Davis
ADVANCES IN DIET DEVELOPMENT FOR CALIFORNIA YELLOWTAIL *Seriola dorsalis* – AN OVERVIEW
- 9:30 Tyler Korte**
NEOBENEDINIA PARASITE MANAGEMENT IN OFFSHORE SERIOLA PRODUCTION
- 9:45 Federico Rotman**, Steven Kloebeln, Justin Reeves
THE PRODUCTION OF COMMERCIAL QUANTITIES OF HAWAIIAN KANPACHI *Seriola rivoliana* JUVENILES AT THE BLUE OCEAN MARICULTURE HATCHERY: PAST, PRESENT AND FUTURE

LARVAL CULTURE

Sunday, February 26 8:30 AM - 10:00 AM Salon A

Chair: Aaron Watson

- 8:30 Jack Koch**, Allyssa Oune, Sarah Bodenstein, Lucia Arregui, Yue Liu, M. Teresa Gutierrez-Wing, Terrence Tiersch
DEVELOPING GENERALIZABLE AND SCALABLE CRYOPRESERVATION PATHWAYS FOR THE AQUATIC BIOMEDICAL MODEL SEA HARE *Aplysia californica*: CRYOPROTECTANT TOXICITY AND COOLING RATE STUDIES

- 8:45 Jason Broach**, Aaron Watson, Erin Levesque, Jake Morgenstern, Evan Bowman
EVALUATION OF THE POTENTIAL TO REDUCE *Artemia* LEVELS DURING THE LARVAL PHASE OF MARINE BAITFISH
- 9:00 Andrea Tarnecki**, Alexes Cleveland, Luke Matvey, Heather King, Scott Rikard
SMALL-SCALE EASTERN OYSTER *Crassostrea virginica* LARVAL PRODUCTION USING ALGAE CONCENTRATE
- 9:15 Giovanni S. Molinari**, Michal Wojno, Macdonald Wick, Karolina Kwasek
NEW APPROACH TO DEVELOPMENT OF TAILOR-MADE FEED FOR FISH LARVAE USING ZEBRAFISH *Danio rerio* AS A MODEL
- 9:30 Afroza Naznin**, Mackenzie Miller, Kevin Fisher, Konrad Dabrowski
EVALUATION OF FERTILITY OF TRIPLOID ZEBRAFISH *Danio rerio*

PERCIDS

Sunday, February 26 8:30 AM - 10:15 AM Galleries 5

Chairs: Greg Fischer, Alan Johnson

- 8:30 Gregory J. Fischer**
INTENSIVE PRODUCTION OF WALLEYE *Zander vitreus* IN FLOW-THROUGH AND RECIRCULATING WATER SYSTEMS FROM START TO FINISH
- 8:45 J. Alan Johnson**
WALLEYE *Sander vitreus* CULTURE FOR SPORT FISH ENHANCEMENT STOCKINGS IN IOWA USING RECIRCULATION AQUACULTURE SYSTEMS
- 9:00 Tyler Firkus**, Christopher Hartleb, Kendall Holmes, Jared Neibauer, Colton Branville, Emma Hauser, Gregory Fischer
INDUCTION OF OUT-OF-SEASON SPAWNING OF AN INTENSIVELY REARED WALLEYE *Sander vitreus* BROODSTOCK
- 9:15 Mackenzie Miller**, Konrad Dabrowski
DEVELOPING TECHNOLOGY TO INDUCE TETRAPLOIDY IN SAUGEYE *Sander vitreus* × *Sander canadensis* AS A MEANS TO ESTABLISH SAUGEYE AQUACULTURE IN THE U.S.
- 9:30 Pete Boessen**, Michal Wojno, Connor Schwepe, Carla Schubiger, Karolina Kwasek
ASIAN CARP HYDROLYSATE AS A DIETARY PROTEIN SOURCE FOR LARVAL YELLOW PERCH
- 9:45 Mark Schmitz**, Tyler Firkus, Josh Fox
INFLUENCE OF FORAGE FISH AS A DIET SUPPLEMENT IN CAPTIVE WALLEYE BROODSTOCK ON THE QUALITY AND PERFORMANCE OF THEIR OFFSPRING
- 10:00 Pete Boessen**, Michal Wojno, Connor Schwepe, Karolina Kwasek
LEAVING ROTIFERS BEHIND: ARTEMIA DECAPSULATION SUPPORTS BRIGHT NEW FUTURE FOR LARVAL YELLOW PERCH PRODUCTION

AQUAPONICS

Sunday, February 26 11:00 AM - 12:30 PM Galeries 5

Chair: Huy Tran

- 11:00 Taylor McCoy**, Kevin Fitzsimmons, Goggy Davidowitz
EVALUATION OF GROWTH RATE EFFECTS IN NILE TILAPIA *Oreochromis niloticus*
AND BUTTER LETTUCE *Lactuca sativa* FROM MEALWORM SUBSTITUTION IN FEED
IN RAS
- 11:15 Jennifer Dorick**, Laurel Dunn, Govindaraj Dev Kumar
TWO YEAR EVALUATION OF FOOD SAFETY HAZARDS IN A COMMERCIAL
RECIRCULATING AQUAPONICS SYSTEM
- 11:30 Huy Tran**, Nam Tran, Chris Gupta
A NEW AIRLIFT FOR AQUAPONIC SYSTEMS
- 11:45 Margaret Lawrence**, Barbara Evans
EASTERN WHITE CEDAR SAPLINGS GROWTH RATE IN AQUAPONICS
- 12:00 George Benjamin Brooks Jr.**
INSIGHTS ON BUILDING AN AQUAPONICS BASED URBAN AQUACULTURE FOOD
SYSTEM IN PHOENIX, ARIZONA
- 12:15 Jessie Johnson**, Matthew Recsetar
COMPARING NUTRIENT MANAGEMENT STRATEGIES IN DECOUPLED AQUAPONICS
SYSTEMS FOR GROWING *Cannabis sativa*
- 12:30 Huy Tran**, Nam Tran, Bradley Todd
ANTS ARE DESTROYING YOUR AQUAPONIC GARDEN PLANTS BY NURTURING THE
PERFECT APHID COLONIES, TESTING CONTROL METHOD WITH BOTANICIDE

DIVERSITY AND INCLUSION IN AQUACULTURE

Sunday, February 26 8:30 AM - 11:30 AM Salon H

Chairs: Eric Saillant, Angela Caporelli

This session is organized by members of the Diversity and Inclusion (DI) committee of the United States Aquaculture Society (USAS) and welcomes all World Aquaculture Society members and conference participants. The goal of the session is to provide a safe and inclusive environment where questions related to diversity, equity, and inclusion in the society, and aquaculture community at large, can be discussed freely. In this relaxed-fit forum, we welcome audience participation in a structured discussion of current issues, priority areas, and on-going diversity initiatives in the USAS.

- 8:30 Introduction, update and discussion on the development of a USAS code of conduct and collection of demographic data**
Eric Saillant, Angela Caporelli
- 8:45 Inclusive Engagement: Lessons from Anthropology**
Adriane Michaelis
- 9:00 Underrepresented Minorities in Decision-Making and Leadership: A Success Story**
Gulnihal Ozbay

- 9:15 Set Your GPS to DEIA - Piloting US Aquaculture into the Future Through a Focus on Diversity, Equity, Inclusion, and Accessibility**
Lonnie Gonsalves
- 9:30 Empowering Hispanic Learning at Cal Poly Humbolt**
Rafael Cuevas Uribe
- 9:45 Adopting Principles of Food Justice for Equitable Oyster Aquaculture Industry Development**
Cristina Sandolo
- 10:00 BREAK**
- 11:00 Highlights of the Meridian Institute Report: “Challenges and Opportunities in US Aquaculture Workforce Development**
Rebecca Lochmann and Eric Saillant
- 11:15 A Case Study of Success for Empowering Women and Underrepresented Groups in Aquaculture**
Libby Davis
- 11:30 Lead the Effort to Increase Diversity and Inclusion at your Workplace**
Noel D. Novelo
- 11:45 The Phoenix, Arizona urban agriculture program**
George Brooks
- 12:00 Discussion**

MARKETING AND CONSUMER PERCEPTIONS

Sunday, February 26 8:30 AM - 12:30 PM Galeries 6

Chairs: Kevin Neves, Jonathon Kershaw

- 8:30 Charles Clark, Jonathan van Senten, Michael Ciamarella, Matt Parker**
CHANGES IN CONSUMER PREFERENECES FOR SEAFOOD PRODUCTS DUE TO THE COVID-19 PANDEMIC (VIRGINIA)
- 8:45 Sharon Xin Ying Chuah, Zhifeng Gao, Razieh Farzad**
A STUDY ON U.S. CONSUMERS' PERCEPTIONS, PREFERENCES, AND WILLINGNESS TO PAY (WTP) FOR CELL-BASED SEAFOOD AT GROCERY SETTING
- 9:00 Sveinn Agnarsson, Themistoklis Altintzoglou, Thuy Pham, Juliana Arias, Pirjo Honkanen, Michaela Aschan, Philip James, Valur Gunnlaugsson**
CONSUMER ACCEPTANCE AND WILLINGNESS-TO-PAY FOR LOW TROPIC AQUACULTURE PRODUCTS
- 9:15 Jonathan Kershaw, Kevin Neves, Jonathan Kershaw, Fei Weisstein, Jeffrey Meyer**
EFFECTS OF ECO-FRIENDLY AND CLEANLINESS MESSAGES ON CONSUMER ACCEPTANCE OF AQUAPONIC TOMATOES *Solanum lycopersicum*
- 9:30 Shraddha Hegde, Carole Engle, Jonathan van Senten, Madan Dey**
IDENTIFICATION AND CHARACTERIZATION OF SEAFOOD CONSUMER CLUSTERS PRE- AND POST-PANDEMIC

9:45 Ryan Ardoin, Jeanne Lea, Rebecca Dupre, Jesse Trushenski, Chris Jackson, Brennan Smith
INVESTIGATING SENSORY THRESHOLDS FOR OFF-FLAVORS IN FARMED FISH

10:00 BREAK

11:15 Richard Bryant
MARKET PERCEPTIONS OF LIVE TILAPIA IN KENTUCKY

11:30 Mustafa Selcuk Uzmanoglu, Tanay Yuksel
THE VALUE CHAIN ANALYSIS OF TROUT AQUACULTURE IN TURKEY

11:45 Kamal Gosh
CONSUMERS' PREFERENCES AND WILLINGNESS-TO-PAY FOR CATFISH PRODUCTS ACROSS THE U.S. SOUTHERN STATES: A CONSUMER BASE SURVEY STUDY

SUSTAINABLE AQUACULTURE IN MAINE: RESEARCH, INNOVATION AND WORKFORCE DEVELOPMENT

Sunday, February 26 8:30 AM - 12:30 PM Salon C

Chairs: Meggan Dwyer, Deborah Bouchard

8:30 M. Scarlett Tudor, Melissa Malmstedt, Carla Scocchi, Laura Wilson
INNOVATIONS IN AQUACULTURE WORKFORCE DEVELOPMENT PROGRAMMING IN MAINE AND BEYOND

8:45 Katherine Howell
AQUACULTURE PIONEERS: CREATING FARM-BASED, HANDS-ON INTERNSHIPS TO INCREASE ONRAMPS AND PATHWAYS TO CAREER ADVANCEMENT

9:00 Carissa Maurin, Christian Brayden
THE GULF OF MAINE RESEARCH INSTITUTE WORKS TO ADVANCE THE SUSTAINABLE GROWTH OF AQUACULTURE

9:15 Andrea Angera, Sarah Redmond
THE MAINE SEAWEED EXCHANGE

9:30 Jennifer Meredith, Michael Donihue, Shirley Cao, Natalie Simonton, Sarah Snyder
THE CAPACITY OF SEAWEED AQUACULTURE TO DIVERSIFY RURAL LIVELIHOODS ON THE COAST OF MAINE

9:45 Qiujie Zheng, Christopher Davis, Anne Noll, Raymond Bernier, Randy Labbe
U.S. CONSUMER PREFERENCES AND ATTITUDES TOWARDS SEAWEED AND VALUE-ADDED PRODUCTS

10:00 Abigail Barrows
RETHINKING PLASTIC-BASED AQUACULTURE: AN INVESTIGATION INTO VIABLE MATERIALS

11:00 Adam St. Gelais, Struan Coleman, David Fredriksson, Tobias Dewhurst, Scott Lindell, David Bailey, Sara Gonzalez, Damian Brady
DEVELOPING A CARBON-FOCUSED LIFE CYCLE SUSTAINABILITY ASSESSMENT FRAMEWORK TO ASSESS SCALING PATHWAYS AND TECHNOECONOMIC OPTIMIZATION OF KELP FARMING

- 11:15 Michael Coogan**, Matthew Bowden, David Fredriksson, Michael Chambers
INVESTIGATING THE INTEGRATION OF ROPELESS GEAR TECHNOLOGY FOR OFFSHORE BOTTOM BIVALVE AQUACULTURE TO REDUCE ENTANGLEMENT RISK WITH MARINE MAMMALS
- 11:30 Michael Habte-Tsion**, Matt Hawkyard, Deborah Bouchard, Wendy Sealey, David Bradshaw
THE EFFECTS OF INSECT MEALS SUBSTITUTION ON THE GROWTH, PHYSIOBIOCHEMICAL RESPONSE, GUT MICROBIOME AND IMMUNE RELATED GENES EXPRESSION OF ATLANTIC SALMON *Salmo salar*
- 11:45 Robert Harrington**, Gary Burr, Brian Peterson, Rachael Szafnauer, Rebecca Cole, Jan Peter Maysen
EXTRACTION AND DETECTION OF GEOSMIN AND 2-METHYLISOBORNEOL FROM LIPID-RICH FISH TISSUE USING AUTOMATED SORPTIVE EXTRACTION
- 12:00 Robert Morefield**, Heather Hamlin
LARVAL SEA LICE *Lepeophtheirus salmonis* (KRØYER) EXHIBIT BEHAVIORAL RESPONSES TO PRE-ADULT AND ADULT CONSPECIFIC CUES

STRIPERHUB: STRIPED BASS AND HYBRID STRIPED BASS

Sunday, February 26 8:30 AM - 12:30 PM Salon E

Chairs: Ben Reading, Eric Herbst, Russell Borski

- 8:30 Benjamin Reading**, Linnea K. Andersen, Jason Abernathy, David L. Berlinsky, Greg Bolton, Russell J. Borski, David Cerino, Michael Ciaramella, Robert W. Clark, Michael O. Frinsko, S. Adam Fuller, Steve Gabel, Bartholomew W. Green, Steve Hall, Eric Herbst, Michael Hopper, Linas W. Kenter, Frank Lopez, Barry Nash, Matthew Parker, Kwamena Quagrainie, Steve Rawles, Hanping Wang
STRIPERHUB: STRIPED BASS *Morone saxatilis* AQUACULTURE
- 8:45 Russell J. Borski**, Scott A. Salger, Jamie L. Mankiewicz, Linnea K. Andersen, William F. Lee, Benjamin J. Reading
REDUCED FREQUENCY FEEDING IN GROWOUT OF DOMESTIC STRIPED BASS *Morone saxatilis* IN RECIRCULATING AQUACULTURE SYSTEMS
- 9:00 Linnea Andersen**, Erin E. Ducharme, Benjamin J. Reading
MACHINE LEARNING ANALYSIS OF INTEGRATED TRANSCRIPTOMIC AND METABOLOMIC PATHWAYS OF STRIPED BASS *Morone saxatilis* GROWTH
- 9:16 Ben Reading**
STRIPERHUB BUSINESS MEETING
- 10:00 BREAK**
- 11:00 Ben Reading**
STRIPERHUB STRIPED BASS CULTURE MANUAL

U.S. AQUACULTURE RESEARCH AND EXTENSION PROGRAM UPDATES

Sunday, February 26 8:30 AM - 5:00 PM Galleries 1

Chairs: Michael Schwarz, Charles Weirich

- 8:30 Michael Schwarz**, Jonathan van Senten, Reza Ovissipour, Katheryn Parraga-Estrada, Wendy Stout, Keri Rouse
VIRGINIA SEAFOOD AGRICULTURAL RESEARCH AND EXTENSION CENTER – PROGRAMMATIC EXPANSION
- 9:00 Matthew A. DiMaggio**
RESEARCH AND EXTENSION PROGRAMMING AT THE UNIVERSITY OF FLORIDA TROPICAL AQUACULTURE LABORATORY: PAST, PRESENT, AND FUTURE
- 9:15 Andrew Ray**, Robert Durborow
THE KENTUCKY STATE UNIVERSITY AQUACULTURE PROGRAM
- 9:30 Delbert M. Gatlin III**, Brian Ray, Todd Sink
THE TEXAS A&M AQUACULTURE PROGRAM
- 9:45 Jimmy Avery**, David Wise, Lester Khoo, Geoff Waldbieser
MISSISSIPPI STATE UNIVERSITY – THAD COCHRAN NATIONAL WARMWATER AQUACULTURE CENTER
- 10:00 BREAK**
- 11:00 Chuck Weirich**, Mark Rath, Nikola Garber, LaDon Swann, Rebecca Briggs
REVIEW OF NOAA SEA GRANT'S INVESTMENTS IN SUSTAINABLE U.S. AQUACULTURE
- 11:15 Matt Parker**, Don Webster, Cathy Liu, Shannon Hood, Brittany Wolfe-Bryant, Catherine Frederick, Jim LaChance, Allen Pattillo, Bill Hubbard, Fredrika Moser
UNIVERSITY SYSTEM OF MARYLAND: AQUACULTURE DEVELOPMENT DURING THE PAST HALF CENTURY
- 11:30 William C. Walton**
THE SHELLFISH AQUACULTURE PROGRAM AT THE VIRGINIA INSTITUTE OF MARINE SCIENCE
- 11:45 Alyssa Campbell**, Edward Hale, Dennis McIntosh, Grant Blank
DEVELOPMENT OF A PILOT SCALE SHELLFISH HATCHERY IN DELAWARE
- 12:00 Earl Melancon**, Wood Ogelsby, Anne Dugas, Leslie Davis, Albert (Rusty) Gaudé, Brian Callam, James Wilkins, Julie Lively, Evelyn Watts, Thomas Hymel
LOUISIANA'S ALTERNATIVE OYSTER CULTURE GRANTS PROGRAM: DEVELOPMENT, IMPLEMENTATION, AND PRESENT STATUS
- 12:15 Allen Pattillo**, Miao Yu, Matt Parker, Don Webster, Cathy Liu, Yang Tao, Yiannis Aloimonos, Nikhil Chopra, Matt Gray, Brain Callam, Bobbi Hudson, Jonathan van Senten
UPDATES FROM THE SMART, SUSTAINABLE SHELLFISH AQUACULTURE MANAGEMENT PROGRAM

SUNDAY

12:30 LUNCH

- 1:30 Alicia Bishop**, Jordan Hollarsmith, Rebecca Cates
NOAA FISHERIES ALASKA FY22 AQUACULTURE ACCOMPLISHMENTS
- 1:45 Angee Doerr**, Amy Ehrhart
AQUACULTURE PROGRAM DEVELOPMENT AT OREGON SEA GRANT: NEEDS, TOOLS, AND OPPORTUNITIES
- 2:00 Bradley Fox**, Darren Okimoto, Darren Lerner
PACIFIC REGION AQUACULTURE AND COASTAL RESOURCE HUB: REVITALIZING AND EXPANDING AQUACULTURE DEVELOPMENT IN THE PACIFIC
- 2:15 Domena Agyeman**, Jonathan van Senten, Carole Engle, Robert Rode, Kwamena Quagrainie, Matthew Smith
ASSESSING THE EFFECTIVENESS OF NCRAC-FUNDED RESEARCH IN AQUACULTURE WITHIN THE NORTH CENTRAL REGION
- 2:30 Amy Shambach**, Kwamena Quagrainie
LOCALLY RAISED FISH AND SHELLFISH IN AMERICA'S SEAFOOD BASKET: UPDATE ON EAT MIDWEST FISH EXTENSION PROGRAM
- 2:45 Christopher Good**
RECIRCULATING AQUACULTURE RESEARCH PROGRAM UPDATES FROM THE CONSERVATION FUND FRESHWATER INSTITUTE (SHEPHERDSTOWN, WEST VIRGINIA, USA)
- 3:00 BREAK**
- 3:30 Michael Evans**, Kaylee South, Michael Schwarz, Scott Lowman
CONTROLLED ENVIRONMENT AGRICULTURE INNOVATION CENTER – A TRANSDISCIPLINARY PROJECT TO PROMOTE CEA
- 3:45 Elliot Nelson**, Great Lakes Aquaculture Collaborative
INNOVATIONS IN FISH HEALTH EDUCATION: REGIONAL AND HYBRID APPROACHES

FINFISH GENETICS-GENOMICS

Sunday, February 26 8:30 AM - 12:30 PM Balcony L

Chair: Matt Powell

- 8:30 Matthew G. Hamilton**, Mohammed Yeasin, Md. Masud Akhter, John A.H. Benzie
GENETIC IMPROVEMENT OF ROHU *Labeo rohita* IN BANGLADESH
- 8:45 Kassaye Balkew Workagegn**, Gunnar Klemetsdal, Gjøena Gjøena
PREDICTION OF FILLET WEIGHT AND FILLET YIELD FROM BODY MEASUREMENTS AND GENETIC PARAMETERS IN A COMPLETE DIALLEL CROSS OF THREE NILE TILAPIA STRAINS
- 9:00 Madison Powell**, Tsung-Yu Tsai, Luis Hector Hernandez, T. Gibson Gaylord
EFFECTS OF DIETARY SOYBEAN MEAL INCLUSION ON CALCIUM-BINDING PROTEIN EXPRESSION AND INFLAMMATORY GENE MARKERS IN LIVER AND INTESTINE OF ATLANTIC SALMON *Salmo salar* L.

- 9:15 **Jeremiah J. Minich**
SEQUENCING ALL THE FISHES IN THE DEEP BLUE SEA: IMPACTS OF SAMPLE STORAGE TIME, TEMPERATURE, AND BUFFER TYPE ON DNA QUALITY OF FISHES VALIDATED THROUGH SEQUENCING
- 9:30 **Jacob Bledsoe**, Tim Bruce, Jessie Ma, Ken Cain, Tom Welker, Ken Overturf
MULTI-TISSUE DIFFERENCES IN GENE EXPRESSION FOLLOWING EXPERIMENTAL *Flavobacterium columnare* CHALLENGE IN THREE SELECTED LINES OF RAINBOW TROUT WITH VARIED GENETIC RESISTANCE
- 9:45 **Luke Stewart**, Jamel Dobbs, Roberto Spada
RAPID, COST EFFECTIVE, SNP GENOTYPING USING STANDARD BIOTOOLS POWERFUL MICROFLUIDITICS TECHNOLOGY

10:00 BREAK

- 11:00 **Yue Liu**, M. Gutierrez-Wing, Jack Koch, Lucia Arregui, Sarah Bodenstein, Allyssa Oune, Terrence Tiersch
AN OPEN HARDWARE MOVEMENT TO SUPPORT AQUACULTURE INNOVATION
- 11:15 **Mohamed (Moh) Salem**, Rafet Al-Tobasei, Yniv Palti, Guangtu Gao, Huaijun Zhou
STATUS OF THE ASSEMBLY AND FUNCTIONAL ANNOTATION OF RAINBOW TROUT GENOME
- 11:30 **John Buchanan**, Klara Verbyla, Debbie Plouffe, Alan Tinch
GENOME EDITING FOR GENETIC IMPROVEMENT IN FINFISH AQUACULTURE

EFFLUENT WASTE MANAGEMENT

Sunday, February 26 11:00 AM - 12:30 PM Balcony N
Chairs: Richard Shultz, Gabe Smith

- 11:00 **Christine Lepine**, Abhinav Choudhury, Christopher Good
WASTE TO VALUE | ENHANCING THE ENVIRONMENTAL SUSTAINABILITY OF RECIRCULATING AQUACULTURE BY TRANSFORMING CULTURE SYSTEM WASTES INTO MARKETABLE COMPOST
- 11:15 **Steven Hall**, Natasha Bell, Matthew Barnes
TREATMENT WETLANDS FOR TREATING MARINE AQUACULTURE EFFLUENTS: ENGINEERING, SCIENCE AND EMERGING BEST PRACTICES
- 11:30 **Scott McKay**, Jean-Félix Trudel
BIOSOLIDS WASTE MANAGEMENT THROUGH INNOVATIVE ROTARY PRESS; LESSONS LEARNED AND PERSPECTIVE FOR THE FUTURE
- 11:45 **Abhinav Choudhury**, Christine Lepine, Christopher Good
AMMONIA-INDUCED INHIBITION TO ANAEROBIC DIGESTION OF FISH WASTE SOLIDS (SLUDGE) FROM RECIRCULATING AQUACULTURE SYSTEMS (RAS)
- 12:00 **Matthew Recsetar**, Kevin Fitzsimmons
CLOSING THE LOOP IN AQUAPONICS AND RAS THROUGH SUSTAINABLE WASTE MANAGEMENT

CLEANER FISH

Sunday, February 26 11:00 AM - 12:30 PM Salon A

Chairs: Gulnihal Ozbay; Julia Grenn, Alyssa Stasse, Li Sun (Alyson) Chin

- 11:00 Elizabeth A. Fairchild**
CLEANERFISH AQUACULTURE IN THE UNITED STATES, WITH AN EMPHASIS ON LUMPFISH *Cyclopterus lumpus* RESEARCH IN NEW HAMPSHIRE
- 11:15 Michael Doherty**, Elizabeth Fairchild
AN ASSESSMENT OF SEA LICE IN COASTAL NEW HAMPSHIRE AND EXPLORING THE USE OF LUMPFISH *Cyclopterus lumpus* AS CLEANERFISH OF STEELHEAD TROUT *Oncorhynchus mykiss* IN EXPERIMENTAL AQUACULTURE CAGES
- 11:30 Michael Pietrak**, Steve Eddy
DEVELOPMENT OF A GULF OF MAINE CAPTIVE REARED LUMPFISH BROODSTOCK PROGRAM
- 11:45 Paul Howes**, Carlos Garcia de Leaniz
ADDRESSING THE WELFARE NEEDS OF FARMED LUMPFISH: KNOWLEDGE GAPS, CHALLENGES AND SOLUTIONS
- 12:00 Shelby Perry**, Elizabeth Fairchild
THE EFFECTS OF HATCHERY STRESSORS ON GROWTH, AGGRESSION, AND CANNIBALISM OF JUVENILE LUMPFISH
- 12:15 Elizabeth A. Fairchild**, Nathaniel Spada, Jesse Trushenski, Gary Burr, Michael Pietrak
EFFECTS OF VARYING PROTEIN AND LIPID CONCENTRATIONS ON JUVENILE LUMPFISH *Cyclopterus lumpus* GROWTH

SUNDAY

FEED SUPPLEMENTS AND GUT HEALTH

Sunday, February 26 11:00 AM - 12:30 PM Galeries 3

Chairs: Fernando Yamamoto, Giovanni Molinari

- 11:00 Blaine Suehs**, Fernando Y. Yamamoto, Pedro L.P.F. Carvalho, Delbert M. Gatlin III
EFFECTS OF POLY-B-HYDROXYBUTYRATE ON GROWTH AND IMMUNE RESPONSES OF FINGERLING AND ADVANCED STAGE NILE TILAPIA *Oreochromis niloticus* BASED ON *IN VIVO* AND *IN VITRO* APPROACHES
- 11:15 Beatriz Pacheco Nogueira Oliveira**, Allen Davis, Uthpala Padeniya, Timothy J. Bruce
EVALUATION OF THE EFFECTS OF PROBIOTICS ON THE GROWTH PERFORMANCE OF NILE TILAPIA *Oreochromis niloticus* IN A HIGH DENSITY BIOFLOC SYSTEM
- 11:30 Susan Laramore**, Paul Wills, Zachary Nilles, Tyler Bianchine, Cari Sinacore, Caitlyn Courtemanche, Scott Snyder, Craig Browdy
IMPACT OF A SYMBIOTIC TREATMENT ON FLORIDA POMPANO PRODUCTION AND HEALTH
- 11:45 Fernando Yamamoto**, Caitlin Older, Matt Griffin, Bradley Richardson, Brian Ott, Nicholas Romano, Justin Stilwell, Lester Khoo, Penelope Goodman, Grant Reifers, David Wise
DIETARY IRON SUPPLEMENTATION CAN INCREASE HEMATOCRIT LEVELS FOR CATFISH *Ictalurus* sp. BUT DECREASE THEIR RESISTANCE AGAINST *Edwardsiella ictaluri*

A PRIMER OF USDA NIFA PROGRAMS, PRIORITIES, AND PROJECTS SUPPORTING U.S. AQUACULTURE

Sunday, February 26 11:00 AM - 5:00 PM Galleries 2

Chair: Tim Sullivan, Christopher Green

A series of presentations provide a comprehensive overview of the ways in which USDA NIFA supports U.S. aquaculture. Drop by and learn from current awardees about the programs, projects, and their impacts for U.S. aquaculture production.

- 11:00 An Overview of USDA NIFA Support for Aquaculture Research, Extension, and Education**
Tim Sullivan, USDA NIFA
- 11:15 Development of Seaweed Farming Systems for New Nori and Dulse Aquaculture Crops**
Sarah Redmond, Springtide Seaweed, LLC
- 11:30 Innovation for Sustainable, Scalable and Efficient Seaweed Cultivation: Marine Cable From Recycled Carbon Fiber**
Charlie Delius, Blue Dot Sea Farms, SPC
- 11:45 Enhancing Bacterial Coldwater Disease Prevention and Control by Uncovering the Diversity and Ecology of *Flavobacterium psychrophilum***
Thomas P. Loch, Michigan State University – Aquatic Animal Health Laboratory
- 12:00 Choosing the Consequences: Research and Extension in Pursuit of Impacts**
Jonathan Van Senten, Virginia Seafood AREC (presentation given by Carole Engle)
- 12:15 USDA Regional Aquaculture Centers**
Reggie Harrell, The University of Maryland, Northeast Regional Aquaculture Center
- 12:30 LUNCH**
- 1:30 Establishing a Comprehensive Workforce Training System for Maine's Aquaculture Sector**
Carissa Maurin, The Gulf of Maine Research Institute
- 1:45 Sowing the Seeds to Educate and Train the Next Generation of Maine's Aquaculture Workforce**
Anne Langston Noll, The Maine Aquaculture Innovation Center
- 2:00 Xenogenesis for Producing Catfish Embryos**
Rex Dunham, Auburn University
- 2:15 Cellulose Nanomaterials: A Novel Adjuvant and Delivery System for Aquaculture Vaccine Applications**
Sarah M. Turner, University of Maine Cooperative Extension and the University of Maine Aquaculture Research Institute
- 2:30 Genomics Selection for Improved Fillet Yield and Quality Traits in Rainbow Trout**
Mohamad Salem, The University of Maryland, College Park
- 2:45 The Journey of HAUCS – an Internet of Things Framework for Pond Aquaculture**
Bing Ooyang, The Harbor Branch Oceanographic Institution at Florida Atlantic University

SUNDAY

3:00 BREAK

3:30 **Ocean-powered Robots for Autonomous Offshore Aquaculture**
Tomonari Furukawa, The University of Virginia

3:45 **Transforming Shellfish Farming with Smart Technology and Management Practices for Sustainable Production**
Miao Yu, The University of Maryland

4:00 **Sustainable Aquaculture Systems Supporting Atlantic Salmon (SAS²)**
Yonathan Zohar, Institute of Marine and Environmental Technology, The University of Maryland

FISH TO FEED THE WORLD: ADVANCING SUSTAINABLE SOLUTIONS FOR GLOBAL FOOD SECURITY

Sunday, February 26 8:30 AM - 5:00 PM Galleries 4
Chairs: Mark Lawrence, Peter Allen

8:30 **Mark Lawrence**
INTRODUCTION

8:45 **Mohammad G. Hussain**
AQUACULTURE IN BANGLADESH: RECENT ADVANCEMENT, PROSPECTS,
CHALLENGES AND OVERALL IMPACTS OF FIL FUNDED PROJECTS

9:00 **Abhipsita Das**, Prokash Deb, Md Akhtaruzzaman Khan, Madan Mohan Dey, Md Takibur Rahman
THE INTRA HOUSEHOLD FISH CONSUMPTION PATTERN IN BANGLADESH

9:15 **Matthias Halwart**, Oluwafemi Ajayi, Xinhua Yuan, Austin Stankus, Emmanuel K. Ajani, Bamidele O. Omitoyin, Amrit Bart, Esendugue G. Fonsah, Gary Burtle, Kazeem Kareem, Babatunde Oduntan, Yahaya M. Abubakar, Nick Innes-Taylor, Chanthaboun Sirimanotham, Kang Li, Jiayao Li, Johnpaul C. Ikwemesi, Lawali Argungu, Temitope Ogunkoya, James Fasakin
CAN THE DIVERSIFICATION OF RICE FARMING WITH FISH SUPPORT COMMUNITIES AND COUNTRIES IN ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS? INSIGHTS FROM NIGERIA, LAO PDR AND P.R. CHINA

9:30 **Chakriya Chum**, Shangshang Wang, Chelsie Dahlgren, Sitha Som, Wes Schilling, Peter Allen, Wes Neal, Sandra Correa, Thu Dinh
CONSUMER PREFERENCE FOR FISH SPECIES AND COOKING METHODS IN CAMBODIA

9:45 **Oluwafemi Ajayi**, Matthias Halwart, Yuan Xinhua, Austin Stankus, Emmanuel K. Ajani, Bamidele O. Omitoyin, Amrit Bart, Esendugue G. Fonsah, Gary Burtle, Oladeji Kazeem, Babatunde Oduntan, Abubakar Yahaya Mohammed, JohnPaul Ikwemesi, Lawali Argungu, Temitope Ogunkoya, James Fasakin
MAXIMIZING THE NUTRITIONAL IMPACT OF A FARM DIVERSIFICATION (RICE-FISH) INTERVENTION: A CASE STUDY FROM NIGERIA

10:00 BREAK

- 11:00 Md. Akhtaruzzaman Khan**, Md. Emran Hossain, Md. Takibur Rahman, Madan Mohan Dey
HOW PRICE AND NON-PRICE FACTORS INFLUENCE THE MARKET PRICE OF MAJOR CARP FISH: A DYNAMIC ARDL SIMULATED MODEL
- 11:15 Md Takibur Rahman**, Md Akhtaruzzaman Khan, Imranul Islam, Madan Mohan Dey
ARE TRADE CREDITS A DRAIN FOR GAIN IN THE AQUACULTURE INDUSTRY OF BANGLADESH?
- 11:30 Md. Akhtaruzzaman Khan**, Md. Emran Hossain, Md. Takibur Rahman, Madan Mohan Dey
EXPORT POTENTIALITY OF AQUACULTURE FISH SPECIES: EVIDENCE FROM BANGLADESH
- 11:45 Aaron McNevin**, Daniel Miller
WWF CREATING ACCOUNTABILITY IN GLOBAL FEED SUPPLY CHAINS
- 12:00 Ricardo Hernandez**, Ali Hazrat, Ben Belton, Murshed-e-Jahan Khondker, Mohammad Mahfujul Haque
THE STRUCTURE, CONDUCT, AND PERFORMANCE OF THE MIDSTREAM SEGMENTS OF THE AQUACULTURE VALUE CHAIN IN BANGLADESH
- 12:15 Ben Belton**, Liz Ignowski, Hazrat Ali, Md. Mahfujul Haque
PRODUCTIVITY OF MICRONUTRIENTS FROM INTEGRATED AQUACULTURE-AGRICULTURE SYSTEMS: EVIDENCE FROM BANGLADESH
- 12:30 LUNCH**
- 1:30 Md. Rafiqul Islam Sarder**, Mohammad Matiuir Rahman, Mariom, Mohammed Jahangir Alam, Md. Abdur Razzak, Shajjad Hossian, Terrence Tiersch
CRYOGENIC SPERM BANKING OF CATLA *Catla catla*, BIGHEAD CARP *Hypophthalmichthys nobilis* AND GRASS CARP *Ctenopharyngodon idella* AND PRODUCTION OF SEEDS IN COMMERCIAL HATCHERIES
- 1:45 Mohammed Badrul Amin**, Kazi Injamamul Hoque, Ajrin Sultana Sraboni, Helal Uddin, Clare Narrod, Salina Parveen, Mohammad Aminul Islam
ASSESSMENT OF FOODBORNE PATHOGENS AND HYGIENE PRACTICES ALONG THE FISH SUPPLY CHAINS IN BANGLADESH
- 2:00 Selim Alarape**, Olanike Adeyemo, Oluwasanmi Aina, Olusola Bodunde, Larry Hanson, Robert Wills, Rohana Subasinghe, Jerome Delamare-Deboutteville, Laura Khor, Mohan Chadag
THE COMPLEXITY OF DIFFERENTIATING BETWEEN FISH AND ENVIRONMENTAL PATHOGENS IN DISEASE DIAGNOSIS: THE CASE OF *EDWARDSIELLA* AND *KLEBSIELLA* ISOLATED FROM FARMED AFRICAN CATFISH
- 2:15 Larry Hanson**, Robert Wills, Olanike Adeyemo, Oluwasanmi Aina, Selim Alarape, Olusola Bodunde, Rohana Subasinghe, Jerome Delamare-Deboutteville, Laura Khor, Mohan Chadag
UNDERSTANDING AQUACULTURE BIOSECURITY TO IMPROVE CATFISH DISEASE MANAGEMENT IN OGUN AND DELTA STATES, NIGERIA

AQUATIC ANIMAL HEALTH

Sunday, February 26 11:00 AM - 5:00 PM Salon D

Chairs: Timothy Bruce, Anita Kelly

- 11:00 Tifani Watson**, Tyler McKay, John Kelso, Robert Durborow
DIAGNOSING FISH DISEASES, RECOMMENDING TREATMENTS, AND EVALUATING FISH FARMERS' TREATMENT PREFERENCES AND PERCEPTIONS OF DIAGNOSTIC SERVICES
- 11:15 Robert Durborow**, Vincent Teye, Tyler McKay, Stephen Atkinson, John Kelso, Tifani Watson McKay
USING A NEW DATABASE TO ENHANCE FISH HEALTH MANAGEMENT
- 11:30 Joel A. Bader**
UNITED STATES FISH AND WILDLIFE SERVICE WILD FISH HEALTH SURVEY AND NEW GIS-BASED MAPPER – PROTECTING WILD FISHERIES
- 11:45 Yago Santos**, Irene Salinas, Elisa Casadei
THE INTERPLAY BETWEEN ACUTE STRESS AND ANTIMICROBIAL PEPTIDE MODULATION IN THE SKIN OF RAINBOW TROUT *Oncorhynchus mykiss*
- 12:00 Uthpala Padeniya**, Allen Davis, Timothy Bruce
INFLUENCE OF PROBIOTICS ON THE HEALTH OF NILE TILAPIA *Oreochromis niloticus* RAISED IN BIOFLOC SYSTEMS
- 12:15 James Tuttle**, Timothy Bruce, Luke Roy, Ian Butts, Benjamin Beck, Anita Kelly
PERSISTENCE OF VIRULENT *Aeromonas hydrophila* AND *Edwardsiella ictaluri* IN COMMERCIAL CATFISH POND SEDIMENTS
- 12:30 LUNCH**
- 1:30 Selim Alarape**, Olanike Adeyemo
PREVALENCE, ANTIBIOGRAM, AND ANTIBIOTIC RESISTANT GENES (ARGS) OF *Vibrio cholerae* ISOLATED FROM FARMED AFRICAN CATFISH *Clarias gariepinus* (BURCHELL, 1822)
- 1:45 Miles Lange**, Scott Salger, Benjamin Reading, Eric Peatman, Benjamin Beck
THE IMPACT OF ANTIMICROBIAL PEPTIDES ON THE BIOFILM FORMATION OF AQUACULTURE-RELEVANT PATHOGENS
- 2:00 Luxin Wang**, Esteban Soto Martinez, Anita Kelly, Luke Roy, Hongye Wang, Lina Sheng, Xiran Li
THE IMPACT OF FLORFENICOL TREATMENT ON THE MICROBIAL POPULATIONS ASSOCIATED WITH LIVE CATFISH
- 2:15 Sharon Gudapati**, David Donovan, Daniel Nelson, Mark Smeltzer, Grace Ramena
PEPTIDOGLYCAN HYDROLASES TO TREAT *Staphylococcus aureus* INFECTION
- 2:30 Annik Segree**, David M. Donovan, Jason Abernathy, Craig A. Shoemaker, Grace T. Ramena
PEPTIDOGLYCAN HYDROLASES AS ALTERNATIVES TO ANTIBIOTICS TO TREAT *Streptococcus* IN FISH

- 2:45 Crystal Conde**, Tulio Yoshinaga, Luara Cassiano, Jessyca Alexandre, Guilherme Ferrez, Erna Bach, José Kfury Júnior, Danielle Dias, Carlos Ishikawa, Ricardo Harakava, Maria Ranzani, Leonardo Tachibana
CULTURE OF *Francisella noatunensis* subsp. *Orientalis* AND IN VITRO RESPONSE OF NILE TILAPIA LEUKOCYTES
- 3:00 Haitham H. Mohammed**, Wenlong Cai
PLEOMORPHISM IN THE OPPORTUNISTIC FISH PATHOGEN *Aeromonas hydrophila* FOLLOWING OSMOTIC CHANGES IN GROWTH CONDITIONS
- 3:15 Allison Wise**, Benjamin LaFrentz, Anita Kelly, Mark Liles, Benjamin Beck, Timothy Bruce
CHARACTERIZATION OF CO-INFECTIVE BACTERIAL PATHOGENS VIRULENT *Aeromonas hydrophila* AND *Flavobacterium covae* IN CHANNEL CATFISH *Ictalurus punctatus* PRODUCTION
- 3:30 Abdulmalik Oladipupo**, Anita Kelly, Allen Davis, Timothy Bruce
EVALUATION OF DIETARY ADDITIVES ON GROWTH AND IMMUNE RESPONSE IN CHANNEL CATFISH *Ictalurus punctatus*
- 3:45 Nilima Renukdas**, Anita Kelly
IMMUNOLOGICAL RESPONSES TO COLUMNARIS
- 4:00 Courtney E. Harrison**, Benjamin R. LaFrentz, Matt J. Griffin, Thomas P. Loch, Esteban Soto, Timothy J. Bruce
IDENTIFICATION OF COLUMNARIS DISEASE VACCINE CANDIDATES FOR CATFISH AND OTHER AQUACULTURE FISH SPECIES IN THE SOUTHERN REGION
- 4:15 Bradley Farmer**, Michael Deshotel, Adam Fuller, Matt McEntire, Jason Abernathy
PHENOTYPIC CHARACTERIZATION OF DISEASE RESISTANCE IN WHITE BASS *M. Chrysops* AND STRIPED BASS *M. Saxatilis* AND THEIR HYBRID STRIPED BASS OFFSPRING
- 4:30 David Wise**, Lester Khoo, Matt Griffin, Al Camus, Fernando Yamamoto, Brad Richardson
USE OF IRON FORTIFIED DIETS TO PROMOTE RED BLOOD CELL PRODUCTION IN ANEMIC CATFISH
- 4:45 Kusum Parajuli**, Ahmed Mustafa, Nahian Fahim, Malaika Ahmed
ANTIBACTERIAL ACTIVITY OF SEA STAR *Luidia clathrata* BODY WALL AGAINST SLECETED PATHOGENIC BACTERIA

CAHPS AND EXPORT SESSION

Sunday, February 26 11:30 AM - 5:00 PM Balcony J

Chairs: Alicia Marston, Kathleen Hartman

During this session, APHIS will provide an overview of the Registered Aquaculture Export Facility (RAEF) inspection program and the Comprehensive Aquaculture Health Program Standards (CAHPS), including how the CAHPS framework will be leveraged to support the international export of live aquatic animals to countries that require premises freedom status from pathogens of concern.

- 11:30 What is RAEF (Registered Aquaculture Export Facility) Inspection Program?**
Alicia Marston, USDA APHIS VS
- 12:00 CAHPS Overview (Comprehensive Aquaculture Health Program Standards)**
Kathleen Hartman, USDA APHIS VS

- 12:30 LUNCH**
- 1:30 Risk Based Sampling in CAHPS**
Lori Gustafson, USDA APHIS VS
- 2:00 CAHPS Global: Establishing Premises Freedom**
Kathleen Hartman, USDA APHIS VS
- 2:30 Leveraging CAHPS Framework at the Global Participation Level for International Trade**
Alicia Marston, USDA APHIS VS
- 3:00 BREAK**
- 3:30 CAHPS Implementation**
Bill Keleher, Kennebec River Biosciences
- 4:00 RAEF Evolution and Next Steps**
Alicia Marston, USDA APHIS VS
- 4:30 Open Panel Q&A**
PANEL: Kathleen Hartman, Alicia Marston, Lori Gustafson and Bill Keleher

FINFISH HUSBANDRY - PRODUCTION

Sunday, February 26 1:30 PM - 3:00 PM Salon A

Chair: Jesse Trushenski

- 1:30 Donald Schreiner**, Amy Schrank
FOUR STRATEGIES TO ACCELERATE GOLDEN SHINER *Notemigonus crysoleucas*
GROWTH IN MINNESOTA AND OTHER NORTHERN CLIMATES
- 1:45 Morgan Cheatham**, Ganesh Kumar
FACTORS LIMITING FISH PRODUCTION IN FRESHWATER PONDS
- 2:00 Uchechukwu Ohajiudu**, Kenneth Semmens
INFLUENCE OF WATER TEMPERATURE ON GROWTH AND PROXIMATE BODY
COMPOSITION OF FINGERLING LARGEMOUTH BASS *Micropterus nigricans*
- 2:15 Kevin Fisher**, Konrad Dabrowski
INVESTIGATING THE POTENTIAL OF DISTANT HYBRIDS BETWEEN KOI CARP
Cyprinus carpio AND BIGHEAD CARP *Hypophthalmichthys nobilis*

SHELLFISH GENETICS

Sunday, February 26 1:30 PM - 3:00 PM Balcony L

Chair: Eric Saillant

- 1:30 Paul McDonald**, Eric Saillant
GENETIC PARAMETERS FOR HEAT AND SALINITY STRESS TOLERANCE IN NORTHERN GULF OF MEXICO EASTERN OYSTER *Crassostrea virginica*
- 1:45 Lindsey Schwartz**, Louis Plough, Romain Lavaud, Megan La Peyre, Ann Fairly Pandelides, Devin Comba, Beth Stauffer
IMPROVING LOW SALINITY TOLERANCE IN LOUISIANA POPULATIONS OF THE EASTERN OYSTER *Crassostrea virginica* USING GENOMIC SELECTION
- 2:00 Thomas Delomas**, Stuart Willis
LOW-COST MICROHAPLOTYPE DISCOVERY AND ALLELE FREQUENCY ESTIMATION USING POOLED SEQUENCING DATA

ECOLOGY AND ENVIRONMENT

Sunday, February 26 1:30 PM - 5:00 PM Balcony N

Chair: Brittany Chesser

- 1:30 André N. Carvalho**, Paulo Vasconcelos, David Piló, Inês Sousa, Nuno S. Henriques, Almudena Álvarez, Paloma Peón, Eneko Bachiller, Mikel Basterretxea, Ana R. Santos, Angela Muench, Tania Mendo, Declan Tobin, Fábio Pereira, Ana I. Reis, María P. Fernández, Lucía G. Flórez, Gonçalo Lourenço, Mafalda Rangel, Arantza Murillas, Estanis Mugerza, Jorge M.S. Gonçalves, Miguel B. Gaspar
A NEW APPROACH TO ASSESS THE IMPACT OF ANTHROPOGENIC ACTIVITIES ON MARINE ECOSYSTEMS: SMALL-SCALE FISHERIES AND AQUACULTURE
- 1:45 Edward Hale**, Timothy Smoot, Lenna Wood, Maddy Windsor
ASSESSING OYSTER GROWTH AND THE HABITAT VALUE OF OYSTER AQUACULTURE GEAR FOR ESTUARINE FISHES AND INVERTEBRATES
- 2:00 David Piló**, Fábio Pereira, André N. Carvalho, Paulo Vasconcelos, António M. Cunha, Miguel B. Gaspar
NON-INDIGENOUS SPECIES UNINTENTIONALLY TRANSPORTED TOGETHER WITH FARMED MUSSELS: DO WE KNOW ALL WE NEED ABOUT THESE HITCHHIKERS?
- 2:15 Bradley Richardson**, Blake Wilson, Graham Rosser, Matt Griffin, Amy Roda
TOWARD INTEGRATED PEST MANAGEMENT OF THE INVASIVE APPLE SNAIL *Pomacea maculata* IN CRAYFISH, RICE, AND CATFISH PRODUCTION
- 2:30 Walden Kiker**, Heather Kramp
PORT OF SAN DIEGO: CLIMATE RESILIENCY AND NATURE BASED SOLUTIONS INITIATIVES

SUNDAY

REGULATIONS - POLICIES - PERMITTING

Sunday, February 26 1:30 PM - 5:00 PM Galeries 6

Chair: Mike Denson

- 1:30 Rebecca Cates**, Jordan A. Hollarsmith
ALASKA'S NEW FRONTIER! PRESENTING THE FIRST AQUACULTURE STRATEGIC SCIENCE PLAN FOR NOAA FISHERIES ALASKA FISHERIES SCIENCE CENTER
- 1:45 Tori Spence Spence**
WHAT'S NEXT FOR AQUACULTURE MANAGEMENT IN THE PACIFIC ISLANDS
- 2:00 Quanton Tuckett**, Carole Engle, Jonathan van Senten, Jeffrey Hill
STATE SURVEY TO IDENTIFY RISK PRACTICES AND RESPONSES TO LACEY ACT CHANGES FOR INJURIOUS WILDLIFE
- 2:15 Owen Mulvey-McFerron**, Zach Harrison, Jacob Boyd
USER CONFLICT MITIGATION IN NORTH CAROLINA'S AQUACULTURE INDUSTRY
- 2:30 Zach Harrison**, Owen Mulvey-McFerron, Jacob Boyd
APPLYING NEPA CUMULATIVE IMPACT LANGUAGE TO PROPOSED SHELLFISH LEASES IN NORTH CAROLINA
- 2:45 Joel A. Bader**
PARTNERING TO EXPEDITE THE IMPORT OF HEALTHY SALMON AND TROUT INTO THE UNITED STATES: A USFWS TITLE 50 PROGRAM PRIMER
- 3:00 BREAK**
- 3:30 Benjamin J. Reading**
THREATS TO U.S. FOOD AND AGRICULTURAL RESOURCES: SEAFOOD
- 3:45 Amy Ehrhart**, Angee Doerr
OREGON MARINE AQUACULTURE BARRIERS AND POLICY RECOMMENDATIONS
- 4:00 Michael Rust**, Seth Theuerkauf, Kenneth Riley
SCIENCE FOR ADVICE, AN UNDERDEVELOPED OPPORTUNITY?
- 4:15 Christopher Aura**, Grace Njagi, Ruth Mwarabu, Safina Musa, Chrisphine Nyamweya, Collins Ongore, Jane Fonda Awuor
UNBUNDLING SUSTAINABLE COMMUNITY-BASED DAM AQUACULTURE FOR BLUE GROWTH

SUNDAY

BUSINESS TOOLS AND THE ECONOMICS OF SHELLFISH AQUACULTURE

Sunday, February 26 1:30 PM - 3:00 PM Salon H

Chairs: Matt Parker, Russell Grice

- 1:30 Call Nichols**
BIVALVES AND BETA TESTS: NOVEL TECHNOLOGY TO STREAMLINE SHELLFISH OPERATIONS AND COMPLIANCE
- 1:45 Matt Parker**
UNIVERSITY OF MARYLAND ONLINE ECONOMIC SPREADSHEET TOOL FOR OYSTER AQUACULTURE: A SHELLFISH ODYSSEY
- 2:00 Christian Brayden, Sebastian Belle**
HOW TO FINANCE THE FARM – MAINE AQUACULTURE FINANCING RESOURCES MANUAL
- 2:15 Russell Grice, LaDon Swann, Steve Sempier, Tracie Sempier, Stephen Deal**
OYSTER FARMING RESILIENCE INDEX

SUNDAY

NUTRITION – PROTEIN

Sunday, February 26 1:30 PM - 5:00 PM Galleries 3

Chair: Vikas Kumar

- 1:30 Daniel Adams, Liz Koutsos**
BLACK SOLDIER FLY LARVAE: A NOVEL PROTEIN SOURCE FOR AQUACULTURE
- 1:45 Vikas Kumar, Mosope Abanikanda, Jie Ma, Nicholas Romano, Kenneth Cain, Daniel Adams, Liz Koutsos**
DIETARY INCLUSION OF INSECT MEAL ENHANCES THE SOY PROTEIN UTILIZATION IN RAINBOW TROUT VIA MITIGATING THE GUT ENTERITIS AND MODULATING THE GUT MICROBIOME
- 2:00 Stephanie Velasquez, Allen Davis**
THE USE OF INTACT PROTEINS AND PURIFIED AMINO ACIDS IN DETERMINING THE METHIONINE REQUIREMENT IN PACIFIC WHITE SHRIMP *Litopenaeus vannamei*
- 2:15 Krishna Singha, Vikas Kumar**
DIETARY INTERACTION OF L-ALANINE AND LIPID ON GROWTH AND PHYSIOLOGY OF RAINBOW TROUT *Oncorhynchus mykiss*
- 2:30 Sara Youssef, Shima Salem, Rania Mahmoud, Tarek Mohamed**
EFFECT OF PROTEIN REDUCTION WITH INDISPENSABLE AMINO ACID SUPPLEMENTATION AT DIFFERENT LEVELS IN PRACTICAL DIETS OF NILE TILAPIA *Oreochromis niloticus*
- 2:45 Giovanni S. Molinari, Michal Wojno, Karolina Kwasek**
THE EFFECT OF DIETARY ESSENTIAL AMINO ACID DEFICIENCY ON FEEDING RESPONSE IN STOMACHLESS FISH
- 3:00 BREAK**

- 3:30 **Khanh Q. Nguyen**, Adela N. Araujo, Trenton L. Corby, Leila M. Strebel, Melanie A. Rhodes, Timothy J. Bruce, D. Allen Davis
EFFECTS OF DIFFERENT SOYBEAN PROTEIN SOURCES ON GROWTH PERFORMANCE, FEED UTILIZATION EFFICIENCY, INTESTINAL HISTOLOGY, AND PHYSIOLOGICAL GENE EXPRESSION OF PACIFIC WHITE SHRIMP *Litopenaeus vannamei*
- 3:45 **Nicole Nance**, Vikas Kumar
OPTIMIZING THE SOYBEAN MEAL INCLUSION LEVEL IN DIFFERENT LIFE STAGES OF ATLANTIC SALMON *Salmo salar* DIET
- 4:00 **Shrijan Bajracharya**, Allen Davis, Luke Roy
THE EFFECTS OF DIFFERENT LEVELS OF DIETARY PROTEIN ON THE GROWTH PERFORMANCE OF PACIFIC WHITE SHRIMP *Litopenaeus vannamei* REARED IN INTENSIVE BIOFLOC CULTURE SYSTEM
- 4:15 **Adela Araujo**, Leila Strebel, Khanh Nguyen, Trenton Corby, Melanie Rhodes, Allen Davis
EFFECT OF DIFFERENT LEVELS OF CRUDE PROTEIN AT DIFFERENT FEEDING RATES ON PACIFIC WHITE SHRIMP *Litopenaeus vannamei*
- 4:30 **Stephanie Velasquez**, Khanh Nguyen, John Stieglitz, Leonardo Ibarra-Castro, Timothy Bruce, Allen Davis
EFFECTS OF DIFFERENT PROTEIN SOURCES AND VARYING PROTEIN:LIPID CONCENTRATIONS ON GROWTH, BODY COMPOSITION, AND GUT HISTOLOGY OF YELLOWTAIL SNAPPER *Ocyurus chrysurus*

TILAPIA

Sunday, February 26 1:30 PM - 5:00 PM Salon C
Chair: Kevin Fitzsimmons

- 1:30 **Kevin Fitzsimmons**
2022 GLOBAL REVIEW OF TILAPIA PRODUCTION AND MARKETS
- 1:45 **Lianqun Sun**, Carole Engle, Ganesh Kumar, Jonathan van Senten
U.S. RETAIL MARKET TRENDS FOR TILAPIA PRODUCTS
- 2:00 **Abdul Mateen**
OUT FUNCTIONAL FEED FORMULATION: COMPARATIVE GROWTH, INNATE IMMUNITY, DIGESTIVE ENZYME INDICES AND BODY COMPOSITION IN NILE TILAPIA *Oreochromis niloticus* UNDER 75% FISH MEAL REPLACEMENT WITH SOYBEAN MEAL
- 2:15 **Ahmed Mustafa**, Isaac Wendel
PHYSIOLOGICAL AND IMMUNOLOGICAL EFFECTS OF L-THEANINE ON STRESS IN NILE TILAPIA *Oreochromis niloticus* IN A CLOSED LOOP AQUAPONICS SYSTEM
- 2:30 **Samuel Olufeagba**, Boyi Prince, Victor Okomoda
GENETIC IMPROVEMENT AND MOLECULAR CHARACTERISATION OF TWO STRAINS OF *Oreochromis niloticus*
- 2:45 **Raja Shahnawaz Janjua**, Shaafq Fatima
ANALYSIS OF THE GROWTH PERFORMANCE, STRESS, PROFILE OF FATTY ACIDS AND AMINO ACIDS AND CORTISOL IN TILAPIA *Oreochromis niloticus*, CULTURED AT HIGH STOCKING DENSITY USING IN-POND RACEWAY SYSTEM

3:00 **BREAK**

3:30 **Kevin Fitzsimmons**
AMERICAN TILAPIA ASSOCIATION ANNUAL MEETING
UPDATES ON ASSOCIATION
OPEN DISCUSSION

FINFISH DISEASES

Sunday, February 26 1:30 PM - 5:00 PM Salon E
Chair: Mike Kent

1:30 **Robert Morefield**, Heather Hamlin
LARVAL SEA LICE *Lepeophtheirus salmonis* (KRØYER) EXHIBIT BEHAVIORAL
RESPONSES TO PRE-ADULT AND ADULT CONSPECIFIC CUES

1:45 **Jie (Jessie) Ma**, Jesse Trushenski, Evan Jones, Timothy Bruce, Doug McKenney,
Gael Kurath, Kenneth Cain
CHARACTERIZATION OF MATERNAL IMMUNITY FOLLOWING VACCINATION OF
BROODSTOCK AGAINST *IHN* OR *Flavobacterium psychrophilum* IN RAINBOW TROUT
Oncorhynchus mykiss

2:00 **Michael Sandel**, Alex Rakestraw, Kayla Fast, Magdalene Dogbe, Heather Jordan,
Sophie Picq, Joe Receuver, Alexandra Bauer, Christine Chevillon, Jean-Francois Guegan,
Jennifer Pechal, M. Eric Benbow
BURULI ULCER: NEW EVIDENCE FOR AN EMERGING ZOOLOGICAL PATHOGEN IN
WILD AND CULTURED FISHES OF THE NORTHERN GULF OF MEXICO

WORKSHOP: OVERVIEW OF FISH GROW OUT AND PLANT PRODUCTION SYSTEMS IN AQUAPONICS

Sunday, February 26 1:30 PM - 5:00 PM Galleries 5
Chair: Huy Tran

1:30 **Huy Tran**
LIST OF THE TOPICS COVERED:
AQUAPONICS OVERVIEW
FISH CULTURE COMPONENTS (RAS), TYPES, AND APPLICATION
PLANT PROPAGATION METHODS, COMPONENTS, AND APPLICATION

EXAMPLE DESIGN; INTEGRATE FISHING COMPONENT WITH PLANT COMPONENT
TO CREATE A SMALL-SCALE AQUAPONIC SYSTEM

SUNDAY

FINFISH REPRODUCTION

Sunday, February 26 3:30 PM - 5:00 PM Salon A

Chairs: Emma Hauser, Tyler Firkus

- 3:30 Erin Legacki**, Brian Peterson, Heather Hamlin, Tracey Schock, Melissa Milligan, Ashley Boggs
USING SKIN MUCUS FOR THE IDENTIFICATION OF ENDOCRINE BIOMARKERS IN NORTH AMERICAN ATLANTIC SALMON *Salmo salar*
- 3:45 Gregory M. Weber**, Kyle E. Martin, Palti Yniv, Liu Sixin, Joseph N. Beach, Jill E. Birkett
SPAWNING DATE OF RAINBOW TROUT PRODUCED BY FERTILIZING EGGS FROM A SUMMER-SPAWNING LINE WITH CRYOPRESERVED MILT FROM A WINTER-SPAWNING LINE
- 4:00 Luke Oliver**, Kenneth Cain, Joseph Evavold
OPTIMIZATION OF TRIPLOID INDUCTION PARAMETERS AND ANALYSIS OF TRIPLOID STERILITY IN BURBOT *Lota lota*

MICROBIOME

Sunday, February 26 3:30 PM - 5:00 PM Balcony L

Chair: Jacob Bledsoe

- 3:30 Jacob Bledsoe**, Brian Small, Ken Overturf
GENE CO-EXPRESSION NETWORKS GIVE INSIGHT INTO REGULATION OF INTESTINAL MICROBIOTA COLONIZATION DYNAMICS IN RAINBOW TROUT LARVAE
- 3:45 Andrea Tarnecki**, Cynthia K. Faulk, Lee A. Fuiman
PARENTAL AND TEMPORAL INFLUENCES ON THE LARVAL RED DRUM *Sciaenops ocellatus* MICROBIOTA
- 4:00 Matan Masasa**, Ariel Kushmaro, Nadav Shashar, Lior Guttman
MONO-SPECIFIC ALGAL DIETS SHAPE MICROBIAL NETWORKING IN THE GUT OF THE SEA URCHIN *Tripneustes gratilla elatensis*
- 4:15 Ken Overturf**, Jacob Bledsoe, Thomas Welker, Stephen Reichley, Sara Schwarz
MICROBIOME EVALUATIONS IN LARGE SCALE RAINBOW TROUT PRODUCTION FACILITIES
- 4:30 Mosope Abanikanda**, Kenneth Overturf, Jacob Bledsoe
SHOTGUN METAGENOMIC STUDY OF A COMMERCIAL TROUT FARM REVEALS TAXONOMIC AND FUNCTIONAL (DIS)SIMILARITIES ACROSS ENVIRONMENTAL- AND HOST-ASSOCIATED MICROBIOMES

SUNDAY