



## MONDAY, February 10

### PLENARY 1

Monday, February 10 8:30 AM - 10:00 AM Kalakaua Ballroom C  
Chair: Mike Denson

- 8:40 Lilikala Kame'eiehiwa**  
HISTORIC O'AHU FRESH WATER FISHPONDS MAKING 1 MILLION POUNDS OF FISH PER YEAR, JUST ON THE LAND!
- 9:30 Jim Wyban**  
SPF SHRIMP TECHNOLOGY: PAST, PRESENT AND FUTURE

### AQUAPONICS

Monday, February 10 11:00 AM - 5:00 PM Room 311  
Chairs: Huy Tran, Bradley Todd

- 11:00 Aparna Biswas, Asif Mortuza, Abdul Akbar, Ahmed Mustafa**  
ESTIMATED PRODUCTION OF FISH (TILAPIA) AND PLANTS (BASILS) IN A LABORATORY-SCALE AQUAPONICS SYSTEM
- 11:15 Allen Pattillo, David Cline, Janelle Hager, Terry Hanson**  
AN AQUAPONICS INDUSTRY SURVEY
- 11:30 Josh Dusci, Janelle Hager, Shawn Coyle, James Tidwell**  
IMPLEMENTING FRESHWATER PRAWN *Macrobrachium rosenbergii* INTO HYDROPONIC TROUGHS OF A DWC AQUAPONICS SYSTEM FOR BIOLOGICAL SOLIDS ACCUMULATION CONTROL
- 11:45 Emmanuel Ayipio, Daniel Wells**  
EFFECT OF AERATION ON WATER QUALITY, AND ROMAIN LETTUCE PERFORMANCE IN AQUAPONICS AND HYDROPONIC SOLUTION

- 12:00 Kyle Hensarling**, Daniel Wells, Emmanuel Ayipio, Caroline Blanchard, Nathan Wallace-Springer, Mollie Smith  
EFFECTS OF HYDROPONIC SYSTEM TYPE ON GROWTH AND NUTRIENT UPTAKE IN LETTUCE IRRIGATED WITH AQUACULTURE EFFLUENT
- 12:15 Emmanuel Ayipio**, Daniel Wells, Alyssa McQuilling, Alan Wilson  
COMPARISONS BETWEEN AQUAPONIC AND CONVENTIONAL HYDROPONIC CROP YIELDS: A META-ANALYSIS
- 12:30 LUNCH**
- 1:30 Mollie Smith**, Terrill Hanson, Brendan Higgins, Daniel Wells, David Blersch  
LIFE CYCLE ASSESSMENT OF DECOUPLED SEMI-COMMERCIAL AQUAPONIC SYSTEM, INITIAL FINDINGS
- 1:45 Huy Tran**  
DIY HOME SYSTEM AQUAPONIC SYSTEM
- 2:00 Todd Guerdat**, Sean Fogarty, Stephen Jones, Peter Konjoian  
MICROBIAL COMMUNITIES AND FOOD SAFETY IN RECIRCULATING AQUAPONIC SYSTEMS
- 2:15 Todd Guerdat**, Anna DeVitto, Anissa Poleatewich, Peter Konjoian, Neil Mattson  
OPTIMIZING AQUAPONIC STRAWBERRY PRODUCTION IN THE NORTHEAST FOR YEAR-ROUND PRODUCTION
- 2:30 Adrian Barnes**, Kevin Hopkins, Amit Gross  
IS AQUAPONICS A SUSTAINABLE OPTION WHEN COMPARED TO CONVENTIONAL MONOCULTURES?
- 2:45 Christopher G. Williams**  
KEEPING INTEREST IN AQUAPONICS ALIVE: A COMPOSITE LOOK AT TRENDS, KEYWORDS AND SENTIMENT ANALYSES IN THE INDUSTRY
- 3:00 Meg Stout**, Nick Savidov, Charlie Shultz, Brian Filipowich  
GOOD AGRICULTURAL PRACTICE (GAP) FOR AQUAPONIC PRODUCE AND GLOBAL FOOD SAFETY INITIATIVE (GFSI) CERTIFICATION, 2020 UPDATE
- 3:15 Leo J. Fleckenstein**, Jill. C Fisk, Thomas W. Tierney, Andrew J. Ray  
SUITABILITY OF SEA PURSLANE *Sesuvium portulacastrum* IN BRACKISH WATER AQUAPONICS
- 3:30 Richard C. Shultz**, Nick Savidov  
RECENT ADVANCES IN AQUAPONICS IN CANADA
- 3:45 Richard C. Shultz**, Pedro Casas Cordero, Abey Torrez, Frank Currie, Luke Spangenburg, Ondine Frauenglass, Stephen Gomez  
RESILIENT AQUAPONIC FOOD PRODUCTION IN TEMPERATE CLIMATES USING A CONTROLLED ENVIRONMENT GREENHOUSE AND A VARIETY OF ENERGY ASSETS
- 4:00 Jill Fisk**, Leo Fleckenstein, Thomas Tierney, Andrew Ray  
SUITABILITY OF KALE WINTERBOR F1 HYBRID *Brassica oleracea* IN BRACKISH WATER AQUAPONICS APPLICATIONS

- 4:15 Janelle Hager**, Shawn Coyle, James Tidwell  
FEED UTILIZATION BY LARGEMOUTH BASS *Micropterus salmoides* AND BLUEGILL *Lepomis macrochirus* AT THREE TEMPERATURES SUITABLE FOR PRODUCTION OF LEAFY GREENS IN AQUAPONIC SYSTEMS
- 4:30 Roberto M.V. Flores**, Kwamena K. Quagrainie, Paul V. Preckel, Nicole O. Widmar, Laura P.S. Ledezma, Jesaias I. Costa  
ECONOMIC EVALUATION OF TILAPIA FINGERLINGS AND LETTUCE PRODUCTION IN AN AQUAPONICS SYSTEM IN BRAZIL
- 4:45 Anthony A. Adams**, Andrew J. Ray  
EVALUATING *Spartina alterniflora* IN DECOUPLED AQUAPONICS TO REMEDIATE REUSED SHRIMP *Litopenaeus vannamei* WATER
- 5:00 Victor Lobanov**, Alyssa Joyce  
IMPROVING YIELDS WITH DECOUPLED AQUAPONICS

## AQUACULTURE OF NATIVE PEOPLES

Monday, February 10 11:00 AM - 12:30 PM Room 301B

Chairs: Brenda Asuncion, Ngarangi Walker

- 11:00 Aissa Yazzie**  
RECLAIMING INDIGENOUS AQUACULTURE THROUGH NATIVE ENVIRONMENTAL SCIENCE
- 11:15 Courtney Greiner**, Julie Barber, Jamie Donatuto, Melissa Poe, James McArdle, Lindy Hunter, Michal Heidt, Larry Campbell  
A NOVEL SOCIAL-ECOLOGICAL CLAM GARDEN SITE SELECTION PROCESS
- 11:30 Tommy Sheridan**  
PROGRAM FOR THE INTEGRATION OF MACROALGAE MARICULTURE PRODUCTION INTO PREEXISTING SALMON AQUACULTURE OPERATIONS IN PRINCE WILLIAM SOUND, ALASKA
- 11:45 Lilikala Kame eleihiwa**, Roxane Keli ikipikaneokolohaka, Kamanamaikalani Beamer, Joylynn Paman, Peleke Flores, Pelika Andrade, Noelani Puniwai  
HAWAIIAN ANCESTRAL AQUACULTURE PRACTICES: LOKO I A (FRESHWATER FISHPONDS) AND KO A KAI (OCEAN GARDENS), A PANEL DISCUSSION BY NATIVE HAWAIIAN ACADEMICS

## HATCHERY PRODUCTION AND TECH

Monday, February 10 11:00 AM - 12:30 PM Room 305

Chair: Avier Montalvo

MONDAY

- 11:00 Ann Raymond**, Michael Stekoll  
INNOVATING METHODS FOR STAGGERING KELP OUTPLANTINGS BY MODIFYING SEED STRING GROWING CONDITIONS
- 11:15 Yole Buchalla**, Charles James McGuigan, John D. Stieglitz, Ronald H. Hoenig, Carlos E. Tudela, Kimberly G. Darville, Daniel Benetti  
ADVANCES IN HATCHERY TECHNOLOGY OF RED SNAPPER *Lutjanus campechanus*, CANDIDATE SPECIES FOR MARINE AQUACULTURE IN THE CARIBBEAN
- 11:30 Chatham Callan**  
INCREASING SURVIVAL AND GROWTH IN LARVAL LEOPARD CORAL GROUPER *Plectropomus leopardus* USING INTENSIVELY CULTURED COPEPOD NAUPLII
- 11:45 John Stieglitz**, Leonardo Ibarra-Castro, Carlos Alfonso Alvarez-González, Ronald H. Hoenig, Yole Buchalla, Carlos E. Tudela, Emyr Peña-Marín, Karen Nieves, Martin Groseil, Daniel D. Benetti  
ADVANCES IN APPLICATION OF ONTOGENETIC AND PHYSIOLOGICAL RESEARCH FOR OPTIMIZATION OF MARINE FISH HATCHERY PRODUCTION
- 12:00 Chatham K. Callan**, Tom Bowling  
YELLOW TANG *Zebrasoma flavescens* AQUACULTURE IN HAWAII; AN UPDATE ON COMMERCIALIZATION PROGRESS AT OCEANIC INSTITUTE
- 12:15 Miguel Delos Santos**  
ESTABLISHING A BETTER COMBINATION OF ALGAL DIETS TO IMPROVE THE SURVIVAL RATE OF MEGALOPAE IN THE LARVAL REARING OF MANGROVE CRAB *Scylla serrata* (Forsskal, 1755).

## OMICS APPROACHES

Monday, February 10 11:00 AM - 12:30 PM Room 308B

Chair: Fabio Casu

- 11:00 Carl J. Yeoman**, Omolola C. Betiku, T. Gibson Gaylord, Suzanne L. Ishaq, Wendy M. Sealey  
A METAGENOMIC EXPLORATION OF THE FUNCTIONAL POTENTIAL OF GUT MICROBES TOWARD THE NUTRITIVE CAPABILITY OF RAINBOW TROUT *Oncorhynchus mykiss*
- 11:15 Aaron Watson**, Fabio Casu, Justin Yost, Gibson Gaylord, Daniel Bearden, Michael Denson  
SUPPLEMENTATION OF TWO POTENTIAL PERFORMANCE INHIBITORS AND THEIR EFFECTS ON METABOLITE PROFILES IN JUVENILE RED DRUM *Sciaenops ocellatus*
- 11:30 Fabio Casu**, Aaron Watson, Alejandro Buentello, Daniel W. Bearden, Juan Sierra, Daniella Acevedo, Michael R. Denson  
NMR-BASED METABOLOMIC EVALUATION OF A FORMULATED FEED IN JUVENILE YELLOWFIN TUNA *Thunnus albacare*

- 11:45 Christopher Monson**, Graham Young, Irvin Schultz  
THE RELATIONSHIP BETWEEN EMBRYONIC METABOLIC RATE AND JUVENILE GROWTH RATES IN RAINBOW TROUT AND THE PROTEOME UNDERLYING METABOLIC RATE OF EARLY EMBRYOS
- 12:00 Christopher M. Spillmann**, Janna M. Schultzhaus, Chenyue Wang, Dagmar H. Leary, W. Judson Hervey, Chris R. Taitt, Kenan P. Fears, Christopher R. So, Kathryn J. Wahl, Beatriz Orihuela, Daniel Rittschof  
AN -OMIC APPROACH TO EXPANDING THE FUNCTIONAL UNDERSTANDING OF THE ACORN BARNACLE *Amphibalanus amphitrite*
- 12:15 Janna Schultzhaus**, Christopher Spillmann, Chenyue Wang, Dagmar Leary, Chris Taitt, Kenan Fears, Kathryn Wahl  
CHARACTERIZATION OF CEMENT PROTEIN DISTRIBUTION IN THE ACORN BARNACLE *Amphibalanus amphitrite*

## STUDENT SPOTLIGHT AND HIGH SCHOOL VIDEO COMPETITION

Monday, February 10 11:00 AM - 12:30 PM Room 303

Chair: Nicole Rhody

Spotlight presentations will highlight student research by challenging them to present abbreviated versions of their work. Selection of these students was based upon evaluations and scores of their submitted abstracts. This is a great opportunity to see back-to-back student researchers present their work in this competition session. You won't be disappointed.

### Zoe Nichols

PHYSIOLOGICAL MECHANISMS REGULATING SPERM MOTILITY INITIATION IN EASTERN OYSTER *Crassostrea virginica*

### Frank Mele

BIOREMEDIATION POTENTIAL OF *Alitta brandti* (POLYCHAETE) TO UTILIZE NUTRIENT-RICH EFFLUENT FROM A MARINE RECIRCULATING SYSTEM

### Lauren Ochoa

DETECTION AND GENOME RECONSTRUCTION OF TAURA SYNDROME VIRUS OF SHRIMP FROM DAVIDSON'S FIXED PARAFFIN EMBEDDED SHRIMP TISSUE

### Beth Peterman

A COMMERCIAL BLEND OF PREBIOTIC FIBER, OREGANO, THYME, CINNAMON ESSENTIAL OILS AND *Yucca schidigera* SUPPLEMENTED FEED INCREASED CHANNEL CATFISH FINGERLING GROWTH AND ENHANCED DISEASE RESISTANCE

### Taylor Lipscomb

HISTOLOGICAL, HISTOCHEMICAL AND BIOCHEMICAL CHARACTERIZATION OF LARVAL DIGESTIVE SYSTEM ONTOGENY IN TWO CHARACID SPECIES TO INFORM WEANING PROTOCOLS

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High school students from across public and private schools in Hawai'i were invited to submit a 2-3 minute video that addresses the theme: "Hawai'i Aquaculture: A Tradition of Navigating with Innovation, Technology, and Culture."

The competition accepted videos of any genre including documentaries, animation, short interview, and historical, among other film genres. The top submission and two runners up will be awarded and the videos presented by the student awardees at the conference.

## SERIOLA

Monday, February 10 11:00 AM - 12:30 PM Room 304

Chair: Mark Drawbridge

MONDAY

- 11:00 Jorge Schmidt**  
KING KAMPACHI: AN OVERVIEW OF THE LARGEST *Seriola rivoliana* OPERATION IN THE WESTERN HEMISPHERE
- 11:15 Mauricio Moreno Alva**  
THE COMMERCIAL PRODUCTION OF *Seriola rivoliana* STATUS IN MEXICO BY KING KAMPACHI
- 11:30 Catherine Purcell, Andrew Severin, John Hyde**  
GENOMIC RESOURCES FOR *Seriola* FARMING IN THE U.S.: GENETIC AND GENOMIC TOOL DEVELOPMENT FOR *Seriola dorsalis* AND *Seriola rivoliana*
- 11:45 Helen Meigs, Lisa Vollbrecht, Neil A. Sims, Frederic Barrows, Mark Portman**  
ALTERNATIVE FEED INGREDIENT TESTING FOR *Seriola rivoliana*

## STRIPED BASS

Monday, February 10 11:00 AM - 12:30 PM Room 302

Chairs: Jason Abernathy, Adam Fuller

- 11:00 Jason Abernathy, Steve Rawles, Matt McEntire**  
DEVELOPMENT AND EVALUATION OF WHITE BASS *Morone chrysops* GENETIC RESOURCES TOWARD THE SELECTIVE IMPROVEMENT OF HYBRID STRIPED BASS
- 11:15 Matthew McEntire, Jason Abernathy, Steve Rawles**  
OFF-SEASON SPAWNING OF WHITE BASS *Morone chrysops* AND THEIR SELECTIVE IMPROVEMENT TOWARD BUILDING A BETTER HYBRID STRIPED BASS *Morone chrysops* × *M. saxatilis*
- 11:30 Bart Green, Candis L. Ray**  
EFFECT OF SETTLING CHAMBER FLOW RATE ON WATER QUALITY DYNAMICS IN A HYBRID STRIPED BASS BIOFLOC TECHNOLOGY PRODUCTION SYSTEM
- 11:45 David Straus, Anita M. Kelly, Herbert Quintero, Jason Abernathy**  
INVESTIGATIONS IN PRODUCING STERILE SUNSHINE BASS

## IMTA – 3D AQUACULTURE

Monday, February 10 11:00 AM - 12:45 PM Room 315

Chairs: Benny Ron Tetsuzan, Michael Chambers

- 11:00 Patrick Takahashi, Leighton Chong, Tetsuzan Benny Ron**  
BLUE REVOLUTION HAWAII: PROPOSAL FOR A PACIFIC INTERNATIONAL OCEAN STATION
- 11:15 Michael Chambers, Corey Sullivan, Rob Swift, Igor Tsukrov, Gabby Bradt, Arron Jones, Erich Berghahn, Gunnar Ek, Erik Chapman**  
OPPORTUNITIES FOR MULTI-TROPHIC AQUACULTURE IN HAWAII AND THE PACIFIC

- 11:30 Kevan L. Main**, Muki Shpigel, Lior Guttman  
ULVA, PERIPHYTON, AND THEIR COMBINATIONS FOR IMPROVING TOTAL NITROGEN REMOVAL IN MARICULTURE EFFLUENT
- 11:45 David Bailey**, Clifford Goudey, Dom Manganelli, Charlie Yarish, Kendall Barbery, Scott Lindell  
INTEGRATING THE CULTIVATION OF MULTIPLE CROPS ON LONGLINE STRUCTURES: TRIALS WITH MUSSELS *Mytilus edulis* AND SUGAR KELP *Saccharina latissima*
- 12:00 Andrea M. Tarnecki**, Mike Nystrom, Nathan P. Brennan, Lior Guttman, Kevan L. Main  
PERIPHYTON COMMUNITY DYNAMICS WITHIN AN INTEGRATED MULTI-TROPHIC AQUACULTURE SYSTEM
- 12:15 Michelle Loftus**, Rafael Cuevas-Uribe  
EFFLUENT BIOREMEDIATION BY THE POLYCHAETE WORM *Alitta brandti* IN A MARINE RECIRCULATING SYSTEM
- 12:30 Taylor Zenobia**  
THE INTEGRATED CULTURE OF ROCK WEED *Mastocarpus jardinii* IN A RECIRCULATING LAND-BASED SYSTEM WITH RED ABALONE *Haliotis rufescens*

## NUTRIENT REQUIREMENTS

Monday, February 10 11:00 AM - 2:00 PM Room 314

Chair: Sahar Mejri

- 11:00 Jorge Suarez**, Daniel Benetti  
NUTRIENT REQUIREMENTS: AN OVERVIEW ON MARINE FISH NUTRITION IN THE AMERICAS
- 11:15 Luke Oliver**, Sinem Gulen, Timothy Bruce, Jie Ma, Kenneth Cain  
DETERMINATION OF OPTIMUM DIET FOR COMMERCIAL JUVENILE BURBOT *Lota lota maculosa* CULTURE
- 11:30 Madison Powell**, Melissa Marsing, Kenneth Overturf  
ASSESSING GUT TRANSPORT OF METHIONINE AND LYSINE IN FAST-GROWING RAINBOW TROUT
- 11:45 Kristen Meiler**, Vikas Kumar  
DIETARY REQUIREMENTS OF ORGANIC AND INORGANIC ZINC IN A COMMERCIAL STRAIN OF DIPLOID AND TRIPLOID RAINBOW TROUT *Oncorhynchus mykiss*
- 12:00 Kevin Stuart**, Rick Barrows, Constance Silbernagel, Mark Drawbridge  
VERAMARIS OIL AS A FISH OIL REPLACEMENT IN CALIFORNIA YELLOWTAIL *Seriola dorsalis*
- 12:15 Sahar Mejri**, Martin Richie, Caird Rexroad, Paul Wills  
NUTRITIONAL REQUIREMENTS OF FLORIDA POMPANO *Trachinotus carolinus* BROODSTOCK
- 12:30 LUNCH**

- 1:30 Dong-Fang Deng**, Fabio Casu, Ming Jiang, Brian Shepherd, Aaron Watson, Ryan Newton, Silas Hung, Fred Binkowski  
METABOLOMIC AND NUTRITIONAL RESPONSES IN YELLOW PERCH  
*Perca flavescens* FINGERLINGS FED DIFFERENT DIETARY STARCHES
- 1:45 Kristen Meiler**, Beth Cleveland, Lisa Radler, Vikas Kumar  
GENE EXPRESSION PATTERNS IN DIPLOID AND TRIPLOID RAINBOW TROUT  
*Oncorhynchus mykiss* FED DIETS WITH ORGANIC OR INORGANIC ZINC

## IMPLEMENTING STRATEGIC FEDERAL ACTIONS TO EXPAND U.S. AQUACULTURE

Monday, February 10 11:00 AM - 3:00 PM Room 318  
Chairs: Jim Parsons, Caird Rexroad, Michael Rubino

This session hosted by the National Aquaculture Association will provide an overview of federal aquaculture activities related to strategic planning for science and technology and identifying opportunities to improve regulatory efficiency. The session will conclude with a session where audience members can direct questions to federal agency representatives.

- 11:00 Jim Parsons**, NAA President  
STATUS OF UNITED STATES AQUACULTURE
- 11:15 NSTC Subcommittee on Aquaculture**  
Deerin Babb-Brott, OST  
Paul Doremus, NOAA  
Jeffrey Silverstein, USDA
- I. Federal Research Supporting Sustainable and Responsible Aquaculture**
- 11:30 Gary Fornshell**, University of Idaho  
PRODUCTIVITY GAINS DRIVEN BY RESEARCH
- 11:45 Caird Rexroad**, USDA  
NATIONAL STRATEGIC PLAN FOR FEDERAL AQUACULTURE RESEARCH
- II. Improving the Efficiency, Predictability, Timeliness and Affordability of Regulating Aquaculture**
- 12:00 Jonathan van Senten**, Virginia Tech  
REGULATORY COSTS ANALYSIS OF UNITED STATES AQUACULTURE
- 12:15 Kelly Lucas**, University of Southern Mississippi  
NAVIGATING REGULATORY PROCESSES IN MARINE OFFSHORE AQUACULTURE
- 12:30 LUNCH**
- 1:30 Bill Dewey**, Taylor Shellfish Farms  
NAVIGATING REGULATORY PROCESSES IN SHELLFISH AQUACULTURE
- 1:45 Peter Fritsch**, Rushing Waters Fisheries  
NAVIGATING REGULATORY PROCESSES IN FRESHWATER AQUACULTURE
- 2:00 Michael Rubino**, NOAA  
IMPROVING FEDERAL AQUACULTURE REGULATORY EFFICIENCY



### III. Economic Development to Support the Expansion of U.S. Aquaculture

**2:15 Sebastian Belle**, NAA Vice President  
EXAMPLES OF SUCCESSFUL ECONOMIC DEVELOPMENT INITIATIVES

### IV. Questions and Answers

**2:30 Moderated by Jim Parsons**, NAA  
Federal Agency Representatives

## AQUACULTURE ENGINEERING SOCIETY – AES

Monday, February 10 11:00 AM - 5:00 PM Room 317B

Chair: Carlos Octavio Letelier Gordo

- 11:00 Matthew S. Recsetar**, KC Shasteen, Charles Parrish  
ADVANCED ENGINEERING REDESIGN OF THE AQUAPONICS GREENHOUSE AT THE UNIVERSITY OF ARIZONA WITH A DECOUPLED AND COUPLED SYSTEM
- 11:15 Shib Nath Pattadar**, J. Maxwell, M. Smith, B. Bergefurd, N. Krisnakumar, B. Slater, K.R. Islam  
IS FISH QUALITY HEALTHIER IN AQUAPONICS?
- 11:30 Timothy Hovanec**  
NITRIFYING BACTERIA, START-UP AND MAINTENANCE OF BIO-FILTERS IN AQUAPONIC SYSTEMS – A REVIEW
- 11:45 Aparna Biswas**, Lindee Mason, Ahmed Mustafa  
BASILS AS NUTRACEUTICALS TO MODULATE STRESS OF TILAPIA IN AQUAPONICS SYSTEM
- 12:00 Ulrich Knaus**, Lisa C. Wenzel, Samuel Appelbaum, Harry W. Palm  
PRODUCTION OF SPEARMINT *Mentha spicata* WITH AQUACULTURE EFFLUENTS OF AFRICAN CATFISH *Clarias gariepinus* IN NORTHERN GERMANY
- 12:15 Todd Guerdat**, Alexander Sitek, Peter Konjoian, David Berlinsky  
CHARACTERIZING NUTRIENT PRODUCTION FROM RAINBOW TROUT AND TILAPIA GROWOUT IN RECIRCULATING AQUACULTURE SYSTEMS FOR POTENTIAL USE IN HYDROPONIC CROP PRODUCTION
- 12:30 LUNCH**
- 1:30 Rohit Kalvakaalva**, Brendan Higgins, Mollie Smith  
GREENHOUSE AND NUTRIENT BALANCE AS PART OF LIFE CYCLE ASSESSMENT (LCA) OF A COMMERCIAL AQUAPONIC FACILITY
- 1:45 Caroline Blanchard**, Daniel E. Wells, Jeremy M. Pickens, David M. Blersch  
EFFECT OF pH ON CUCUMBER GROWTH AND NUTRIENT AVAILABILITY IN DE-COUPLED AQUAPONIC SYSTEM WITH MINIMAL SOLIDS REMOVAL
- 2:00 Nathan Wallace-Springer**, Daniel Wells, Jeremy Pickens, Joe Kemble  
EFFECT OF HYDRAULIC RETENTION TIME ON NFT LETTUCE PRODUCTION IN A DECOUPLED AQUAPONIC SYSTEM

- 2:15 Timothy Hovanec**  
HETEROTROPHIC MINERALIZATION OF ORGANIC MATERIAL IN AQUAPONIC SYSTEMS – A REVIEW
- 2:30 Todd Guerdat**, Joseph Tetreault, Paula Mouser, Michael Timmons  
OPTIMIZING MICROBIAL DIGESTION AND NUTRIENT SOLUBILIZATION OF RAINBOW TROUT AND TILAPIA SLUDGE FOR USE AS A NATURAL FERTILIZER IN INTEGRATED AQUACULTURE FARMING SYSTEMS
- 2:45 Huy Tran**, Brad Todd  
DESIGN CONSIDERATION FOR A 1,500 FT<sup>2</sup> AQUAPONIC SYSTEM
- 3:00 John Colt**, Desmond Maynard  
CORRECTION OF METABOLIC PARAMETERS AND UNIT PROCESS PERFORMANCE DATA
- 3:15 Steven Hall**, Matthew Campbell, John-Paul Ore, Randy Price, Daniel Smith, Russell Smith, Sierra Young  
ENGINEERING HYBRID UNMANNED AERIAL/SURFACE VEHICLE SYSTEMS FOR AQUACULTURAL AND AQUATIC APPLICATIONS
- 3:30 Frank Mele**, Andre Buchheister, Rafael Cuevas-Uribe  
BIOREMEDIATION POTENTIAL OF *Alitta brandti* (POLYCHAETE) TO UTILIZE NUTRIENT-RICH EFFLUENT FROM A MARINE RECIRCULATING SYSTEM
- 3:45 Yue Liu**, Terrence Tiersch, Todd Monroe  
MICROFABRICATED LOW-COST COUNTING CHAMBERS FOR STANDARDIZED ESTIMATION OF SPERM CONCENTRATION
- 4:00 Maria Guitierrez-Wing**, Ronald Malone, Matthew Louque, Timothy Pfeiffer  
FIXED FILM AND SUSPENDED GROWTH IN SMALL-SCALE INDOOR RAS PRODUCTION OF MARINE SHRIMP

## ZEBRAFISH WORKSHOP – PART 1

Monday, February 10 11:00 AM - 5:00 PM Room 301A

Chair: Bobbi Baur

Sponsor: Aquaneering

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

- 8:30 Christine Lieggi** / WCMC  
VETERINARY EVALUATION AND MANAGEMENT OF COMMON ZEBRAFISH *Danio rerio* DISEASES AS IT RELATES TO YOUR COLONY
- 8:50 Justin Sanders** / Oregon State and **Katy Murray** / U Oregon/ZIRC  
MYCOBACTERIOSIS IN ZEBRAFISH FACILITIES - STRATEGIES FOR DIAGNOSTIC TESTING AND INTERPRETATION OF RESULTS
- 9:10 Colleen Al-Samarrie**  
IN SICKNESS AND IN HEALTH: MANAGEMENT CHALLENGES OF AN INFECTIOUS DISEASES LAB

- 9:30 Corbin Jaid Schuster**  
UTILIZING DIGITAL DROPLET: THE SECRET WEAPON TO ADDRESS  
MICROSPRODIAN INFECTIONS IN LABORATORY ZEBRAFISH
- 9:50 Sean Spagnoli** / Oregon State University  
A STUDY OF COMMERCIAL ZEBRAFISH SUPPLIERS TO COMPARATIVE RESEARCH  
STUDIES: UPDATES
- 10:10 Michael Kent** / Oregon State  
*Pseudocapillaria tomentosa* AS A STRONG PROMOTER OF INTESTINAL  
NEOPLASMS IN LABORATORY ZEBRAFISH

**10:30 BREAK****11:00 ZHA ANNUAL MEETING****12:30 LUNCH**

- 2:00 INTRODUCTION**  
ZHA UPDATE & *Stewardship Award*  
ZIRC UPDATE  
ZEBRAFISH HUSBANDRY TRAINING UPDATE  
WAVMA RACE Veterinary CE
- Mark Francis / Aquaneering  
Rory Francis / ZHA President  
Katy Murray / ZIRC  
Susan Farmer / U Alabama Birmingham  
George Sanders / U Washington

**ZHA SESSION – Coordinated by ZHA**

- 2:40 Maurine Hobbs** / U Utah  
FISH WEIGHT: RESULT OR VARIABLE?
- 3:00 Claire Allen** / Sheffield University  
GENOTYPING METHODS AND THE 3 RS
- 3:20 Jim Burris** / Duke University  
ZEBRAFISH COLONY TREATMENT FOR *Pseudocapillaria tomentosa* USING  
FENBENDAZOLE GUT-LOADED *Artemia nauplii*
- 3:40 Joan Hedge** / US EPA  
DYSMORPHOLOGY AND LOCOMOTOR ACTIVITY ASSESSMENT IN LARVAL  
ZEBRAFISH *Danio rerio*
- 4:00 Christine Archer** / U Ottawa  
MANAGING A MULTI-USER ZEBRAFISH FACILITY: COLLABORATIONS AND  
COMPROMISES
- 4:20 Tami V. Sanchez** / UCSD  
DEVELOPING STRATEGIES FOR SUPER-MENDELIAN INHERITANCE IN ZEBRAFISH  
AND IMPLICATIONS FOR HUSBANDRY PRACTICES

**INVITED SPEAKER**

- 4:40 George Sanders** / U Washington  
EMERGING AND INCREASINGLY COMPLEX RESEARCH ENDEAVORS CONDUCTED  
WITH ZEBRAFISH *Danio rerio* AND THE NEED FOR VETERINARY CARE AND  
OVERSIGHT

## SHELLFISH AQUACULTURE

Monday, February 10 11:00 AM - 5:00 PM Room 307

Chairs: Matt Gray, Amanda Lowry

MONDAY

- 11:00 Konstantin Divilov**, Blaine Schoolfield, Brett Dumbauld, Chris Langdon  
NEW DIRECTIONS IN THE GENETIC IMPROVEMENT OF OYSTERS ON THE U.S. WEST COAST
- 11:15 Chris Langdon**, Claudio De Melo, Evan Durland, Konstantin Divilov, Blaine Schoolfield  
ENVIRONMENTAL EFFECTS ON BREEDING PACIFIC OYSTERS *Crassostrea gigas* ON THE WEST COAST, USA
- 11:30 Gary P. Richards**, Michael Watson, David Madison, Chris Langdon, Blake Ushijima, Alexander Sulakvelidze  
BACTERIOPHAGE THERAPY TO REDUCE PATHOGENIC VIBRIOS IN MOLLUSCAN SHELLFISH AQUACULTURE
- 11:45 David Madison**, Chris Langdon, Carla Schubiger, Ryan Mueller, Claudia Häse  
USING PROBIOTIC BACTERIA TO REDUCE LARVAL MORTALITY OF *Crassostrea gigas* DUE TO THE BACTERIAL PATHOGEN *Vibrio coralliilyticus* AND IMPROVE METAMORPHOSIS
- 12:00 Clémence Cordier**, Alexandra Voulgaris, Alessia Bacchi, Rozenn Trepos, Mickaël Mege, Benjamin Morga, Patrick Sauvade, Franz Coelho, Christophe Stavrakakis, Philippe Moulin  
MEMBRANE TO PROTECT SHELLFISH PRODUCTION TOWARD OSTREID HERPES VIRUS
- 12:15 Matthew Campbell**, Steven Hall  
ENGINEERING PARAMETERS OF OYSTER AQUACULTURE SYSTEMS
- 12:30 Brendan P. Campbell**, Shannon Hood, Matthew W. Gray  
ROBUST AND INEXPENSIVE TOOL DEVELOPMENT FOR MONITORING FLOW REGIME WITHIN SHELLFISH AQUACULTURE GEAR
- 12:45 LUNCH**
- 1:30 Matthew Gray**, Stephanie Alexander, Brian Beal, Tom Bliss, Colleen Burge, Jacob Cram, Michael De Luca, James Dumhart, Andrew Heyes, Klaus Huebert, Pat Glibert, Michael Gonsior, Matt Parker, Louis Plough, Gary Richards, Eric Schott, Gary Wikfors, Ami Wilbur  
SHELLFISH HATCHERY CRASHES ALONG THE ATLANTIC COAST OF THE UNITED STATES: A CALL TO ACTION
- 1:45 Zoe Nichols**, Scott Rikard, Hadi Alavi, Jordan Bradford, William Walton, Ian Butts  
PHYSIOLOGICAL MECHANISMS REGULATING SPERM MOTILITY INITIATION IN EASTERN OYSTER *Crassostrea virginica*
- 2:00 Shannon Hood**, Matthew Parker  
ASSESSING THE EFFECTIVENESS OF DESICCATION IN CONTROLLING BIOFOULING IN WATER COLUMN CULTURED OYSTERS *Crassostrea virginica* IN THREE CHESAPEAKE BAY LOCATIONS

- 2:15 Brad Skelton**, Andrew Jeffs  
UNDERSTANDING THE ISSUE OF POOR SPAT RETENTION ON NEW ZEALAND'S GREENSHELL™ MUSSEL *Perna canaliculus* FARMS
- 2:30 Everard Ashworth**, Brian Pendleton, Doug Bush, Linda Santschi, Ralph Imondi, Richard W. Parsons, Brooke Ashworth, Paul Olin, Diane Windham, Scott Lindell, Laurie Monarres, Robert Smith  
VENTURA SHELLFISH ENTERPRISE: AN OVERVIEW OF THE CHALLENGES TO SITING LONG LINE MUSSEL FARMS IN FEDERAL WATERS OFF CALIFORNIA
- 2:45 Yongwen Gao**, Duane Parton  
GEODUCK AQUACULTURE IN NEAH BAY AND THE ISOTOPE ANALYSES OF CARBONATE SHELLS
- 3:00Carolynn Culver**, Jonathan Davis, Brent Vadopalas, Molly Jackson, Andrew Kim, Art Seavey, Paul Olin  
COMMERCIAL ROCK SCALLOP CULTURE: WHAT DOES IT HINGE ON?
- 3:15 Jong M. Kim**, Mi-Jin Choi, Han Kyu Lim  
COMPARATIVE ANALYSIS OF THE INTESTINAL MICROBIOTA IN PACIFIC ABALONE *Haliotis discus hannai*
- 3:30 Clémence Cordier**, Rozenn Trepos, Killian Guyomard, Patrick Sauvade, Franz Coelho, Christophe Stavrakakis, Philippe Moulin  
NEW PROCESS FOR MICROALGAE CULTIVATION FOR HATCHERY/NURSERY APPLICATION
- 3:45 Justine Sauvage**, Alyssa Joyce, Gary Wikfors, Xiaoxu Li  
ENHANCED PERFORMANCE OF MICROALGAE SPECIES OF RELEVANCE IN SHELLFISH HATCHERIES THROUGH ADDITION OF PLANT GROWTH PROMOTING BACTERIA
- 4:00 Gabriela M. Bradt**  
TURNING AN INVASIVE CRAB SPECIES INTO A DELICACY: EXPLORING TECHNIQUES TO PRODUCE SOFT-SHELL GREEN CRAB IN NEW ENGLAND
- 4:15 Victoria Pruento**, William Walton, Jessica Jones  
THE EFFECTS OF HANDLING TYPE ON THE LEVELS OF *Vibrio vulnificus* AND *V. parahaemolyticus* IN NORTH CAROLINA CULTURED OYSTERS
- 4:30 Maria Haws**, Jolene Sutton, Daniel Wilkie, David Littrell, Marni Rem-McGeachy, Rhiannon Chandler-`lao  
DISCOVERY OF *Ostrea stentina* (PAYRAUDEAU, 1982) ON O`AHU, HAWAI`I
- 4:45 Stephen Jones**, Chris Schillaci, Chris Nash, Kristen DeRosia-Bannick, Tom Howell, Lori Howell, Randi Foxall, Meghan Hartwick, Cheryl Whistler  
REDUCING *Vibrio parahaemolyticus* RISKS ASSOCIATED WITH OYSTER AQUACULTURE PRACTICES IN THE NORTHEAST UNITED STATES
- 5:00 Wendy Wiltse**, Maria Haws, Daniel Wilkie, Rhiannon Chandler-`lao, David Littrell, Marni Rem-McGeachy, Marian Donohue Phillipson, Anne Basher  
CULTURE OF THE HAWAIIAN OYSTER *Dendrostrea sandvichensis* (G.B. SOWERBY 11, 1871) AND RESULTS FROM TRIALS FOR WATER QUALITY IMPROVEMENT

## GENERAL CONTRIBUTED ECONOMICS

Monday, February 10 11:00 AM - 12:30 PM Room 319

Chair: Roberto M.V. Flores

MONDAY

- 11:00 Michael Ciaramella**, Linda O'Dierno  
CREATING FREE CUSTOMIZABLE MARKETING RESOURCES TO CONNECT PRODUCERS TO END USERS
- 11:15 Manuel Luna**, Ignacio Llorente, Angel Cobo, Ladislao Luna  
MULTICRITERIA PRODUCTION OPTIMIZATION IN AQUACULTURE USING POPULATION-BASED METAHEURISTICS
- 11:30 Roberto M.V. Flores**, Nicole O. Widmar, Kwamena K. Quagraine, Paul V. Preckel, Manoel X. Pedroza Filho  
CONSUMER WILLINGNESS TO PAY FOR ATTRIBUTES OF FISH FILLETS IN BRAZIL
- 11:45 Roberto M.V. Flores**, Paul V. Preckel, Kwamena K. Quagraine, Manoel X. Pedroza Filho, Nicole O. Widmar  
A SPATIAL EQUILIBRIUM ANALYSIS FOR FISH SUPPLY AND DEMAND IN BRAZIL

## LARVAL FINFISH

Monday, February 10 1:30 PM - 3:30 PM Room 304

Chair: Susan Laramore

- 1:30 Jonathan Lee**, Melissa Pierce, Matthew Cook, Barry Berejikian, Frederick Goetz, Rachel Poretsky  
REDUCED TANK-CLEANING FREQUENCY, BUT NOT CO-CULTURE WITH SEA CUCUMBERS, IMPROVES SURVIVAL OF LARVAL SABLEFISH *Anoplopoma fimbria*
- 1:45 Kevin Fisher**, John Grayson, Konrad Dabrowski  
INFLUENCE OF TRANSITIONING TO DRY DIETS ON GROWTH AND POTENTIAL IMPLICATIONS ON RATE OF DEFORMITIES IN BIGHEAD CARP *Hypophthalmichthys nobilis*
- 2:00 Mackenzie Miller**, John Grayson, Konrad Dabrowski  
INDUCTION OF TRIPLOIDY IN WALLEYE *Sander vitreus* AND EVALUATION OF GROWTH DIFFERENCES BETWEEN TRIPLOID, CONTROL, AND HYBRID WALLEYE
- 2:15 Susan Laramore**, Paul Wills, Zachary Nilles, Scott Snyder, Craig Browdy, Eric Wagner  
IMPACT OF PROBIOTICS AND PREBIOTICS ON POST-LARVAL FLORIDA POMPANO PRODUCTION AND HEALTH
- 2:30 Karolina Kwasek**, Michal Wojno, Christian Gonzalez, Macdonald Wick  
FISH MUSCLE HYDROLYSATE OBTAINED USING LARGEMOUTH BASS *Micropterus salmoides* DIGESTIVE ENZYMES IMPROVES LARGEMOUTH BASS PERFORMANCE IN ITS LARVAL STAGES
- 2:45 Eric Saillant**, Edithrose Fairweather  
ONTOGENY OF OSMOREGULATORY STRUCTURES AND SALINITY TOLERANCE IN ATLANTIC CROAKER *Micropogonias undulatus*

- 3:00 Sergio Nestor Bolasina**, Neurose Batin  
SPECIES AND SYSTEM SELECTION FOR SUSTAINABLE AQUACULTURE IN THE REPUBLIC OF THE MARSHALL ISLANDS. SPAWNING AND LARVAL REARING OF THE STREAMLINED SPINEFOOT *Siganus argenteus* (QUOY & GAIMARD, 1825)

## EDUCATION

Monday, February 10 1:30 PM - 5:00 PM Room 303

Chairs: Forest Whyne, Ken Thompson, Matt Smith

- 1:30 Charlie M. Culpepper III**  
AQUACULTURE EDUCATION PROGRAMS IN FLORIDA
- 1:45 Eric Cassiano**, Debbie Pouder  
AQUACULTURE IN THE CLASSROOM: THE TROPICAL AQUACULTURE LABORATORY'S YOUTH EDUCATION PROGRAMS
- 2:00 Melissa Malmstedt**, Carla Scocchi  
BUILDING AQUACULTURE ACCEPTANCE THROUGH 4-H
- 2:15 Cherie Sukovich**, Joe Mallon  
THE CHALLENGES AND INCREASE OF IMPORTANCE OF INDUSTRY CERTIFICATIONS TO FUNDING IN PUBLIC SECONDARY SCHOOL AQUACULTURE PROGRAMS
- 2:30 Elliot Nelson**, Barbara Evans  
EDUCATING YOUTH THROUGH AQUACULTURE AND CREATING WORKFORCE PATHWAYS
- 2:45 Joe Mallon**, Cherie Sukovich  
THE CHALLENGES AND SOLUTIONS TO LONG TERM ENGAGEMENT OF AQUACULTURE STUDENTS IN A MULTIPLE YEAR PUBLIC SECONDARY SCHOOL AQUACULTURE PROGRAM
- 3:00 Lauren N. Jescovitch**, Tammy M. Long, Rebecca C. Jordan, Kevin C. Haudek  
LEARNING ABOUT EUTROPHICATION: WHAT ARE STUDENTS THINKING?
- 3:15 Cameron Ennis**, Robert Rheault, Azure Dee Cygler  
ONLINE TRAINING FOR ENTRY-LEVEL AQUACULTURE WORKERS: TAKING A SUCCESSFUL IN-PERSON MODEL IN RHODE ISLAND AND GOING DIGITAL
- 3:30 Afton Hupper**  
USING SOCIAL MEDIA TO PROMOTE AQUACULTURE: A CASE STUDY FROM MAINE
- 3:45 Jonathan van Senten**, Carole R. Engle  
INFOGRAPHICS AS TOOLS FOR DISSEMINATING AQUACULTURE RESEARCH
- 4:00 Kevin Madley**, Kimberly Thompson, Cynthia Sandoval, Mark Rath, Mackenzie Nelson  
OCEAN FARMING AND THE COASTAL COMMUNITY: A STORY MAP

- 4:15 Waiaria Rameka**, Caine Taiapa  
ACTIVATING KAITIAKITANGA (ENVIRONMENTAL CUSTODIANSHIP) THROUGH  
PIPI RELOCATION *Paphies australis* "WHAT ARE WE ENHANCING?"
- 4:30 Rob Van Put**, Justin Whelan, Al Tanzil  
COMBATING THE DETRIMENTAL MARINE ENVIRONMENT EFFECTS ON MOORING  
HARDWARE THROUGH DESIGN AND PROPER SELECTION OF MATERIAL BEST  
SUITED FOR AQUACULTURE INDUSTRY

**WORKSHOP**  
**BENDING BOUNDARIES AND BLENDING EXPERTISE:**  
**PERSPECTIVES FROM INTERDISCIPLINARY COLLABORATION**  
**IN AQUACULTURE, CELL SIGNALING, CRYOBIOLOGY,**  
**AND BIOLOGICAL ENGINEERING**

Monday, February 10 1:30 PM - 5:00 PM Room 305  
Chair: Henrique Cheng

**Session Presenters:**

Terrence Tiersch, LSU Agricultural Center  
Henrique Cheng (co-chair), LSU School of Veterinary Medicine  
Kevin Kleinow, LSU School of Veterinary Medicine  
Yue Liu (co-chair), LSU Agricultural Center

**Brief Synopsis:**

One of the major challenges in today's research environment is to overcome the expanding differentiation and specialization towards a field of study. This has caused detrimental effects on science by slowing the pace of discoveries and our ability to find cures for human and animal diseases. When focus is placed on a single or specific area, it diminishes one's ability to think "outside the box", since narrowing the focus can result in a narrow mindset. On the other hand, when researchers work together through interdisciplinary programs, it provides another dimension to problem solving. This is because researchers in different fields have different mindsets and methodologies, which gives them this unique opportunity to share their thinking process. However, interdisciplinary research has its challenges and several steps of career development must be taken to establish a successful program. The goal of the workshop is to acquaint the audience with the opportunities and challenges encountered during establishment of interdisciplinary programs. Important aspects of programmatic development will be covered such as academic training and path to becoming an independent investigator, establishment of research collaborations, multidisciplinary programs, and the utility of and paths to interdisciplinary work. The speakers will share their personal experiences and the audience will have the opportunity to ask questions and share their own experiences through groups discussions.

This special session is designed as a 4-hr workshop format (including a 30-min break) to be held during the afternoon. The intended audience is primarily students, postdocs, early investigators, but all interested parties especially from industry user groups are welcome. There will be a brief workshop overview followed by an introduction to define terms and introduce concepts. This will be followed by 15-min presentations with 15-min facilitated group discussions for each topic.



**Proposed Schedule:**

- 1:00** Introduction: An Ethical Framework for Research and Development (Tiersch)  
**1:15** Group Discussion and Questions
- 1:30** **Henrique Cheng**  
 PATHWAY TOWARDS BECOMING AN INDEPENDENT RESEARCHER: LESSONS FROM CELLULAR SIGNALING
- 1:45** Group Discussion and Questions
- 2:00** **Kevin Kleinow**  
 AQUATIC SPECIES AS COLLABORATIVE INVESTIGATIONAL MODELS
- 2:15** Group Discussion and Questions
- 2:30** BREAK
- 3:00** Components of a Multidisciplinary Program (Liu)
- 3:15** Group Discussion and Questions
- 3:30** Solving Complex Problems Through Interdisciplinary Research (Tiersch)
- 3:45** Group Discussion and Questions
- 4:00** Overall Questions and Discussions followed by Workshop Survey

**FISH PHYSIOLOGY**

Monday, February 10 1:30 PM - 5:00 PM Room 302

Chair: Abigail Bockus

- 1:30** **Asif Mortuza**, Aparna Biswas, Rosemary Burch, Ahmed Mustafa  
 IMMUNOLOGICAL EFFECTS OF BASILS GROWN IN AQUAPONICS ON VERTEBRATE (MICE AND FISH) SPLEEN CELLS *IN VITRO*
- 1:45** **Ahmed Mustafa**  
 NUTRACEUTICALS: FUTURE PROPHYLAXIS FOR FISH DISEASES?
- 2:00** **Amit Kumar Sinha**, Nicholas Romano, Jyotsna Shrivastava, Jesus Monico, West M. Bishop  
 OXIDATIVE STATUS AND HISTOPATHOLOGICAL ALTERATIONS IN LARGEMOUTH BASS *Micropterus salmoides* EXPOSED TO A NEWLY DEVELOPED GRANULAR HYDROGEN PEROXIDE-BASED ALGAECIDE
- 2:15** **Fritzie T. Celino-Brady**, Cody K. Petro-Sakuma, Jason P. Breves, Darren T. Lerner, Andre P. Seale  
 ESTROGENIC CHEMICAL POLLUTANTS AFFECT GROWTH AND REPRODUCTION-RELATED GENES IN MALE MOZAMBIQUE TILAPIA *Oreochromis mossambicus*
- 2:30** **Andre Seale**, Cody Petro-Sakuma, Fritzie Celino-Brady, Jason Breves  
 GROWTH HORMONE REGULATES INTESTINAL NUTRIENT TRANSPORTERS IN MOZAMBIQUE TILAPIA *Oreochromis mossambicus*

- 2:45** **Md Shah Alam**, Wade O. Watanabe, Patrick M. Carroll  
 CANCELED EVALUATION OF SALT-INCORPORATED DIETS ON GROWTH, BODY COMPOSITION AND PLASMA ELECTROLYTES OF BLACK SEA BASS *Centropristis striata* REARED IN A SEMI-PILOT SCALE LOW-SALINITY RECIRCULATING AQUACULTURE SYSTEM
- 3:00** **Todd Guerdat**, Ashutosh Rao, Heather Hamlin, Elizabeth Fairchild  
 ASSESSING THE ACUTE AND CHRONIC TOXIC EFFECTS OF POTASSIUM ON RAINBOW TROUT *Oncorhynchus mykiss* AND EVALUATING THE MITIGATING EFFECTS OF SODIUM ON ACUTE POTASSIUM TOXICITY
- 3:15** **Van To**, Karthik Masagounder, Matthew Loewen  
 EX VIVO CHARACTERIZATION OF METHIONINE TRANSPORT IN THE INTESTINE OF RAINBOW TROUT *Oncorhynchus mykiss*
- 3:30** **Charles McGuigan**, Yole Buchalla, John Stieglitz, Ronald Hoenig, Kimberly Darville, Carlos Tudela, Daniel Benetti  
 EFFECT OF PHOTOPERIOD ON GROWTH, DEVELOPMENT, FEED CONSUMPTION, AND SURVIVAL OF RED SNAPPER *Lutjanus campechanus*
- 3:45** **Aya Hussain**, Kaelyn Fogelman, Hisham Abdelrahman, Luke Roy, James Stoeckel  
 THERMAL TOLERANCE OF THE WHITE-LEGGED SHRIMP *Litopenaeus vannamei* IN LOW SALINITY CULTURE SYSTEMS

## FEDERAL RISK MANAGEMENT PROGRAMS FOR AQUACULTURE

Monday, February 10 1:30 PM - 3:30 PM Room 308B

Chair: Alex Sereno

This session will provide an overview of the programs offered by the United States Department of Agriculture to provide risk management tools and disaster relief programs for aquaculture producers. The session will focus mostly on options available to aquaculture producers under the Federal Crop Insurance Program, which is administered by the Risk Management Agency (RMA), and will also include information on programs offered by the Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS). The session will conclude with a Q&A.

- 1:30** **Delores Dean** and **Alex Sereno**, USDA Risk Management Agency  
 FEDERAL CROP INSURANCE AND AQUACULTURE
- Overview on current Federal Crop Insurance programs for aquaculture and discussion on current efforts by the Risk Management Agency to provide more coverage for aquaculture.
- 2:15** **Allen Frenzel** and **Patrick Lewis**, USDA Farm Service Agency  
 FARM SERVICE AGENCY PROGRAMS FOR AQUACULTURE
- 2:30** **Travis Thomason**, USDA Natural Resources Conservation Service  
 NATURAL RESOURCES CONSERVATION SERVICE PROGRAMS FOR AQUACULTURE
- 2:45** **Panel Discussion**  
 OPPORTUNITY FOR THE AUDIENCE TO ASK QUESTIONS TO PRESENTERS FROM RMA, FSA AND NRCS

# HAWAIIAN FISH PONDS

Monday, February 10 1:30 PM - 5:00 PM Room 301B

Chairs: Brenda Asuncion, Darren Okimoto

MONDAY

- 1:30 Brenda Asuncion**  
LOKO I'A: INDIGENOUS AQUACULTURE AND MARICULTURE IN HAWAII
- 1:45 Kawika Winter**, Hiilei Kawelo, Kelii Kotubetey, Shimi Rii, Rosanna Alegado  
ECO-MIMICRY: THE ECOLOGY BEHIND THE SUCCESS OF HAWAIIAN AQUACULTURE SYSTEMS
- 2:00 Vernon T. Sato**  
PHYTOPLANKTON AND OTHER MICROALGAE IN AQUACULTURE PONDS AND THEIR IMPORTANCE IN HAWAIIAN FISHPONDS
- 2:15 Vernon Sato**, Clyde Tamaru, Roz Dias  
THE DECLINE OF HAWAII'S MULLET FISHERY AND THE IMPACT ON LOKO I'A
- 2:30 Rosalyn Concepcion**  
A REPORT ON THE SPECIES COMPOSITION OF A RESTORED HAWAIIAN FISHPOND
- 2:45 Kaleonani Hurley**, Keli'iahonui Kotubetey, Hi'ilei Kawelo, Margaret Siple, Robert Toonen  
CRABBING AND CONNECTIVITY: FISHERIES ASSESSMENT IN A TRADITIONALLY MANAGED HAWAIIAN FISHPOND
- 3:00 Lucas Mead**, Layne Richards, Jacqueline Uluwehi Van Blarcom  
KA PUNAWELE MEA AI O NA LOKO IA: THE USE OF  $\delta^{15}$  NITROGEN AND  $\delta^{13}$  CARBON ISOTOPES AS AN EXTENSION OF ONE'S KILO TO UNDERSTAND TROPHIC INTERACTIONS WITHIN A LOKO IA
- 3:15 Trisha Olayon**, Lucas Mead, Erin Datlof, Jolene Sutton, Layne Richards, Blake McNaughton, Kyle Soller, Emily Wilson, Patricia Echeverria, Lea-Carol Glennon  
CONTEXTUALIZING STEM FOR A NEW GENERATION OF AINA-CONSCIOUS LEADERS: USING GENETIC BARCODING TECHNIQUES TO IDENTIFY CONTEMPORARY CHALLENGES TO A NATIVE HAWAIIAN FISHPOND SYSTEM
- 3:30 Rosie 'Anolani Alegado**, Daniel McCoy, Margaret A. McManus, Keli'iahonui Kotubetey, Angela Hi'ilei Kawelo, Charles Young, Brandon D'Andrea, Kathleen C. Ruttenberg  
LARGE-SCALE CLIMATIC EFFECTS ON TRADITIONAL HAWAIIAN FISHPOND AQUACULTURE
- 3:45 Brenda Asuncion**, Rosie Alegado, Kevin Chang, Stanton Enomoto, Kiana Frank, Katy Hintzen, Wally Ito, Scott Laursen, Darren Lerner, Miwa Tamanaha, Maya Walton, Darcy Yogi  
ARTICULATING NEEDS TO EMPOWER PRACTITIONER-LED MANAGEMENT OF LOKO I'A (HAWAIIAN FISHPOND) RESOURCES AND PRACTICES
- 4:00 Michael Cain**  
HOALA LOKO IA: A STREAMLINED PERMITTING PROCESS FOR THE RESTORATION OF TRADITIONAL HAWAIIAN FISHPOND SYSTEMS

## PRE-PRO BIOTICS

Monday, February 10 2:30 PM - 5:00 PM Room 314

Chair: Delbert Gatlin

MONDAY

- 2:30 Susan E. Knudson**, Jim Keeton, Luke Keeton  
PROSPECTING FOR COLD WATER PROBIOTICS
- 2:45 Keith Filer**, Rijin Xiao, Katie Eastridge, Ronan Power, Karl Dawson, Doug Dixon, Justin Moore, Kyle Martin  
EVALUATION OF A SOLUBLE MANNAN RICH FRACTION IN THE FERTILIZATION OF RAINBOW TROUT *Oncorhynchus mykiss* EGGS
- 3:00 Razieh Farzad**, David Kuhn  
EFFECT OF COMMERCIALY AVAILABLE PREBIOTIC AND PROBIOTIC ON THE GROWTH INNATE IMMUNE RESPONSE AND OXIDATIVE ENZYMES ACTIVITY OF RAINBOW TROUT *Oncorhynchus mykiss*
- 3:15 Beth Peterman**, Jessica Koppien-Fox, Lora Petrie-Hanson  
A BLEND OF PREBIOTIC FIBER, OREGANO, THYME, CINNAMON ESSENTIAL OILS AND *Yucca schidigera* SUPPLEMENTED FEED INCREASED CHANNEL CATFISH FINGERLING GROWTH AND ENHANCED DISEASE RESISTANCE
- 3:30 Wren Busby**, Ione Hunt von Herbing  
FATTER. FASTER WITH BUGS: HOW MULTI-STRAIN PROBIOTICS IMPROVED GROWTH, INTESTINAL HEALTH, AND MORTALITY IN RED DRUM *Sciaenops ocellatus* JUVENILES
- 3:45 Fernando Yamamoto**, Delbert M. Gatlin III, Michael Hume  
*IN VITRO* AND *IN VIVO* EFFECTS OF BUTYRATE, PROPIONATE, AND THEIR COMBINATION IN HIGH-PLANT-PROTEIN-DIETS FOR RED DRUM *Sciaenops ocellatus*
- 4:00 Tatiana Vinogradova-Shah**, Elena Sineva, Eugene Parsons, Susan Laramore, Richard Sayre  
APPLICATION OF DIRECTED BIOTICS TO CONTROL PATHOGENS: COMPLETE PREVENTION OF WSSV-ASSOCIATED MORTALITY IN ADULT SHRIMP *Litopenaeus vannamei* INOCULATED WITH *Bacillus subtilis* ENGINEERED TO PRODUCE WSSV-TARGETING DOUBLE STRANDED RNA (dsRNA-VP19)
- 4:15 Giovanni S. Molinari**, Vance J. McCracken, Michal Wojno, Karolina Kwasek  
THE USE OF DIPEPTIDE SUPPLEMENTATION AS A MEANS OF MITIGATING THE NEGATIVE EFFECTS OF DIETARY SOYBEAN MEAL ON ZEBRAFISH *Danio rerio*
- 4:30 Marina M. Rubio Benito**, Timothy J. Bruce, Jie Ma, Evan M. Jones, Kenneth D. Cain, Vikas Kumar  
INSECT PROTEIN AS AN ADDITIVE IN FISH FEEDS: EFFECTS ON GROWTH AND IMMUNE PERFORMANCE IN RAINBOW TROUT *Oncorhynchus mykiss*

# AQUACULTURE DRUG UPDATES

Monday, February 10 1:30 PM-5:00 PM Room 317A

Session Co-Chairs: Julie Schroeter & Alan Johnson

- 1:30 FROM IDEA TO APPROVAL: NAVIGATING THE NEW ANIMAL DRUG APPROVAL PROCESS**  
Jenn King & Eric Landis; FDA/CVM
- 2:00 AFWA, DAWG, AND ADAC UPDATES**  
Alan Johnson; Iowa DNR
- 2:15 AADAP WORKSHOP DRUG APPROVAL STREAMLINING SESSION RECAP**  
AADAP Program
- 2:30 NATIONAL INAD PROGRAM RECAP**  
AADAP Program
- 2:45 AADAP RESEARCH PROGRAM UPDATES**  
AADAP Program
- 3:00 THE NATIONAL AQUACULTURE DRUG NEEDS FOR THE CULTURE OF MARINE FISH SPECIES ACROSS THE COUNTRY**  
AADAP Program
- 3:15 USING TM200®-MEDICATED FEED TO CONTROL MORTALITY IN CHANNEL CATFISH DUE TO COLUMNARIS**  
AADAP Program
- 3:30 DIQUAT INAD: AN UPDATE FROM ALABAMA**  
Renee Beam; Auburn University
- 3:45 THE SAFETY OF AQUI-S® 20E (10% EUGENOL) AS A SEDATIVE ON A MARINE FINFISH**  
Rodman Getchell; Cornell University
- 4:00 LESSONS LEARNED FROM PAST AQUACULTURE DRUG APPROVAL COLLABORATIVE EFFORTS TO ADDRESS CURRENT CHALLENGES**  
Rosalie Schnick; Roz Schnick Consulting, LLC
- 4:15 PROGRAMS AT THE US FOOD AND DRUG ADMINISTRATION TO MONITOR UNAPPROVED CHEMICAL AND DRUG RESIDUES IN AQUACULTURE PRODUCTS**  
Stanley Serfling; FDA/Office of Food Safety
- 4:30 DISCUSSION/ Q&A TIME**

## TUNA

Monday, February 10 3:45 PM - 5:00 PM Room 304

Chair: Alejandro Buentello

MONDAY

- 3:45** **Aurelio Ortega**, Fernando de la Gándara, Jaime García, Fernando Méndez,  
**CANCELED** Felipe Aguado  
ESTABLISHING AN ATLANTIC BLUEFIN TUNA *Thunnus thynnus* BROODSTOCK
- 4:00** **Hanna Rosenfeld**  
TIMING OF PUBERTY IN ATLANTIC BLUEFIN TUNA – THE ENDOCRINE APPROACH
- 4:15** **Daniel Margulies**, Vernon Scholey, Enrique Mauser, Susana Cusatti, Jeanne Wexler,  
Tomoki Honryo, Michio Kurata, Yasuo Agawa, Yoshifumi Sawada  
STUDIES OF SPAWNING DYNAMICS AND GROWTH AND SURVIVAL DURING THE  
LARVAL AND EARLY-JUVENILE STAGES OF YELLOWFIN TUNA AT THE IATTC'S  
ACHOTINES LABORATORY IN PANAMA
- 4:30** **Daniel Benetti**  
ADVANCES IN TUNA AQUACULTURE
- 4:45** **Fabio Casu**  
NMR-BASED METABOLOMIC EVALUATION OF A FORMULATED FEED IN JUVENILE  
YELLOWFIN TUNA *Thunnus albacares*

## SHRIMP PRODUCTION

Monday, February 10 1:30 PM - 5:00 PM Room 315

Chair: Andrew Ray

- 1:30** **Claude E. Boyd**  
LAND USE EFFICIENCY IN SHRIMP AQUACULTURE
- 1:45** **Craig L. Browdy**, Peter M. Van Wyk, Leandro Castro, Tim Markey  
PROGRESS TOWARDS THE REPLACEMENT OF FRESH FEEDS FOR SHRIMP  
MATURATION
- 2:00** **Joao Reis**, Alexis Weldon, Paulo Ito, William Stites, Melanie Rhodes, D Allen Davis  
AUTOMATIC FEEDERS SCHEDULE AS A TOOL FOR IMPROVEMENT OF SHRIMP  
*Litopenaeus vannamei* PRODUCTION SYSTEMS IN PONDS
- 2:15** **Joao Reis**, Alexis Weldon, Paulo Ito, William Stites, Melanie Rhodes, D Allen Davis  
COMPARING DIFFERENT FEEDING PROTOCOLS FOR IMPROVEMENT OF SHRIMP  
*Litopenaeus vannamei* PRODUCTION IN SEMI-INTENSIVE RECIRCULATION
- 2:30** **Máximo Quispe Chau**  
**CANCELED** EXPERIENCES OF SHRIMP CULTURE *Litopenaeus vannamei* IN CONDITIONS OF  
LOWER SALINITY, USING PRECISION AQUACULTURE
- 2:45** **Harsha Galkanda-Arachchige**, Sunni Dahl, Jesse James, Luke A. Roy,  
Anita M. Kelly, D. Allen Davis  
ON-FARM EVALUATION OF AN ALTERNATIVE SALT MIXTURE FOR SALINITY  
ACCLIMATION OF PACIFIC WHITE SHRIMP *Litopenaeus vannamei*

- 3:00** **Thomas Tierney**, Leo J. Fleckenstein, Andrew J. Ray  
USING ALTERNATIVE LOW COST ARTIFICIAL SEA SALT MIXTURES FOR  
INTENSIVE SHRIMP *Litopenaeus vannamei* PRODUCTION
- 3:15** **Patrick Maier**, Kwamena Quagrainie  
A BIOECONOMIC MODEL OF INDOOR MARINE SHRIMP *Litopenaeus vannamei*  
FARMS WITH LOW-COST SALT MIXTURES
- 3:30** **David E. Brune**  
AUTOTROPHIC AND HETEROTROPIC TREATMENT IN SEMI-INTENSIVE,  
INTENSIVE AND SUPER-INTENSIVE FISH AND SHRIMP CULTURE
- 3:45** **Simão Zacarias**, Stefano Carboni, Andrew Davie, David Little  
INSIGHTS INTO USE OF NON-ABLATED SHRIMP *Litopenaeus vannamei* IN  
COMMERCIAL SCALE HATCHERIES

# TUESDAY, February 11

## PLENARY 2

Tuesday, February 11 8:30 AM - 10:00 AM Kalakaua Ballroom C  
Chair: Mike Denson

### 9:00 INTRODUCTION

#### 9:05 Keli'i Kotubetey

BUILDING GENERATIONS OF HAWAIIAN FISH FARMERS WITH STONES THAT FEED

#### 9:25 Neil Jacobs

TBA

#### 9:35 Mark Lyons

FUTURE OF AQUACULTURE AND THE POTENTIAL OF PLANET OF PLENTY

## BIOFLOCS

Tuesday, February 11 10:30 AM - 12:30 PM Room 304  
Chair: Bart Green

#### 10:30 Nyan Taw

BIOFLOC TECHNOLOGY AS BIOSECURITY FOR SUSTAINABLE SHRIMP FARMING

#### 10:45 P. Yuvarajan, S. Karthick, Mahadevi Nagarahalli

BIOFLOC TECHNOLOGY- FARMERS FRIENDLY CONCEPT TO INCREASE WHITE LEG SHRIMP *Penaeus vannamei* PRODUCTION IN THE OUTDOOR LINED POND

#### 11:00 Aya Hussain, Deyaaedin Mohammad, Wafaa Sallam, Nahla Shoukry, D. Allen Davis

THE EFFECT OF "BIOFLOC" VS. "SYNBIOTICS" ON THE GROWTH AND IMMUNE SYSTEM OF THE WHITE-LEGGED SHRIMP *Litopenaeus vannamei*

#### 11:15 Eman M. Abbas, Zaki Z. Sharawy, Mohamed F. Helal

MOLECULAR EFFECTS OF DIRECT UTILIZATION OF SUGARCANE BAGASSE PULP AS ECONOMIC FEED ON GROWTH, IMMUNITY AND ANTIOXIDANT CAPACITY IN *Litopenaeus vannamei* UNDER INTENSIVE CULTURE

#### 11:30 Bart Green, Kevin K. Schrader, Steven D. Rawles, Carl D. Webster, Matthew E. McEntire

PRODUCTION OF CHANNEL CATFISH USING ONE-YEAR-WATER OR UNUSED WATER IN A BIOFLOC TECHNOLOGY PRODUCTION SYSTEM



## LIVE FEEDS

Tuesday, February 11 10:30 AM - 12:30 PM Room 315

Chair: Matt Hawkyard

- 10:30 Danita Dahl**, Sabrina Heaverly, Isaiah Wagenman, Tally Nakamura, Jenee Odani, Jinzeng Yang  
INVESTIGATION OF COPEPODS AS A LIVE FEED FOR LARVAL SHRIMP CULTURE
- 10:45 Spencer Davis**  
A DESCRIPTION OF COPEPOD CULTURE TECHNOLOGY IN PRACTICE AT THE OCEANIC INSTITUTE
- 11:00 Adam Daw**, Reginald Blaylock, Eric Saillant  
THE EFFECT OF SALINITY ON POPULATION DEMOGRAPHICS OF THE COPEPODS *Acartia tonsa* AND *Parvocalanus crassirostris*
- 11:15 Will McKay**, Andrew Jeffs  
~~CANCELED~~ COMPARISONS OF GROWTH PERFORMANCE AND SURVIVAL OF LARVAL GIANT KOKOPU *Galaxias argenteus* FED VARYING RATIOS OF INSTAR-I AND INSTAR-II *Artemia* NAUPLII

## CLEANER FISH

Tuesday, February 11 10:30 AM - 12:30 PM Room 308B

Chairs: Danny Boyce, Elizabeth Fairchild

- 10:30 Jennifer Monk**, Jessica Fry, Denise Tucker, Kelsie Jeannot, Jillian Porter, Danny Boyce  
CLEANER FISH RESEARCH AND PRODUCTION IN SUPPORT OF THE ATLANTIC CANADIAN SALMON AQUACULTURE INDUSTRY
- 10:45 Geoffrey McBriarty**, Cory Taylor, Tom Taylor, Sheldon George, Danny Boyce  
COOKE AQUACULTURE CANADA CLEANERFISH PROGRAM DEVELOPMENT: LAND-BASED GROWOUT AND TRANSPORTATION
- 11:00 Elizabeth A. Fairchild**  
THE STATUS OF LUMPFISH CULTURE IN THE U.S.
- 11:15 Michael Pietrak**, Gary Burr, Brian Peterson  
DEVELOPING A LUMPFISH RESEARCH PROGRAM AT THE NATIONAL COLD WATER MARINE AQUACULTURE CENTER

TUESDAY

## FINFISH GENETICS AND GENOMICS

Tuesday, February 11 10:30 AM - 12:30 PM Room 302

Chair: Matt Powell

- 10:30 Jiun Yan Loh**, Su Yien Adeline Ting  
METAGENOMIC ANALYSIS OF GUT MICROBIOME IN FRESHWATER PERCH *Anabas testudineus*
- 10:45 Laura E. King**, Carlie S. Perricone, Paul S. Wills, Nicholas J. Dickens  
COMPARATIVE GENOMICS OF TWO *Trachinotus* SPECIES: TOOLS TO ENHANCE THE AQUACULTURE OF FLORIDA POMPANO
- 11:00 Ken Overturf**, Thomas Welker  
VARIANCE IN THE PHYSIOLOGICAL RESPONSES FROM THREE DIFFERENT STRAINS OF RAINBOW TROUT
- 11:15 Yue Liu**, Terrence Tiersch, Todd Monroe  
INNOVATIVE DEVICES FOR COMMUNITY-BASED DEVELOPMENT OF GERMLASM REPOSITORIES
- 11:30 Konrad Dabrowski**, Kevin Fisher, Mackenzie Miller, Thomas Delomas, Boris Gomelsky  
COMPARISON OF GROWTH AND MORPHOLOGICAL CHARACTERISTICS OF KOI CARP AND HYBRIDS WITH GOLDFISH OR SILVER CARP MALES
- 11:45 Dileepa Sripal Liyanage**, W.K.M. Omeke, Qiang Wan, Jehue Lee  
DRAFT GENOME ASSEMBLY OF REDLIP MULLET *Liza haematocheila* USING HYBRID APPROACH
- 12:00 Nicole R. Rhody**, Matthew Resley, Lee Fuiman, Kevan L. Main  
IMPACT OF DIET AND ENVIRONMENTAL MANIPULATION ON REPRODUCTIVE PERFORMANCE IN ALMACO JACK *Seriola rivoliana* BROODSTOCK
- 12:15 Timothy Leeds**, Beth Cleveland, P. Brett Kenney, Mark Hostuttler  
TWO GENERATIONS OF DIVERGENT SELECTION FOR FILLET YIELD IN RAINBOW TROUT *Oncorhynchus mykiss*: DIRECT AND CORRELATED RESPONSE TO SELECTION

## FISH NUTRITION – LIPIDS

Tuesday, February 11 10:30 AM - 12:30 PM Room 314

Chair: Wendy Sealey

- 10:30 Angela Liu**, Igor Pirozzi, Basseer Codabaccus, Fran Stephens, David Frances, Jesmond Sammut, Mark Booth  
EFFECTS OF CHOLINE ON LIVER LIPID COMPOSITION, LIVER HISTOLOGY AND PLASMA BIOCHEMISTRY OF JUVENILE YELLOWTAIL KINGFISH *Seriola lalandi*
- 10:45 John Grayson**, Macdonald Wick, Konrad Dabrowski  
REPLACEMENT OF FISH OIL WITH CONVENTIONAL AND HIGH OLEIC ACID SOYBEAN OIL IN THE STARTER DIETS OF RAINBOW TROUT *Oncorhynchus mykiss*
- 11:00 Angelisa Osmond**, Michael Arts, Richard Bazinet, Jonathan Napier, Stefanie Colombo  
EVALUATION OF GENETICALLY ENGINEERED *Camelina sativa* OIL AS A SOURCE OF DIETARY LIPID FOR RAINBOW TROUT *Oncorhynchus mykiss*

- 11:15 Abdolsamad Keramatamirkolaei**, Marina Rubio Benito, Nicholas Romano, Vikas Kumar, Brian C. Small  
FISH OIL AND ALTERNATIVE OIL SOURCES-BASED DIETS SUPPLEMENTED WITH OX-BILE: EFFECTS ON GROWTH, NUTRIENTS DIGESTIBILITY, BODY COMPOSITION AND INTESTINAL BILE SALT CONCENTRATION IN RAINBOW TROUT *Oncorhynchus mykiss*
- 11:30 Lee Fuiman**, Cynthia Faulk  
EGG AND DIETARY FATTY ACID CONCENTRATIONS AFFECT N-3 FATTY ACID METABOLISM IN LARVAE OF RED DRUM *Sciaenops ocellatus*
- 11:45 Christopher Parrish**, Stefanie Colombo, Mohamed Emam, Nigel Guerra, Judy Perry, Matthew Rise, Minmin Wei, JuDong Yeo  
REPLACEMENT OF FISH OIL BY A HIGH-DHA MICROBIAL OIL IN SALMON DIETS: EFFECT ON GROWTH PERFORMANCE, LIPID COMPOSITION AND GENE EXPRESSION
- 12:00 Jacob H. Jones**, Sujan Bhattacharai, Hayden E. Fischer, Dayan A. Perera  
EFFECTS OF COMMERCIALY AVAILABLE INCREASED PROTEIN AND LIPID FEED ON THE REPRODUCTIVE PERFORMANCE OF FEMALE GOLDFISH *Carassius auratus*
- 12:15 Marina Rubio Benito**, Nicholas Romano, Hayden Fischer, Nathan Egnew, Amit K. Sinha, Vikas Kumar  
INTERACTIVE DIETARY EFFECTS OF CARBOHYDRATE AND LIPID LEVELS IN THE PRESENCE OR ABSENCE OF BILE ACID ON LARGEMOUTH BASS *Micropterus salmoides* PERFORMANCE
- 12:30 Vikas Kumar**, Kimia Kajbaf, Jason Frost, Femi Fawole, Ken Overturf  
REGULATION OF THE OMEGA-3 FATTY ACID BIOSYNTHETIC PATHWAY AND FATTY ACIDS BIOCONVERSION CAPACITY IN SELECTED RAINBOW TROUT

## SEA URCHINS

Tuesday, February 11 10:30 AM - 12:45 PM Room 319

Chair: David Cohen

- 10:30 Stacey M. Williams**  
A NOVEL RESTORATION APPROACH: THE POST-LARVAL COLLECTION AND CULTURE OF A SEA URCHIN *Diadema antillarum* TO CONTROL THE ABUNDANCE OF *Ramificrusta* spp. AND ALGAL COVER IN PUERTO RICO
- 10:45 Eri Inomata**, Mai Kuroda, Masakazu N. Aoki, Yukio Agatsuma  
DIETARY EFFECTS OF THREE SMALL ALGAL SPECIES ON GROWTH OF THE SEA URCHIN *Mesocentrotus nudus* JUVENILES
- 11:00 Renee Touse**, Catherine Unabia  
INCREASING SURVIVAL, COMPETENCE AND POST SETTLEMENT SURVIVAL IN LARVAL *Tripneustes gratilla* THROUGH VARIOUS STOCKING DENSITIES
- 11:15 Lindee Mason**, Asif Mortuza, Megan Rasnake, Ahmed Mustafa  
PHYSIOLOGICAL EFFECTS OF THREE DIFFERENT DIETS ON THE REARING OF SEA URCHINS IN RECIRCULATING AQUACULTURE SYSTEM

- 11:30 Brett Macey**, John Bolton, Mark Cyrus, Kris De Jager  
BENEFITS AND RISKS ASSOCIATED WITH THE INTEGRATION OF ULVA IN  
LAND-BASED AQUACULTURE SYSTEMS: IMPLICATIONS FOR SEA URCHIN  
AQUACULTURE
- 11:45 Mark Cyrus**, John J. Bolton, Brett M. Macey, Donia Wozniak, Sebastiaan de Vos  
ECHINOCULTURE DEVELOPMENT IN SOUTH AFRICA: AN OVERVIEW
- 12:00 David L. Cohen**  
SEA URCHIN HATCHERY UPDATE: IMPROVED SURVIVORSHIP, PEST REDUCTION  
AND COMMUNITY INVOLVEMENT
- 12:15 Emily M. Warren**, Mark Flaherty, Stephen F. Cross, Christopher M. Pearce  
THE EFFECT OF DIET AND TEMPERATURE ON GONAD ENHANCEMENT OF  
GREEN *Strongylocentrotus droebachiensis* AND RED *Mesocentrotus franciscanus*  
SEA URCHINS

## U.S. TROUT FARMERS ASSOCIATION TROUT FORUM

Tuesday, February 11 10:30 AM - 12:45 PM Room 307

Chair: Katie Harris

- 10:30 Jim Bowker**, Riverence/Evaqua  
17 ALPHA-METHYLTESTOSTERONE FOR TROUT, TALES FROM THE DRUG  
APPROVAL JOURNEY
- 10:45 Greg Fischer**, University of Wisconsin- Stevens Point  
CURRENT STATUS AND RESEARCH OF SALMONID RAS AQUACULTURE IN THE  
U.S.
- 11:15 Kathleen Hartman**, USDA- APHIS  
MANAGING RISKS ON THE FARM
- 11:30 Paul Zajicek**, National Aquaculture Association  
GRASSROOTS ADVOCACY MOVES THE NEEDLE FOR U.S. AQUACULTURE
- 11:45 Jesse Trushenski**, Riverence/Evaqua  
RAISING FISH WITH CARE: THE FUNDAMENTALS OF ANIMAL WELFARE IN  
AQUACULTURE
- 12:15 U.S. Trout Farmers Members and Business Meeting**

## IMPORTS OF LIVE AQUATIC ANIMALS – RISKS AND REWARDS

Tuesday, February 11 1:30 PM - 4:30 PM Room 304

Chairs: Alicia Marston, John Dentier

This session will address issues of importing live aquatic animals (LAA) intended for commercial aquaculture with a focus on controlling the risk of introducing significantly detrimental pathogens into the United States yet not unduly interfering with trade in LAAs. Topics covered will include the current regulatory landscape and gaps therein, industry concerns and perspectives on imports of LAA, regulatory and economic considerations utilized by APHIS regarding implementing health related controls on imports of LAAs, recent events regarding tilapia lake virus (TILV) in tilapia and shrimp viral agents and APHIS rule promulgation on TILV and a panel discussion of overall issues.

- 1:30 Bill Keleher**, Kennebec River Biosciences  
IMPORTS OF LIVE AQUATIC ANIMALS – THE CURRENT LANDSCAPE OF WHO DOES WHAT?
- 2:00 John Dentier**, Troutlodge  
INDUSTRY PERSPECTIVES ON IMPORTS OF LIVE AQUATIC ANIMALS INTENDED FOR COMMERCIAL AQUACULTURE
- 2:30 Alicia Marston**, USDA APHIS  
THE CONCEPTUAL FRAMEWORK APHIS UTILIZES TO DECIDE WHETHER TO IMPLEMENT NEW IMPORT REQUIREMENTS AND ACTIONS NEEDED
- 3:00 Alicia Marston**, USDA APHIS  
NEW USDA REQUIREMENTS FOR BRINGING LIVE TILAPIA INTO THE U.S.
- 3:30 Panel Discussion on Risks & Rewards of Regulating Live Aquatic Animal Imports**  
Alicia Marston, USDA APHIS  
John Dentier, Troutlodge  
Bill Keleher, Kennebec River Biosciences

## AQUACULTURE FOR CONSERVATION

Tuesday, February 11 10:30 AM - 4:30 PM Room 317A

Chair: Ann Gannam

- 10:30 Linda Moon**, Lindsay Campbell  
THE ROLE OF AQUACULTURE IN REFUGIA CONSERVATION OF THREATENED AND ENDANGERED SPECIES
- 10:45 Mary Moser**, Alexa Maine, John Hume, Kimmo Aronsuu, Ralph Lampman, Aaron Jackson  
ARTIFICIAL PROPAGATION OF LAMPREY FOR CONSERVATION AND CONTROL
- 11:00 James Barron**, Racheal Headley, Ann Gannam  
OPTIMIZATION OF FEEDING FREQUENCY FOR THE INTENSIVE CULTURE OF LARVAL PACIFIC LAMPREY *Entosphenus tridentatus*
- 11:15 Alexa N. Maine**, Mary L. Moser, Aaron D. Jackson  
POLYCULTURE INCREASES GROWTH AND SURVIVAL OF LARVAL PACIFIC LAMPREY *Entosphenus tridentatus*

TUESDAY

- 11:30 Luke Gardner**, Katherine Neylan, Walan Chang, Katrina Herrmann, Helaina Lindsey, Max Rintoul, Katherine Roy  
PURPLE URCHIN BARRENS: AN OPPORTUNITY FOR AQUACULTURE AND FISHERIES TO WORK TOGETHER TO SOLVE AN ENVIRONMENTAL ISSUE
- 11:45 William Haines**, Katrina Scheiner, Kelli Konicek, Karl Magnacca, Cynthia King  
CAPTIVE REARING OF THE ENDANGERED ORANGEBLACK HAWAIIAN DAMSELFLY *Megalagrion xanthomelas* AND REINTRODUCTION ATTEMPTS ON O AHU
- 12:00 Kelli Konicek**, William Haines, Katrina Scheiner, Cynthia King  
IMPROVING CAPTIVE REARING METHODS FOR THE ENDANGERED ORANGEBLACK HAWAIIAN DAMSELFLY *Megalagrion xanthomelas*
- 12:15 Ann Gannam**, James Barron, Ronald Twibell  
CONSERVATION AQUACULTURE FOR ENDANGERED KLAMATH BASIN SUCKERS *Deltistes luxatus* AND *Chasmistes brevirostris*
- 12:30 LUNCH**
- 1:30 Shawn Young**, Nathan Jensen  
STRATEGIC AND NOVEL USE OF THE KOOTENAI RIVER NATIVE FISH CONSERVATION AQUACULTURE PROGRAM TO RESTORE WHITE STURGEON AND BURBOT
- 1:45 CANCELED Paul Anders**, Susan Ireland, Joel Van Eenennaam, Blaine Parker, James Crossman, Ken Lepla, Andrea Schreier, Shawn Young, Donella Miller, Lance Keller  
CONSERVATION AQUACULTURE OF WHITE STURGEON *Acipenser transmontanus* IN THE COLUMBIA RIVER BASIN, USA AND CANADA: A 30-YEAR RETROSPECTIVE
- 2:00 CANCELED Paul Anders**, Andrea Schreier, Joel Van Eenennaam, Shawn Young, James Crossman  
MANAGEMENT OF SPONTANEOUS AUTOPOLYPOIDY IN WHITE STURGEON *Acipenser transmontanus* CONSERVATION HATCHERIES
- 2:15 Nathan Jensen**  
STATUS AND SUCCESS OF CONSERVATION AQUACULTURE USED TO RESTORE KOOTENAI RIVER BURBOT
- 2:30 Sahar Mejri**, William Halstead, Anthony Cianciotto, Jonathan Shenker, Aaron Adams, Paul Wills  
SUCCESSFUL HORMONAL INDUCTION OF SPAWNING IN BONEFISH *Albula vulpes*, DESCRIPTION OF EARLY ONTOGENY, AND CHARACTERIZATION OF LIPID
- 2:45 Festus Idowu Adeosun**, Georgina Fiyinfoluwa Leramo, Mavis Titilayo Ogheneborhie Oghenochuko, Olamide Modinat Adeosun  
FEEDING HABITS AND DIGESTIVE ENZYMES IN THE GUT OF *Chrysichthys nigrodigitatus* IN OYAN DAM, ABEOKUTA, OGUN STATE, NIGERIA
- 3:00 Olamide Modinat Adeosun**, Dominic Olaniyi Odulate, Festus Idowu Adeosun  
PHENOTYPIC CHARACTERIZATION AND NATURAL DIET OF *Chrysichthys nigrodigitatus* IN EPE LAGOON, LAGOS STATE, SOUTHWEST, NIGERIA
- 3:15 CANCELED Melody Thomas**, Steven Hall, Celso Castro-Bolinaga, Nina Stark, Samuel Consolvo  
COASTAL HYDRODYNAMICS AND SEDIMENT ANALYSIS TO OPTIMIZE USE OF SHELLFISH FOR COASTAL INFRASTRUCTURE PROTECTION

- 3:30 Julie Barber**, James T. McArdle, Sarah Grossman, Lindy Hunter, Courtney M. Greiner, Claire Cook, Matthew Nelson  
ONLY TIME WILL TELL: SUCCESSES AND FAILURES OF RESTORING NATIVE OYSTER POPULATIONS IN HABITAT LIMITED SYSTEMS
- 3:45 Scott Borsum**, Edward Camp  
**CANCELED** ACHIEVING RESTORATION SUCCESS UNDER CONFLICTING SOCIOECOLOGICAL OBJECTIVES
- 4:00 S. Karthick**, S. Aanand  
IMPACT OF EXOTIC AFRICAN CATFISH *Clarius gariepinus* (BURCHELL, 1822) ON THE FISH DIVERSITY OF KADAMBA TANK, TAMIRABARANI RIVER BASIN, THOOTHUKUDI, TAMILNADU

## AQUATIC VET MED

Tuesday, February 11 10:30 AM - 4:30 PM Room 318

Chair: David Scarfe

- 10:30 Roy Yanong**, Ruth Francis-Floyd  
HOW TO WORK WITH VETERINARIANS: A NOT-SO-SECRET SECRET TO ENHANCING AQUACULTURE'S BOTTOM LINE
- 10:45 Irom Okey**  
EFFICACY OF *Ocimum gratissimum* (SCENT LEAF) POWDER AS ANAESTHETIC AND ITS EFFECT ON THE HAEMATOLOGY OF *Clarias gariepinus* JUVENILES
- 11:15 Timothy S. Kniffen**  
THE INCREASING CHALLENGE OF PARASITIC FRESHWATER COPEPODS, CONTROL OPTIONS, AND INTEGRATED PEST MANAGEMENT PROGRAM DEVELOPMENT
- 11:45 Timothy Kniffen**, Jackie Zimmerman  
AQUA CARE365@: AN APPROACH TO TEACHING AND ADVANCING FISH CARE AND FISH WELFARE
- 12:15 Myron J. Kebus**  
FISH DISEASE RISK ASSESSMENTS AND REGULATIONS
- 12:30 LUNCH**
- 1:30 A. David Scarfe**  
NEW DEVELOPMENTS IN PROGRAMS FOR DAY-1 AND ADVANCED TRAINING AND EDUCATION IN AQUATIC VETERINARY MEDICINE
- 2:00 Jessica Fox**  
FINDING YOUR FINS! TRAINING OPPORTUNITIES IN AQUATIC ANIMAL MEDICINE
- 2:15 Warren J. Hess**  
THE PRACTICE OF AQUATIC VETERINARY MEDICINE IN THE UNITED STATES EXCLUSIVE ECONOMIC ZONE
- 2:45 Kathleen Hartman**  
COMMERCIAL AQUACULTURE HEALTH PROGRAM STANDARDS (CAHPS) PROGRAM: IMPLEMENTATION UPDATE

**3:30 Alicia Marston**  
NATIONAL VETERINARY ACCREDITATION PROGRAM MODULE 13:  
AQUATIC ANIMAL HEALTH REGULATIONS AND HEALTH CERTIFICATION

**4:15 Kathleen H. Hartman**  
NATIONAL VETERINARY ACCREDITATION PROGRAM MODULE 14: EVALUATION  
OF AQUATIC ANIMALS FOR DETECTION OF REPORTABLE DISEASES AND  
PATHOGENS

## EXTENSION

Tuesday, February 11 10:30 AM - 4:30 PM Room 305

Chairs: Forrest Wynne, Matt Smith, Ken Thompson

**10:30 LaDon Swann, Kola Garber, Mark Rath, Chuck Weirich, Gene Kim**  
AN ASSESSMENT OF CURRENT NOAA SEA GRANT EXTENSION CAPACITY AND  
IDEAS ON MEETING THE EXTENSION NEEDS OF AN EXPANDED INDUSTRY

**10:45 Samuel S. Chan, Linda Chilton, Christos Michalopoulos**  
BUILDING PATHS TO ADDRESS LOOMING RETIREMENTS IN THE AQUACULTURE  
EXTENSION WORKFORCE THROUGH EDUCATION PARTNERSHIPS

**11:00 Steven Hall, Mike Frinsko, Matt Campbell, Melody Thomas, Vashti Campbell,  
Cathi Dunnagan, Arthur Earnest, Rich Gurnsey, Merranie Zellweger**  
DEVELOPMENT OF VIRTUAL AQUACULTURE TOURS FOR EXTENSION AND  
EDUCATIONAL PURPOSES

**11:15 Jordan Maxwell, Khandakar Rafiq Islam, Krishna Kumar Nedunuri, Matthew Smith,  
Tom Worley, Brad Bergefurd**  
BUILDING EDUCATIONAL CAPACITY THROUGH COLLABORATIVE AQUAPONICS  
EXTENSION EDUCATION

**11:30 Jonathan van Senten, Michael Schwarz, Reza Ovissipour, Setareh Shiroodi,  
Robert Lane, Abigail Villalba**  
VIRGINIA SEAFOOD AREC PROGRAMMATIC EXPANSION

**11:45 Anoushka Concepcion, Gabriela Bradt, Meg Chadsey, Antoinette Clemetson,  
Melissa Good, David Hansen, Dawn Kotowicz, Stephanie Otts, Joshua Reitsma,  
Jaclyn Robidoux**  
NURTURING THE SUCCESSFUL GROWTH AND MATURATION OF A DOMESTIC  
SEAWEED AQUACULTURE INDUSTRY

**12:00 Jesse M. Lepak**  
STATUS AND FUTURE OF AQUACULTURE IN THE GREAT LAKES BASIN:  
MOVING FORWARD IN A CHANGING LANDSCAPE

**12:15 Amrit Bart**  
USDA NIFA DIVERSIFIES FUNDING FOR AQUACULTURE RESEARCH

**12:30 LUNCH**

**1:30 Michael Ciaramella, Linda O'Dierno**  
AQUACULTURE PRODUCTS AND RESOURCE GUIDE FOR CULINARY  
PROFESSIONALS AND SEAFOOD PRODUCERS

TUESDAY



- 1:45** **Linda J. ODierno**, Michael Ciaramella, Paul Zajicek  
BUILDING A FOODSERVICE EDUCATION TOOLBOX FOR FARMED SEAFOOD
- 2:00** **Luke A. Roy**, D. Allen Davis  
ON-FARM TANK SYSTEMS DEPLOYED ON COMMERCIAL SHRIMP FARMS:  
A LOW BUDGET APPROACH THAT WORKS FOR EXTENSION DEMONSTRATION
- 2:15** **Shannon Hood**, Donald Webster  
OPERATION OF A DEMONSTRATION OYSTER FARM TO SUPPORT WATER  
COLUMN OYSTER PRODUCTION IN CHESAPEAKE BAY, MARYLAND, USA
- 2:30** **Anita Kelly**, Luke Roy, Nilima Renukdas, Jesse James, Suni Dahl  
ON-FARM DEMONSTRATION OF A KAOLINIC CLAY FOR BACTERIAL AND ALGAL  
CONTROL IN AQUACULTURE
- 2:45** **Herbert E. Quintero**, Kayla McCoy  
ON-FARM EVALUATION AND MONITORING OF DIFFERENT MANAGEMENT  
STRATEGIES EMPLOYED BY A COMMERCIAL BAITFISH FARM TO CONTROL  
*Microcystis*
- 3:00** **Vincent Lugert**, Dieter Steinhagen, Stefan Reiser  
LACK OF KNOWLEDGE DOES NOT JUSTIFY MISSING ACTION: ASSESSING THE  
STATE OF WELFARE IN FARMED FISH
- 3:15** **Forrest Wynne**  
NATIONAL AQUACULTURE EXTENSION CONFERENCE PLANNING AND  
DEVELOPMENT FOR THE 7TH NAEC
- 3:30** **Ruth Francis-Floyd**, Roy Yanong, Katharine Starzel, Kathleen Hartman,  
Craig Watson  
VETERINARY FELLOWSHIP IN AQUACULTURE MEDICINE: A NEW APPROACH FOR  
TRAINING PRACTICING VETERINARIANS TO SERVE AQUACULTURE PRODUCERS
- 3:45** **David Cline**  
AQUAPONICS: CONNECTING STUDENTS AND SCIENCE
- 4:00** **Matthew Smith**, Joy Rumble  
GAINING AN UNDERSTANDING OF MIDWEST AQUACULTURE PRODUCERS'  
VIEWS OF THE NORTH CENTRAL REGIONAL AQUACULTURE CENTER THROUGH  
PERSONAL INTERVIEWS
- 4:15** **Juan L. Silva**, Lurdes Siberio-Wood and Angelica Abdallah-Ruiz  
HACCP FOR SILURIFORMES UNDER THE US FDA AND THE USDA-FSIS SYSTEMS-  
A COMPARISON OF HOW TO ADDRESS HAZARDS AND ENVIRONMENTAL  
SAMPLING FINDINGS UNDER BOTH SYSTEMS

## ZEBRAFISH WORKSHOP – PART 2

Tuesday, February 11 10:30 AM - 4:30 PM Room 301A

Chair: Bobbi Baur

Sponsor: Aquaneering

- 8:30 Stephen Canter** / ZHA-Coordinated Basic Husbandry Unit  
MANAGEMENT SYSTEMS AND RECORDKEEPING
- 8:55 Claire Allen** / ZHA-Coordinated Basic Husbandry Unit  
BREEDING AND COLONY MANAGEMENT
- 9:20 Amy Kolb**, Mitchel Shia, Jeremy Ullmann, Marcia Hart, Marcus Crim,  
Daanya Salmanullah, Shane Hurley, Christian Lawrence, Michael Kent, Katy Murray,  
Friedhelm Hildebrandt  
THE TIMING OF FIRST FEEDING AND PREY DENSITY IMPACTS SURVIVAL IN  
LARVAL ZEBRAFISH-ROTIFER POLY CULTURES
- 9:40 Andrew Wegerski**, Tyler Fayard, Dustin O'Brien, Theodore Plemons, Dave Mallon,  
James Raber  
VIABILITY OF INTACT, PRE-KILLED ROTIFERS AS AN ALTERNATIVE FIRST FEED  
FOR ZEBRAFISH *Danio rerio* FRY
- 10:00 BREAK**
- 10:30 Maurine Hobbs** / ZHA-Coordinated Basic Husbandry Unit  
DIET AND FEEDING REGIMENS
- 11:00 Paul Barwood**, Carole Wilson  
BREEDING IN BOXES, IS IT ETHICAL?
- 11:20 Ted Plemmons** / NIH  
EFFECTS OF POPULATION DENSITY AND ENVIRONMENTAL COMPLEXITY ON  
AGGRESSIVE BEHAVIOR OF ZEBRAFISH
- 11:40 Kathy Snell** / ZHA-Coordinated Basic Husbandry Unit  
BEHAVIOUR AND WELFARE INDICATORS

### INVITED SPEAKER

- 12:10 Jeff Wyatt** / University of Rochester  
ZEBRAFISH AQUAPONICS-A PRELIMINARY ASSESSMENT OF BENEFITS  
AND RISKS OF GROWING SPF MICRO-GREENS IN A RESEARCH ZEBRAFISH  
RECIRCULATING RACK

### 12:30 LUNCH

### GENERAL WORKSHOP SESSION – *Coordinated by Aquaneering*

### KEYNOTE SPEAKER

- 1:30 Dr. Mary Hagedorn** / Smithsonian Institute / Hawaii Institute of Marine Biology  
USING TECHNOLOGY FOR CONSERVATION: ZEBRAFISH EMBRYOS TO CORAL  
LARVAE

### CONTEST WINNERS

- 2:30 Hyuna Lee** / Biola University \*Contest Winner  
ZEBRAFISH HUSBANDRY IN A SMALL LIBERAL ARTS COLLEGE

TUESDAY

- 2:40 J. Michelle Lavery** / University of Guelph **\*Contest Winner**  
ZEBRAFISH SHOW STABLE AND RANKED PREFERENCES FOR DIFFERENT ENVIRONMENTAL ENRICHMENTS
- 3:00 BREAK**
- 3:30 William James** / University of Utah  
PANDAS AND PYTHON ON JUPITER? DATA COLLECTION ALTERNATIVES FOR RELIABLE RESEARCH RESULTS
- 3:50 Carole Wilson** / University College of London  
TO STANDARDISE OR NOT TO STANDARDIZE – ACHIEVABLE REALITY OR IMPOSSIBLE DREAM?
- 4:10 Christine Lieggi** / WCMC and **George Sanders** / U Washington  
INTRINSIC AND EXTRINSIC FACTORS THAT AFFECT THE ZEBRAFISH *Danio rerio* MODEL AND HOW TO RECOGNIZE AND CONSIDER POTENTIAL
- 5:00 TOWN HALL MEETING**  
AND HOW TO RECOGNIZE AND CONSIDER POTENTIAL IMPACTS

## PUBLIC PERCEPTIONS - SOCIAL LICENSE

Tuesday, February 11 10:30 AM - 4:30 PM Room 303

Chairs: Kimberly Thompson, Charles Mather, Michael B. Rust

- 10:30 Lucia Fanning**, Gesche Krause, Suzannah-Lynn Billing, John Dennis, Ramon Filgueira, Jon Grant, Molly Miller, Jose Perez-Agundez, Nardine Stybel, Selina Stead, Wojciech Wawrzynski  
VISUALIZING THE SOCIAL EFFECTS OF AQUACULTURE ACROSS GEOGRAPHIC SCALES
- 10:45 Kristin Runge**, Bret Shaw, Laura Witzling, Christopher Hartleb, Deidre Peroff  
THE ROLE OF FOOD VALUES, TRUST IN GOVERNMENT REGULATORY AGENCIES, AND PRO-ECONOMIC PERCEPTIONS OF AQUACULTURE IN GRANTING SOCIAL LICENSE TO OPERATE
- 11:00 Luke Fairbanks**, Grant Murray, Lisa Campbell, Linda D'Anna, Joshua Stoll, Julia Bingham  
UNDERSTANDING THE VALUES AND PERSPECTIVES ASSOCIATED WITH FISHING AND SHELLFISH AQUACULTURE IN NORTH CAROLINA, USA
- 11:15 William C. Norman**, Jeffrey C. Hallo, Lauren N. Duffy, Laurie W. Jodice, Jessica Fefer, Lauren Townsend, Ellen Koppa, Brian Peterson  
EXAMINING THE SOCIAL CARRYING CAPACITY FOR MARICULTURE DEVELOPMENT ON THE SOUTH CAROLINA COAST: ISSUES, FACTORS, VARIABLES, AND ATTRIBUTES INFLUENCING STAKEHOLDER PERCEPTIONS
- 11:45 Lucia Fanning**, Charles Mather, Ramon Filgueira, Bertrum MacDonald, Patricia Manuel, Barbara Neis  
SOCIAL LICENSE AND SUSTAINABLE AQUACULTURE PLANNING IN COASTAL COMMUNITIES

- 12:00 Paul Dobbins**  
EVOLVING SOCIAL LICENSE CHALLENGES AND OPPORTUNITIES FOR SEA FARMING: A MAINE PERSPECTIVE
- 12:15 Bill Dewey**  
BUILDING AND MAINTAINING PUBLIC AND POLITICAL SUPPORT FOR SHELLFISH AQUACULTURE IN THE PACIFIC NORTHWEST
- 12:30 LUNCH**
- 1:30 Donald B. Kent**  
TRIALS AND TRIBULATIONS OF PERMITTING OPEN OCEAN FARMS IN U.S. FEDERAL WATERS: EXPERIENCES WITH STAKEHOLDER ACTIONS AND REACTIONS
- 1:45 Jennifer Bushman**  
CHANGING PERCEPTION THROUGH THE EYES OF AN INFLUENCER - FULL CIRCLE – “JOURNEY OF THE WATERMAN”
- 2:00 Sophie Ryan**  
HOW COLLABORATION CAN DRIVE INDUSTRY CHANGE – THE CHALLENGES AND THE OPPORTUNITIES
- 2:15 Kimberly Thompson, Kevin Madley, Mark Rath, Cynthia Sandoval**  
COLLABORATIVE COMMUNICATION STRATEGIES TO IMPROVE PUBLIC PERCEPTIONS ABOUT U.S. MARINE AQUACULTURE
- 2:30 Kimberly Thompson, Michael B. Rust, Charles Mather**  
BRIDGING THEORY AND PRACTICE FOR PUBLIC PERCEPTIONS AND SOCIAL LICENSE: PANEL DISCUSSION

## STATUS OF U.S. MARINE FISH

Tuesday, February 11 10:30 AM - 2:30 PM Room 301B

Chair: Megan Davis

- 10:30 Neil Sims, Lisa Vollbrecht, Helen Meigs, Keelee Martin, Joseph Nakoa**  
KAMPACHI FARMS – COLLABORATIVE OFFSHORE AQUACULTURE R&D AT THE NEXUS OF ECONOMIC OPPORTUNITY AND ECOLOGICAL IMPERATIVE
- 10:45 Paul Wills, Megan Davis, Susan Laramore**  
PARTNERSHIPS IN RESEARCH AT HARBOR BRANCH OCEANOGRAPHIC INSTITUTE
- 11:00 Michael Chambers, Elizabeth Fairchild**  
ADVANCING U.S. MARINE AQUACULTURE AT THE UNIVERSITY OF NEW HAMPSHIRE
- 11:15 Michael R. Denson, Aaron Watson, Tanya Darden, Fabio Casu, Jason Broach, Justin Yost, Erin Levesque**  
AQUACULTURE AT THE MARINE RESOURCES RESEARCH INSTITUTE-WADDELL MARICULTURE CENTER, SOUTH CAROLINA, USA
- 11:30 Kelly Lucas, Reginald Blaylock, Angelos Apeitos, Brian Cuevas**

THE THAD COCHRAN MARINE AQUACULTURE CENTER: INFRASTRUCTURE,  
RESEARCH, DEMONSTRATION AND PARTNERSHIP OPPORTUNITIES

- 11:45 Melissa Malmstedt**, Stephen Eddy, Chris Davis  
BUSINESS INCUBATION IN MAINE FOR MARINE FINFISH AQUACULTURE: 20  
YEARS OF IMPROVEMENT AND LESSONS LEARNED
- 12:00 Yonathan Zohar**  
THE INSTITUTE OF MARINE AND ENVIRONMENTAL TECHNOLOGY (IMET)  
– UNIQUE MARINE AQUACULTURE PROGRAMS AND OPPORTUNITIES FOR  
COLLABORATIONS
- 12:15 Caird Rexroad**  
USDA RESEARCH SUPPORT FOR MARINE FINFISH AQUACULTURE
- 12:30 LUNCH**
- 1:30 Scott Bannon**, Kevin Anson, Maxwell Westendorf  
ALABAMA MARINE RESOURCES CLAUDE PETEET MARICULTURE CENTER:  
INSTITUTION FOR  
RESEARCH, STOCK ENHANCEMENT AND PARTNERSHIPS
- 1:45 Mark Drawbridge**  
MARINE FINFISH AQUACULTURE RESOURCES IN SOUTHERN CALIFORNIA
- 2:00 Michael Rust**  
WHY WE NEED FINFISH AQUACULTURE AND NOAA'S RESOURCES FOR HELPING  
DEVELOP IT
- 2:15 Kevan L. Main**, Nicole R. Rhody, Matthew Resley, Michael J. Nystrom, Ron Hans,  
Ryan Schloesser  
MOTE AQUACULTURE RESEARCH PARK: MARINE FINFISH INFRASTRUCTURE,  
RESOURCES AND PARTNERSHIP OPPORTUNITIES
- 2:30 Daniel Benetti**, John Stieglitz, Jorge Suarez, Ronald Hoenig, Carlos Tudela,  
Zack Daugherty, Charles James McGuigan, Jia Geng, Shubham Mathur,  
Yole Buchalla, Julio Camperio  
OVERVIEW OF THE RESEARCH ACTIVITIES, ACADEMIC TRACK, AND  
TECHNOLOGICAL ACHIEVEMENTS OF THE UNIVERSITY OF MIAMI AQUACULTURE  
PROGRAM

# AQUATOOLS: SMART SITING AND ENVIRONMENTAL MANAGEMENT TOOLS FOR A GROWING AQUACULTURE INDUSTRY

Tuesday, February 11 10:30 AM - 4:30 PM Room 317B

Chairs: James Morris, Robert Jones

TUESDAY

- 10:30 Lisa Wickliffe**, CSS, Inc. under contract to NOAA National Ocean Service  
SAN DIEGO BAY SPATIAL AQUACULTURE OPPORTUNITY ANALYSIS
- 10:45 Brandon Jensen**, CSS, Inc. under contract to NOAA National Ocean Service  
COUPLING SPATIAL AQUACULTURE OPPORTUNITY ANALYSIS WITH HABITAT INTERACTIONS PREDICTIONS: A CASE STUDY FOR SAN DIEGO BAY
- 11:00 Julie Robinson**, The Nature Conservancy and University of New England  
COMMUNITY-BASED SEAWEED FARMING IN BELIZE
- 11:15 David Fredriksson**, United States Naval Academy  
THE POTENTIAL FOR DEVELOPING INSTRUMENTATION TO SENSE MARINE MAMMAL INTERACTIONS WITH AQUACULTURE GEAR
- 11:30 James Morris**, NOAA National Ocean Service  
USING VIRTUAL REALITY SIMULATORS FOR ASSESSING ENTANGLEMENT RISK OF MARINE MAMMALS IN AQUACULTURE GEAR
- 11:45 Tyler Sclodnick**, Innovasea  
DELIVERING PRECISION FISH FARMING THROUGH LIVE DATA
- 12:00 Jennica Hawkins**, CSS, Inc. under contract to NOAA National Ocean Service  
OFFSHORE AQUACULTURE MONITORING GUIDANCE SERIES: PART 1
- 12:15 Gretchen Bath**, CSS, Inc. under contract to NOAA National Ocean Service  
OFFSHORE AQUACULTURE MONITORING GUIDANCE SERIES: PART 2
- 12:30 LUNCH**
- 1:30 Robert Jones**, The Nature Conservancy  
AQUACULTURE BY DESIGN: THE NATURE CONSERVANCY'S GLOBAL AQUACULTURE PROGRAM
- 1:45 Chuck Weirich**, NOAA Sea Grant  
A WEATHER AND WATER QUALITY ALERTING SYSTEM FRAMEWORK FOR SHELLFISH AQUACULTURE
- 2:00 Andy Lacatell**, The Nature Conservancy  
OYSTER AQUACULTURE IN CHESAPEAKE BAY: ENTREPRENEURS AND ECOSYSTEM BENEFITS
- 2:15 Matt Parker**, University of Maryland Extension  
TOOLS FOR NUTRIENT MANAGEMENT THROUGH SHELLFISH AQUACULTURE
- 2:30 Seth Theuerkauf**, The Nature Conservancy  
PALAUAN AQUACULTURE: SPATIAL ANALYSIS INFORMS SITING, DEVELOPMENT, AND MANAGEMENT IN A SMALL ISLAND DEVELOPING STATE

- 2:45 Philip Browning**, SmartOysters  
SHELLFISH NATURAL CAPITAL ACCOUNTING ON BATESMANS BAY, AUSTRALIA:  
MEASURING AND PROMOTING ECOSYSTEM SERVICES
- 3:00 Rodney Guajardo**, CSS, Inc. under contract to NOAA National Ocean Service  
A WATER-BODY SCALE AQUACULTURE SITING ANALYSIS FOR SHELLFISH  
AQUACULTURE: THE BOGUE SOUND NC STUDY
- 3:15 Peter Limbu**, The Nature Conservancy  
SUSTAINABLE CAGE AQUACULTURE DEVELOPMENT ON LAKE TANGANYIKA –  
BUILDING CAPACITY FOR TANZANIAN AQUACULTURE MANAGEMENT, SITING  
AND MONITORING
- 3:30 Ken Riley**, NOAA National Ocean Service  
AQUACULTURE DISASTER AND RESPONSE TOOLKIT
- 3:45 Jonathan van Senten**, Virginia Tech  
NEW ENTERPRISE BUDGETS FOR US AQUACULTURE, AND HOW TO USE THEM
- 4:00 Jonathan Jossart**, CSS, Inc. under contract to NOAA National Ocean Service  
DOES GRID CELL SHAPE MATTER WHEN PERFORMING SUITABILITY ANALYSES  
FOR SITING AQUACULTURE?
- 4:15 Barry King**, CSS, Inc. under contract to NOAA National Ocean Service  
USE OF DEPOMOD TO MODEL BENTHIC DEPOSITION OF THE FIRST OFFSHORE  
AQUACULTURE FARM IN THE U.S.
- 4:30 Troy Rezek**, CSS, Inc. under contract to NOAA National Ocean Service  
PARTICLE DEPOSITION MODELING: AN IMPROVEMENT USING FLUME-BASED  
OBSERVATIONS FOR RED DRUM
- 4:45 Julio Camperio**, The Nature Conservancy and University of Miami  
TESTING PERFORMANCE OF FISH FREE RABBITFISH FEEDS IN PALAU

## CORAL RESTORATION

Tuesday, February 11 1:30 PM - 2:30 PM Room 308B

Chair: Chery Woodley

- 1:30 David A. Gulko**, Norton T. Chan, Chelsea S. Wolke, Christina R. Jayne,  
Callie N. Stephenson, Taylor R. Engle, Honor N. Weber  
CORAL RESTORATION IN HAWAII: LAND-BASED CORAL NURSERIES FOR  
SLOW-GROWING MASSIVE CORALS
- 1:45 Wesley Dukes**, David Cohen  
SEA URCHIN BIOCONTROL OF INVASIVE MACROALGAE: AQUACULTURE  
INNOVATION FOR SUCCESSFUL REEF RESTORATION

## FUNCTIONAL GENOMICS

Tuesday, February 11 1:30 PM - 2:30 PM Room 302

Chair: Cristian Gallardo

- 1:30 Jinzeng Yang**, Huirong Yang, Jun Xia, Yan Yang, Qing Wang, Huiong Zhao  
DNA VACCINE TARGETING TO MATURE MYOSTATIN INCREASE GROWTH  
PERFORMANCES IN ORANGE-SPOTTED GROUPER *Epinephelus coioides*
- 1:45 Thomas Welker**, Ken Overturf, Jason Abernathy, Ken Cain  
UNDERLYING MECHANISMS FOR SELECTED DISEASE RESISTANCE AND  
ENHANCED NON-SPECIFIC RESISTANCE IN RAINBOW TROUT
- 2:00 Xiaoli Ma**, Mei Shang, Max Bangs, Veronica Alston, Wenwen Wang, Shangjia Li,  
De Xing, Rhoda Mae Simora, Baofeng Su, Xu Wang, Anthony Moss, Yen Duong,  
Rex Dunham  
COMPARATIVE TRANSCRIPTOME ANALYSIS DURING THE SEVEN  
DEVELOPMENT STAGES OF CHANNEL CATFISH *Ictalurus punctatus* AND TRA  
CATFISH *Pangasianodon hypophthalmus* REVEALS NOVEL INSIGHTS FOR THE  
TERRESTRIAL ADAPTION

## REGIONAL SHELLFISH BIOSECURITY

Tuesday, February 11 1:30 PM - 4:30 PM Room 319

Chairs: Chris Eardley, Chris Langdon, Maria Haws

## FISH TALES (NOAA)

Tuesday, February 11 1:30 PM - 4:30 PM Room 307

Chair: Cliff Cosgrove

### MAKING THE PITCH: NOAA AQUACULTURE GRANT OPPORTUNITIES

- 1:30 Welcome, Introductions, & Agenda Review**  
**Nikola Garber**, Chair: Deputy Director, NOAA Sea Grant  
**Cliff Cosgrove**, Co-Chair: Saltonstall-Kennedy (S-K) Program Manager, NOAA  
Fisheries  
**Derek Orner**, Moderator: NMFS
- 1:40 OPENING REMARKS**  
**Dave O'Brien**, Director, NOAA Office of Aquaculture
- 1:50 NOAA AQUACULTURE GRANT OPPORTUNITIES PANEL**  
**Dan Namur**: NMFS, Financial Assistance Division Chief  
**Derek Orner**: NMFS Grant Program Manager  
**Nikola Garber**: Sea Grant (OAR)  
**Lisa Vollbrecht**: Research Manager, Kampachi Farms
- 2:45 BREAK**
- 3:00 GRANTS WRITING SEMINAR OVERVIEW**  
**Dan Namur**: Division Chief, NMFS Financial Assistance  
**Susan Olsen**: NMFS, Greater Atlantic Regional Fisheries Office, Grants Division Chief  
**Mark Rath**: Sea Grant
- 3:50 GRANT OPPORTUNITIES AND SEMINAR OVERVIEW – Q & A SESSION**  
**Dan Namur, Derek Orner, Nikola Garber, Lisa Vollbrecht**



## SHRIMP BREEDING & GENETICS

Tuesday, February 11 1:30 PM - 4:30 PM Room 315

Chair: Jim Wyban

- 1:30 Robins McIntosh**  
THE IMPORTANCE OF SHRIMP BREEDING IN EVOLVING THE MODERN SHRIMP INDUSTRY
- 2:00 Melony J. Sellars**  
PATHOGEN DETECTION AND RNAi ANTIVIRALS IN SHRIMP BREEDING
- 2:15 Robbert Blonk, Richard Towner, Alastair Hamilton**  
SHRIMP GENETICS NOW AND IN THE FUTURE
- 2:30 Shaun M. Moss**  
WHY ASIAN SHRIMP FARMERS GROW PACIFIC WHITE SHRIMP *Litopenaeus vannamei*: A REMINDER OF HAWAII'S RECENT PAST
- 2:45 Oscar Hennig, Marcela Salazar, Morten Rye**  
BENCHMARK GENETICS SPF *Penaeus vannamei* BREEDING PROGRAM DEVELOPING SPR POPULATION USING GENOMIC SELECTION
- 3:00 Robin Pearl**  
DEVELOPMENT OF HIGH VIGOR SHRIMP USING HIGH THROUGHPUT SHRIMP GENOTYPING
- 3:30 John Buchanan, Melissa Allen, Jason Stannard**  
GENOMIC SELECTION IN SHRIMP
- 3:45 Y. Ravi Kumar**  
SHRIMP BROODSTOCK NEEDS OF INDIA: HORSES FOR COURSES

## SALMON RAS

Tuesday, February 11 1:30 PM - 4:30 PM Room 311

Chair: Yoni Zohar

- 1:30 Yonathan Zohar**  
RECIRCULATING AQUACULTURE SALMON NETWORK (RAS-N): BUILDING CAPACITY OF ATLANTIC SALMON PRODUCTION IN THE U.S.
- 1:45 Brian Peterson, Gary Burr, Michael Pietrak**  
UPDATED PLAN TO IMPROVE ATLANTIC SALMON AT THE NATIONAL COLD WATER MARINE AQUACULTURE CENTER
- 2:00 John Davidson, Travis May, Curtis Crouse, Anna DiCocco, Thomas Waldrop, Steven Summerfelt, Christopher Good**  
RAS PRODUCTION OF MARKET-SIZED ATLANTIC SALMON *Salmo salar* AT THE FRESHWATER INSTITUTE: HISTORICAL PERFORMANCE OF VARIOUS COHORTS
- 2:15 Jennifer Fortier Ayrey, Jacob Bartlett**  
WHOLE OCEANS: LAND-BASED AQUACULTURE AND INDUSTRIAL REVITALIZATION

TUESDAY

- 2:30 James Flaherty**  
NAVIGATING OXYGEN SOURCING FOR AQUACULTURE – TECHNICAL AND ECONOMICS
- 2:45 Yonathan Zohar**, Kevin Sowers, Rayford Payne, Keiko Saito, Chris Tollini, John Stubblefield  
CONVERSION OF SOLID WASTE TO FUEL-GRADE BIOGAS FROM A LAND-BASED AQUACULTURE SYSTEM FOR ATLANTIC SALMON
- 3:00 Ten-Tsao Wong**, Yonathan Zohar  
INDUCED STERILITY TO BLOCK SALMON MATURATION
- 3:15 Gaston Lopez**  
IMPORTANCE OF FEED CONSIDERATION FOR RAS
- 3:30 John Davidson**, Curtis Crouse, Travis May, Anna DiCocco, Casey Grimm, Gregory Fischer, Steven Summerfelt, Christopher Good  
RESEARCH AND DEVELOPMENT OF STANDARD OPERATING PROCEDURES TO OPTIMIZE DEPURATION OF GEOSMIN FROM RAS-PRODUCED ATLANTIC SALMON  
*Salmo salar*
- 3:45 Jesse T. Trushenski**  
THERE IS NO SUCH THING AS ZERO RISK – UNDERSTANDING AND ADDRESSING FISH HEALTH THREATS IN RAS CULTURE OF SALMONIDS
- 4:00 William Keleher**  
MANAGING PATHOGEN RISKS IN RECIRCULATING AQUACULTURE SYSTEMS (RAS)
- 4:15 Gregory Fischer**, Kendall Holmes, Emma Wiermaa, Chris Hartleb  
RESEARCH AND DEVELOPMENT OF STANDARD OPERATING PROCEDURES TO CONTROL SAPROLEGNIASIS IN PRE AND POST SMOLT ATLANTIC SALMON  
*Salmo salar*
- 4:30 Kathleen Hartman**  
SALMON IMPORT/EXPORT – USDA CAHPS STANDARDS

## FISH NUTRITION – PROTEIN

Tuesday, February 11 1:30 PM - 4:45 PM Room 314

Chair: Ian Forester

- 1:30 Karolina Kwasek**, Luis Anzoátegui, Genciana Terova, Michal Wojno  
DOES DIETARY DIPEPTIDE CONFIGURATION MATTER IN FISH NUTRITION?
- 1:45 Julio Camperio**, Jorge Suarez, Daniel Benetti  
INSECT MEAL: A POTENTIAL ALTERNATIVE FOR AQUACULTURE FEEDS
- 2:00 Dennis McIntosh**, Joe Myers, Grant Blank  
CLAM PROCESSING COPRODUCTS AS AQUAFEED INGREDIENTS

- 2:15 Shawn Coyle**, Chelsea Walling, Waldemar Rossi, James Tidwell  
EFFECT OF DIETARY CARBOHYDRATE TYPE AND INCLUSION RATE ON GROWTH AND FEED EFFICIENCY IN LARGEMOUTH BASS *Micropterus salmoides*
- 2:30 Shawn Coyle**, Chelsea Walling, Waldemar Rossi, James Tidwell  
PERFORMANCE OF NILE TILAPIA *Oreochromis niloticus* FED PRACTICAL DIETS CONTAINING INCREASING LEVELS OF BREWERS GRAINS WITH OR WITHOUT AN ADDED ENZYME COMPLEX
- 2:45 Armando Garcia-Ortega**, Alyssa MacDonald, Rajesh Jha  
ALGAL MEALS FROM *Arthrospira platensis* AND *Schizochytrium limacinum* AS COMPLETE REPLACEMENT OF FISH MEAL, FISH OIL AND SOY PROTEIN CONCENTRATE IN FEEDS FOR TILAPIA
- 3:00 Shyam Narayan Labh**, Shubha Ratna Shakya  
EFFECTS OF NEPALI LAPSI *Choerospondias axillaris* (Roxb.) FRUITS EXTRACT ON GROWTH PERFORMANCE AND PROTEIN METABOLISM IN RAINBOW TROUT *Oncorhynchus mykiss*
- 3:15 Kimia Kajbaf**, Kenneth E. Overturf, Vikas Kumar  
INDIRECT CRITERIA TO SELECT THE RAINBOW TROUT LINES TO ENHANCE THE EFFICIENCY OF SOYBEAN MEAL UTILIZATION IN THEIR DIET
- 3:30 Jonas Miller**, Shuhei Tanaka, Hiroki Kihara, Arpad Zsok, Shinichi Yamada, Fumiaki Takakuwa, Keitaro Kato, Amal Biswas, Hideki Tanaka  
DEVELOPMENT OF A FISH MEAL REPLACEMENT DIET FOR JAPANESE WHITE TREVALLY *Pseudocaranx dentex* JUVENILES
- 3:45 Waldemar Rossi**, Kristy M. Allen, Habte-Michael Habte-Tsion  
PERFORMANCE OF LARGEMOUTH BASS *Micropterus salmoides* FED SOYBEAN MEAL-BASED DIETS SUPPLEMENTED WITH GLYCINE, PREBIOTIC, AND NUCLEOTIDES
- 4:00 Kala Mallik Meesala**, Waldemar Rossi  
APPLICABILITY OF MICROBIAL PHYTASE TO INCREASE PHOSPHORUS AVAILABILITY IN SOY-PROTEIN-BASED DIETS FOR LARGEMOUTH BASS *Micropterus salmoides*
- 4:15 Julio Camperio**, Frederick Barrows, Robert Jones  
TESTING PERFORMANCE OF FISHMEAL FREE RABBITISH *Siganus lineatus* FEED IN PALAU
- 4:30 Noor Khan**, Ayesha Qadeer, Mahroze Fatima  
DIETARY TAURINE SUPPLEMENTATION IMPROVES GROWTH, BODY COMPOSITION AND ANTI-OXIDANT ENZYME ACTIVITIES OF GRASS CARP *Ctenopharyngodon idella*
- 4:45 Ayofe Mutalib Hamed**, Fatai G. Owodeinde, Richardson G. Ajepe, Rukayat A. Akintunde  
COMPARATIVE NUTRITIONAL COMPOSITION (PROXIMATE, MINERAL AND AMINO ACID) OF *Chrysichthys nigrodigitatus* AND *Clarias gariepinus* CONSUMED IN OJO AREA OF LAGOS STATE, NIGERIA

## AQUATIC ANIMAL HEALTH

Tuesday, February 11 3:15 PM - 5:00 PM Room 301B

Chairs: Benjamin Beck, Tim Bruce

- 3:00 Ayofe Mutalib Hammed**, Folalu Awe  
HISTOLOGICAL AND HAEMATOLOGICAL PARAMETERS OF *Claria gariepinus* (BURCHELL, 1822) SUB ADULT INOCULATED WITH *Staphylococcus aureus* AND TREATED WITH NEEM LEAF *Azadirachta indica* EXTRACT
- 3:15 Brian Shepherd**, Hao Ma, Guangtu Gao, Yniv Palti, Mark McBride, Nicole Thunes, Miles Lange, Douglas Leaman, Malathi Krishnamurthy, Gregory Wiens  
CHARACTERIZATION OF NK-LYSIN ANTIMICROBIAL PROTEIN GENES, AND THEIR ACTIVITIES, IN RAINBOW TROUT
- 3:30 Jie (Jessie) Ma**, Timothy Bruce, Luke Oliver, Kenneth Cain  
CO-INFECTION OF RAINBOW TROUT *Oncorhynchus mykiss* WITH INFECTIOUS HEMATOPOIETIC NECROSIS VIRUS AND *Flavobacterium psychrophilum*
- 3:45 Timothy J. Bruce**, Luke P. Oliver, Jie Ma, Brian C. Small, Ronald W. Hardy, Michael L. Brown, Steven R. Craig, Kenneth D. Cain  
GROWTH AND IMMUNE RESPONSES OF CULTURED BURBOT *Lota lota maculosa* FED VARIED INCLUSIONS OF SOY PROTEIN SOURCES
- 4:00 Timothy J. Bruce**, Jie Ma, Christopher Knupp, Thomas P. Loch, Kenneth D. Cain  
CROSS-PROTECTION OF A LIVE-ATTENUATED COLDWATER DISEASE IMMERSION VACCINE AGAINST NOVEL *Flavobacterium* spp. AND *Chryseobacterium* spp.
- 4:15 Nilima Renukdas**, Anita M. Kelly, Mathew McCoy, Larry Dorman  
ON-SITE COLUMNARIS IDENTIFICATION
- 4:30 Benjamin Beck**, Craig Shoemaker, Mediha Aksoy, Troy Bader, Eric Peatman  
MECHANISMS GOVERNING HOST SUSCEPTIBILITY TO VIRULENT *Aeromonas hydrophila* INFECTIONS OF CHANNEL CATFISH *Ictalurus punctatus*

## EPIGENETICS

Tuesday, February 11 2:45 PM - 4:30 PM Room 302

Chair: Steven Roberts

- 2:45 Sam Patula**, Michal Wojno, Frank Oliaro, Chrissy Cabay, Karolina Kwasek  
THE EFFECT OF NUTRITIONAL PROGRAMMING ON GUT MICROBIOME IN ZEBRAFISH *Danio rerio*
- 3:00 Rene Manriquez**, Juan Carcamo, Barbara Catalan  
~~CANCELED~~ THE IMPACT OF NUTRIEPIGENOMICS IN FISH IMMUNE RESPONSE
- 3:15 Giovanni S. Molinari**, Michal Wojno, Karolina Kwasek  
NUTRITIONAL PROGRAMMING WITH PLANT PROTEIN USING LIVE FOOD AS A VECTOR IMPROVES DIETARY PLANT PROTEIN UTILIZATION IN LARGEMOUTH BASS *Micropterus salmoides*

- 3:30 Laura Spencer**, Katherine Silliman, Steven Roberts  
INFLUENCE OF GENOTYPE ON DNA METHYLATION AMONG OLYMPIA OYSTER POPULATIONS
- 3:45 Mackenzie Gavery**, Krista Nichols, Christopher Tatara, Giles Goetz, Jon Dickey, Donald Van Doornik, Barry Berejikian, Penny Swanson  
TEMPORAL DYNAMIC OF DNA METHYLATION PATTERNS IN RESPONSE TO HATCHERY-REARING IN STEELHEAD *Oncorhynchus mykiss*
- 4:00 Erik Burgerhout**, Tara Kelly, Nicholas Robinson, Helge Tveiten, Erica Leder, Hanne Johnsen  
DIFFERENTIAL REGULATION OF HYPOXIA RESPONSIVE GENES IN ATLANTIC SALMON SUBJECTED TO LOW OXYGEN STRESS DURING EARLY DEVELOPMENT

## SEA CUCUMBERS

Tuesday, February 11 2:45 PM - 4:30 PM Room 308B

Chair: Andy Suhrbier

- 2:45 Ryan Crim**, Stuart Ryan, Kendra Baird, Olivia Cattau, Isabel Platten, Andy Suhrbier, Paul Williams  
GIANT RED SEA CUCUMBER *Parastichopus californicus* AQUACULTURE AS A TOOL FOR CONSERVATION
- 3:00 Christopher M. Pearce**, Angela C. Fortune, Thierry Chopin, Stephen F. Cross  
INTEGRATED MULTI-TROPHIC AQUACULTURE WITH THE CALIFORNIA SEA CUCUMBER *Parastichopus californicus* AND THE PACIFIC OYSTER *Crassostrea gigas*: INVESTIGATING CAGE DESIGN ELEMENTS FOR HOLDING JUVENILE SEA CUCUMBERS AND MAXIMIZING WASTE CAPTURE
- 3:15 Ana Pombo**, Eliana Venâncio, João Sousa, Ana C. Brito, Francisco Azevedo e Silva, Tomás Simões, Pedro M. Félix  
EFFECT OF DIFFERENT DIETS ON THE LARVAL DEVELOPMENT OF SEA CUCUMBER *Holothuria arguinensis*
- 3:30 Susan Laramore**, Tonia Henning, Zachary Nilles, Richard Baptiste, Paul Wills  
IMPACT OF DIETS AND WATER SOURCE ON PRODUCTION OF THE SEA CUCUMBER *Holothuria floridana*
- 3:45 Natalie Lowell**, Brent Vadopalas, Andy Suhrbier, Lorenz Hauser  
POPULATION GENETICS OF *Apostichopus californicus* ALONG THE PACIFIC COAST OF NORTH AMERICA
- 4:00 Andrew Suhrbier**, Ryan Crim, Isabel Platten, Katie Houle, Ralph Elston, Dan Cheney  
SEA CUCUMBER *Apostichopus californicus* CULTURE AND ENHANCEMENT OPPORTUNITIES IN WASHINGTON STATE

# WEDNESDAY, February 12

## AQUACULTURE 101

Wednesday, February 12 8:30 AM - 2:15 PM Room 308B

Chair: Kathleen Hartman

- 8:30 Bill Keleher**, Kennebec River Biosciences  
THE ROLE OF VACCINES IN AQUACULTURE
- 9:00 Joe McElwee**, Ideal Fish  
RAS FARMING...THE GOOD, THE BAD & THE UGLY!
- 9:30 Dan Mosier**, KS Dept of Wildlife, Parks & Tourism  
PUBLIC VS. PRIVATE AQUACULTURE PERSPECTIVES
- 10:00 Kenneth Cain**, University of Idaho  
IDAHO FRESHWATER COD: DEVELOPING BURBOT AQUACULTURE FROM A CONSERVATION FOCUS TO A POTENTIAL HIGH VALUE COMMERCIAL PRODUCT!
- 10:30 BREAK**
- 11:00 Christine Ellis**, USDA APHIS VS  
RAPID RISK ASSESSMENTS FOR AQUACULTURE: THE PATHOGENS, THE PATHWAYS AND THE PURPOSE
- 11:30 Roy Yanong**, UF Tropical Aquaculture Laboratory  
HOW TO WORK WITH VETERINARIANS: A NOT-SO-SECRET SECRET TO ENHANCING AQUACULTURE'S BOTTOM LINE
- 12:00 Tim Kniffen**, Merck Animal Health  
AQUA CARE365®: An Educational Resource to Advance Fish Care & Welfare

## HAWAII OCEAN SCIENCE AND TECHNOLOGY PARK (HOST) AQUACULTURE SUCCESS STORIES

Wednesday, February 12 8:30 AM - 10:00 AM Room 301A

Chairs: Gregory Barbour, Laurence Sombardier

- 8:30 Gregory Barbour**, Executive Director, NELHA  
Overview of NELHA's HOST Park
- 9:00 Neil Sims, Co-Founder**, CEO, Kampachi Farms LLC  
Success Story 1: Kampachi Farms LLC
- 9:15 Charley O'Kelly**, Director of Applied Research, Cyanotech Corporation  
Success Story 2: Cyanotech Corporation
- 9:30 Walter Coppens**, CEO, Moana Technologies, LLC  
Success Story 3: Moana Technologies, LLC
- 9:45 Jacob Conroy, CEO**, Fat Fish Farms/Kanaloa Octopus Farm Success Story 4:  
Kanaloa Octopus Farm

## MARINE DEBRIS & MICROPLASTICS

Wednesday, February 12 8:30 AM - 10:15 AM Room 303

Chair: Jen Lynch

- 8:30 Sarah-Jeanne Royer**, Lars van Garderen, Eric Gilman, Laurent Lebreton  
THE MONITORING OF ABANDONED, LOST AND DISCARDED FISHING GEAR THROUGH CITIZEN SCIENCE: A GLOBAL APPROACH
- 8:45 Melissa R. Jung**, Kayla C. Brignac, Kerriane O'Malley, Sheena Weller, Cheryl King, Sarah-Jeanne Royer, Megan R. Lamson, Jens Currie, Jennifer M. Lynch  
MEASURING AMOUNTS, SIZES, AND TYPES OF AQUACULTURE GEAR IN MARINE DEBRIS IN HAWAII
- 9:00 Sara Grant**  
SHELLFISH GROWERS TACKLE MARINE DEBRIS AND EXPLORE RECYCLING OPTIONS IN SOUTH PUGET SOUND
- 9:15 Charlie M. Culpepper III**  
AQUACULTURE GEAR MANAGEMENT IN FLORIDA
- 9:30 Saltuk Bugrahan Ceyhun**, Teoman Özgür Sökmen  
THE NEW THREAT FOR AQUATIC LIFE: NANO PLASTICS
- 9:45 Nicholas Romano**, Amit Sinha, Hayden Fischer, Nathan Egnew  
OXIDATIVE STRESS AND HISTOPATHOLOGICAL CHANGES IN COMMON GOLDFISH WHEN EXPOSED TO MICROPLASTICS
- 10:00 Nicholas Romano**, S.M. Nurul Amin, Naga Kanmani  
TRANSLOCATION OF INGESTED MICROPLASTICS IN TILAPIA AND POSSIBILITY OF HABITUATING TO SUCH INGESTION

## SALMONIDS

Wednesday, February 12 8:30 AM - 11:30 AM Room 317A

Chair: Gary Burr

- 8:30 Heather A. Lombardi**  
FDA'S REGULATION OF INTENTIONAL GENOMIC ALTERATIONS IN AQUACULTURE
- 8:45 Andrew Wargo**, Juliette Doumayrou, Darbi Jones  
PREVENTION EFFICACY OF VACCINES AGAINST THE TRANSMISSION AND VIRULENCE EVOLUTION OF INFECTIOUS HEMATOPOIETIC NECROSIS VIRUS IN RAINBOW TROUT *Oncorhynchus mykiss*
- 9:00 Mirko Bögnner**, Henner Neuhaus, Andreas Zordel, Sandra Bisenius, Gregor Jähne, Kai Lorkowski, Amirhossein Karamyar, Edda Bartelt, Matthew J. Slater  
RAINBOW TROUT *Oncorhynchus mykiss* TRANSPORTATION – EFFECTS OF HANDLING PROCEDURES AND NEW TECHNOLOGICAL IMPROVEMENTS ON WATER QUALITY; STRESS MARKERS AND PRODUCT QUALITY
- 9:15 Daniel Schill**, Elizabeth Mamer, Malia Gallagher, Wayne Fowler, Kevin Kincaid, Bryan Grant  
AN EVALUATION OF SEX REVERSAL RECIPES FOR FEMINIZATION OF MALE LAKE TROUT *Salvelinus namaycush* AND FUTURE DEVELOPMENT OF A YY MALE BROODSTOCK

- 9:30 Telat Yanik**, Dilan OzmenOzgun, Gonca Alak, Arzu Ucar, Sinan Bilginer, Halise Inci Gul, Esat Mahmut Kocaman, Cem Yamali, Veysel Parlak, Muhammed Atamanalp, Ahmad Maslat  
EFFECTS OF A NOVEL BENZENESULFONAMIDE ON ANTIOXIDANT ENZYMES AND HEMATOLOGICAL PARAMETERS OF RAINBOW TROUT *Oncorhynchus mykiss*
- 9:45 Sarah Booth**, Karolina Kwasek, Sylvia Thoms  
DOES FISH DIET AFFECT CONSUMER DECISIONS? A NUTRITIONAL AND SENSORY STUDY OF FARM-RAISED TROUT
- 10:00 BREAK**
- 11:00 Raquel Tatiane Pereira**, Fernando J. Sutili, Maria García Suárez, Maria Angeles Rodriguez  
SULPHATED POLYSACCHARIDES EXTRACTED FROM SEAWEED ON SKIN-MUCUS IMMUNITY OF RAINBOW TROUT
- 11:15 Gary Burr**, Alberta Aryee, Michael Lomas  
USE OF MICROALGAE AS AN ASTAXANTHIN SOURCE IN ATLANTIC SALMON *Salmo salar* FEED

## AQUATIC ANIMAL HEALTH (CONTINUED)

Wednesday, February 12 8:30 AM - 12:30 PM Room 301B

Chairs: Benjamin Beck, Tim Bruce

- 8:30 Jason P. Evenhuis**  
VIRULENCE VARIATION OF *Flavobacterium columnare* IN RAINBOW TROUT EYED EGGS AND SAC FRY
- 8:45 Haitham H. Mohammed**, Nicole C. Thunes, Rachel A. Conrad, Mark J. McBride  
TARGETED MUTAGENESIS AS A RATIONAL APPROACH TO UNDERSTANDING AND CONTROLLING COLUMNARIS DISEASE
- 9:00 Kailash Bohara**, Grace Ramena  
ROLE OF CLCA GENE FAMILY MEMBERS IN FISH BACTERIAL DISEASES
- 9:15 Grace Ramena**, Kailash Bohara, Gnanender Sriramoju  
ROLE OF CHANNEL CATFISH CLCA IN FISH BACTERIAL DISEASES
- 9:30 Hugh Mitchell**  
THE PRIVATE AQUACULTURE FISH HEALTH POLICY & REGULATION CRISIS IN THE U.S.
- 9:45 Mark Braceland**  
THE USE OF NON-DESTRUCTIVE HEALTH AND PATHOGEN SCREENING TECHNOLOGIES IN ATLANTIC SALMON *Salmo salar* L.
- 10:00 BREAK**
- 11:00 Josip Barisic**, Brian Quinn  
CLINICAL CHEMISTRY: A HOLISTIC DIAGNOSTIC APPROACH TO FISH HEALTH IN AQUACULTURE



- 11:15 Shahid Mahboob**, Khalid Al-Ghanim  
FISH CHOLINESTERASES AS BIOMARKERS OF SUBLETHAL EFFECTS OF ORGANOPHOSPHORUS AND CARBAMATES IN TISSUES OF *Cyprinus carpio*
- 11:30 Dilan Ozmen Ozgun**, Gonca Alak, Arzu Ucar, Sinan Bilginer, Halise Inci Gul,  
**CANCELED** Esat Mahmut Kocaman, Cem Yamali, Veysel Parlak, Muhammed Atamanalp, Ahmad Maslat, Telat Yanik  
THE NEUROTOXICITY OF SYNTHESIZED A PYRAZOLINE DERIVATIVE B8 COMPOUND ON RAINBOW TROUT ALEVINS *Oncorhynchus mykiss*
- 11:45 David Kuhn**, Ian S. Hines, Tim J. Bushman, Roderick V. Jensen, Ann M. Stevens  
INFLUENCE OF HOST GENETICS ON THE MICROBIOME OF TILAPIA
- 12:00 Mo Peng**, Gang Yang, Yao Deng, Shanshan Wu  
EFFECTS OF HIGH OXIDIZED FISH OIL ON GROWTH AND LIPID METABOLISM OF RICE FIELD EEL *Monopterus albus*

## POLICY – BLUE ECONOMY

Wednesday, February 12 8:30 AM - 10:13 AM 10

Chair: Chris McGann

- 8:30 George B. Brooks, Jr.**, Myrtha Wroy, Alciades Velasquez  
NATIONAL MINORITY BUSINESS ENTERPRISE AQUACULTURE PROGRAM: YEAR ONE RESULTS
- 8:45 Phoebe Racine**, Halley Froehlich, Darcy Bradley, Steven Gaines, Annaclaire Marley  
REVISITING SEAWEED AQUACULTURE FOR POLLUTION REMEDIATION
- 9:00 Laura Hoberecht**, Julie Decker  
ADVANCING MARICULTURE IN ALASKA
- 9:15Carolynn Culver**, Caroline Pomeroy, Nadine Heck  
BEYOND MAPPING: CAPTURING THE COMPLEXITIES OF FISHERIES SPACE USE TO BETTER INTEGRATE AQUACULTURE WITH OTHER OCEAN USES
- 9:30 Chris McGann**, Laura Butler  
COMMUNICATIONS STRATEGIES FOR SUPPORTING STAKEHOLDERS AND BUILDING PUBLIC AWARENESS OF AQUACULTURE ISSUES, PRODUCTS AND VALUE
- 9:45 Junning Cai**  
**CANCELED** UNLEASH AQUACULTURE GROWTH POTENTIAL IN LATIN AMERICA AND THE CARIBBEAN

## SHRIMP HEALTH AND DISEASE

Wednesday, February 12 8:30 AM - 2:15 PM Room 315

Chair: Arun Dhar

- 8:30 Kathleen H. Hartman**  
APHIS RESPONSE TO EMERGING AQUATIC ANIMAL DISEASE DETECTIONS LIKE IHHNV
- 9:00 Elena Sineva**, Tatiana Vinogradova-Shah, Sean Flattery, Diana Ballesteros,  
**CANCELED** Nancy Mendoza, Suzan Laramore, Richard Sayre  
ENGINEERED QUORUM QUENCHING BACTERIA ATTENUATE EARLY MORTALITY SYNDROME IN *Litopenaeus vannamei* BY SUPPRESSING TOXIN PRODUCTION
- 9:30 Richard Carpenter**, Jo Ella Barnes, Jack K. Crockett, Sih Yang Sim, Loc H. Tran, Josh Ison, Chris Kitts, Addison Lawrence  
THE USE OF PROBIOTICS IN FEED AND POND WATER TO SUPPRESS THE GROWTH OR ACCUMULATION OF *Vibrio Parahaemolyticus* AND OTHER *Vibrio* SPECIES IN *Litopenaeus vannamei* SHRIMP
- 9:45 Timothy Sullivan**, Arun Dhar, Roberto Cruz-Flores, James Collins, Andrea Bodnar  
CRISPR-BASED DIAGNOSTICS FOR RAPID DETECTION OF WHITE SPOT SYNDROME VIRUS IN SHRIMP
- 10:00 BREAK**
- 11:00 Duy Hoa Nguyen**  
KEY CONSIDERATIONS IN FARM MANAGEMENT AND HEALTH NUTRIENTS FOR HEALTHIER SHRIMP
- 11:15 Luis Fernando Aranguren**, Faris Alghamdi, Yousef Alrehaili, Anwer Alazwari, Saif Algetham, Katrien Debelder, Joshua Lin, Hung Mai, Arun Dhar  
ASSESSING INFECTIVITY OF FECAL STRING OBTAINED FROM EHP INFECTED *Penaeus vannamei* SHRIMP AT DIFFERENT SALINITIES
- 11:30 Mark Braceland**, Jordan Poley, Marije Booman  
INVESTIGATIONS ON THE DIFFICULTIES ASSOCIATED WITH DISEASE MODELS IN WHITELEG SHRIMP *Litopenaeus vannamei*
- 11:45 Luis Fernando Aranguren**, Hung Mai, Joshua Lin, Linda Nunan, Arun Dhar  
ASSESSMENT OF TRANSMISSION RISK IN WSSV-INFECTED SHRIMP *Penaeus vannamei* UPON COOKING
- 12:00 Arun Dhar**, Roberto Cruz-Flores, Jorge Ramos, Michelle Garfias, Gregory Lyons  
ASSESSING GENETIC RELATEDNESS OF INFECTIOUS HYPODERMAL AND HAEMATOPOIETIC NECROSIS VIRUS (IHHNV) ISOLATES RECENTLY DETECTED IN THE U.S.
- 12:15 David Kuhn**, Zachary W. Taylor, David J. Drahos, Ann M. Stevens  
DIRECT-FED PROBIOTICS ENHANCES RESISTANCE TO A DEVASTATING BACTERIAL PATHOGEN (EMS-STRAIN OF *Vibrio parahaemolyticus*)
- 12:30 LUNCH**

WEDNESDAY

- 1:30 Ikuo Hirono**  
STUDIES ON DEVELOPMENT OF PREVENTION METHODS AGAINST SHRIMP INFECTIOUS DISEASE, AHPND
- 1:45 Lauren Ochoa, Arun Dhar, Roberto Cruz Flores**  
DETECTION AND GENOME RECONSTRUCTION OF TAURA SYNDROME VIRUS OF SHRIMP FROM DAVIDSON'S FIXED PARAFFIN EMBEDDED SHRIMP TISSUE
- 2:00 Ricardo Sanchez Diaz, Rosa Ocampo Ayala, Diana Herrera Patiño, Guadalupe T. Zavalla Padilla, Lucio Galaviz Silva, José C. Ibarra Gámez**  
DETECTION OF A PARASITIC MICROSPORIDIA ISOLATED FROM FARMED AND WILD SHRIMP IN NORTHWEST MEXICO

## CATFISH

Wednesday, February 12 8:30 AM - 3:00 PM Room 302

Chairs: Luke Roy, Nagaraj Chatakondi

- 8:30 James Creel, Terrill Hanson, Luke Roy, Steve Sammons**  
ECONOMIC COST OF "BIG FISH" ON THE ALABAMA CATFISH INDUSTRY
- 8:45 Jillian K. Malecki, Terrill R. Hanson, Covadonga R. Arias, Nhat Triet Truong**  
BIOECONOMICS OF *Flavobacterium columnare* VACCINE POND TRIALS FOR CHANNEL CATFISH *Ictalurus punctatus*
- 9:00 Ian Butts, Jaelen Myers, Nagaraj Chatakondi, Rex Dunham**  
IMPROVING HYBRID CATFISH PRODUCTION: IMPACTS OF PARENTAL EFFECTS AND GAMETE INTERACTIONS
- 9:15 Nagaraj G. Chatakondi**  
~~CANCELED~~ EVALUATION OF OvaLH TO INDUCE SPAWN CHANNEL CATFISH *Ictalurus punctatus* TO PRODUCE CHANNEL × BLUE HYBRID CATFISH IN HATCHERIES
- 9:30 Muyassar H. Abualreesh, Jeremy Gurbatow, Darshika Hettiarachchi, Veronica Alston, Victoria S. Hallas, Michael P. Coogan, Nour El. Hussein, Rex A. Dunham, Ian A.E. Butts**  
EFFECTS OF CRYOPROTECTANTS AND FREEZING RATES FOR PRESERVING SPERMATOGONIAL STEM CELLS OF BLUE CATFISH
- 9:45 Rhoda Mae Simora, Shangjia Li, Michael Coogan, Nour El Hussein, Wenwen Wang, Jeffery Terhune, Mark Liles, Rex Dunham**  
CATHELICIDIN ANTIMICROBIAL PEPTIDE ENHANCES PROTECTION OF CHANNEL AND CHANNEL-BLUE HYBRID CATFISH AGAINST *Aeromonas hydrophila* AND *Edwardsiella ictaluri* INFECTIONS
- 10:00 BREAK**
- 11:00 Shimaa Salem, Lay Nguyen, Tarek I. Mohamed, Ola Orma, D. Allen Davis**  
EFFICACY OF USING CRYSTALLINE AMINO ACIDS FOR REDUCTION OF INTACT PROTEIN IN CHANNEL CATFISH *Ictalurus punctatus* DIETS
- 11:15 Amit Yadav, Nathan Egnew, Amit Kumar Sinha, Nicholas Romano, Vikas Kumar**  
POTENTIAL APPLICATION OF DIETARY SUPPLEMENTATION OF VITAMIN C IN ENHANCING GROWTH AND MITIGATING IRON TOXICITY IN CATFISH

- 11:30 Rhoda Mae Simora**, Max Bangs, De Xing, Wenwen Wang, Xiaoli Ma, Baofeng Su, Rex Dunham  
TRANSGENE DELIVERY STRATEGIES TO INTEGRATE CATHELICIDIN GENE IN THE CHANNEL CATFISH GENOME BY CRISPR/CAS9 KNOCK-IN SYSTEM
- 11:45 De Xing**, Max Bangs, Rhoda Mae Simora, Wenwen Wang, Nour El Hussein, Xiaoli Ma, Baofeng Su, Shangjia Li, Michael Coogan, Chiachen Weng Chen, Yi Wang, Zhenkui Qin, Rex Dunham  
GENERATION OF KNOCK-IN TRANSGENIC CHANNEL CATFISH *Ictalurus punctatus* CARRYING ELONGASE GENE FROM MASU SALMON *Oncorhynchus masou* AND DESATURASE GENES FROM RABBITFISH *Siganus canaliculatus* USING CRISPR/CAS9, TOL2 TRANSPOSON SYSTEM AND DOUBLE ELECTROPORATION APPROACHES
- 12:00 Leticia Fantini**, Jesse Chappell  
2019 IN-POND RACEWAY SYSTEM PRODUCTION TRIALS GROWING STOCKER AND FOODSIZE HYBRID CATFISH PLUS TILAPIA
- 12:15 Brian Ott**, Craig Tucker, Les Torrans  
EFFECT OF EXTREME STOCKING DENSITIES ON HYBRID CATFISH PRODUCTION AND WATER QUALITY IN EARTHEN PONDS
- 12:30 LUNCH**
- 1:30 Casey Grimm**, Steven Lloyd, Jeanne Lea  
SENSORY AND ANALYTICAL DETERMINATION OF OFF-FLAVOR COMPOUNDS IN WATER AND FARM RAISED CATFISH
- 1:45 Ly Nguyen**, James Anderson, Frank Asche  
VIETNAMESE PANGASIUS: PRODUCTIVITY GROWTH AND TRADE BARRIERS
- 2:00 Michael Coogan**, Baofeng Su, Karim Khalil, Ahmed Elswad, Modh Golam Qadar Khan, Rex Dunham  
GENERATIONAL INHERITANCE, GROWTH AND DISEASE RESISTANCE OF MYOSTATIN GENE-EDITED CHANNEL CATFISH *Ictalurus punctuatus* AND CHANNEL CATFISH × BLUE CATFISH *Ictalurus furcatus* HYBRIDS

## ALTERNATIVE, EMERGING FEED INGREDIENTS

Wednesday, February 12 8:30 AM - 5:00 PM Room 314

Chair: Gibson Gaylord

- 8:30 Karl D. Shearer**  
ARE TERRESTRIAL PLANTS THE SOLUTION TO SUSTAINABLE AQUAFEEDS?
- 8:45 Brandi McKuinn**, Anne Kapuscinski, Pallab Sarker, Elliott Campbell  
AN ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY DECISION-SUPPORT TOOL FOR FISH-FREE AQUAFEED
- 9:00 Vincent Lugert**, Peter Charrie Janampa Sarmiento, Rodrigo Takata, Thiago Mendes de Freitas, Marcelo Menezes Pereira Britto, Lícious de Sá Freire, Guilherme Melgaço, Marcelo Maia Pereira  
CUTTING DEVELOPMENT TIME: MODELING THE EFFECTS OF NOVEL FEED FORMULATIONS ON THE GROWTH OF RAINBOW TROUT *Oncorhynchus mykiss*

- 9:15 Andrew Vickerson**  
POTENTIAL OF BLACK SOLDIER FLY *Hermetia illucens* AS A SUSTAINABLE ALTERNATIVE SOURCE OF PROTEIN FOR AQUACULTURE DIETS: SUPPLY, PERFORMANCE, AND FUNCTIONALITY
- 9:30 Mediha Yildirim-Aksoy**, Rashida Eljack, Cole Schrimsher, Benjamin Beck  
USE OF DIETARY FRASS FROM BLACK SOLDIER FLY LARVAE *Hermetia illucens* IN HYBRID TILAPIA (*Oreochromis niloticus* × *O. mozambique*) IMPROVES GROWTH AND BACTERIAL DISEASE RESISTANCE
- 9:45 Wendy Vandersteen**, Leigh Gaffney, Katarina Doughty, Brad Hicks, Ian Forster  
POTENTIAL OF BLACK SOLDIER FLY LARVAE *Hermetia illucens* FOR ARCTIC CHAR *Salvelinus alpinus* DIETS IN AQUACULTURE
- 10:00 BREAK**
- 11:00 Basilio Randazzo**, Matteo Zarantonello, Emilio Tibaldi, Gloriana Cardinaletti, Elisabetta Giorgini, Fernando Lunelli, Ike Olivotto  
A MULTIDISCIPLINARY APPROACH TO INVESTIGATE BIOLOGICAL EFFECTS ON INTESTINE PHYSIOLOGY AND APPETITE STIMULUS IN RAINBOW TROUT *Onchorhincus mykiss* FED DIETS WITH GRADED LEVELS OF INSECT MEAL AND POULTRY BY-PRODUCT MEAL
- 11:15 Ryan J. Kowalski**  
PREDICTING AQUACULTURE FEED INGREDIENTS SOLUBILITY AND QUALITY THROUGH PROCESS CONDITIONS OF A TWIN SCREW EXTRUDER
- 11:30 James Tyus**, Jorge Dias, Jeng-Jie Wang  
EFFECTS OF DIETARY SUPPLEMENTATION OF A NOVEL XYLANASE-DIRECT-FED MICROBIAL FEED ADDITIVE ON THE GROWTH PERFORMANCE, WHOLE BODY NUTRIENT RETENTION, AND NUTRIENT DIGESTIBILITY OF JUVENILE NILE TILAPIA *Oreochromis niloticus* FED PRACTICAL DIETS WITH REDUCED ENERGY DENSITY
- 11:45 Baba Usman Ibrahim**  
GROWTH PERFORMANCE OF THE AFRICAN CATFISH *Clarias gariepinus* FED VARYING LEVELS OF SOYBEAN
- 12:00 Tibiabin Benitez-Santana**, Silvia Torrecillas, Daniel Montero, Marisol Izquierdo  
REPLACEMENT OF FISHMEAL BY ANTARCTIC KRILL MEAL IN DIETS OF EUROPEAN SEA BASS *Dicentrarchus labrax*: EFFECTS ON GROWTH PERFORMANCE, FEED UTILIZATION AND LIVER METABOLISM
- 12:15 Kequan Chen**, Delbert M. Gatlin III  
EVALUATION OF ENHANCED TORULA YEAST WITH HYBRID STRIPED BASS *Morone chrysops* × *M. saxatilis*
- 12:30 LUNCH**
- 1:30 Femi Fawole**, Ayodeji Adeoye, Lateef Tiamiyu, Vikas Kumar  
DIETARY EVALUATION OF BETA-GLUCAN ON GROWTH AND HAEMATO-BIOCHEMICAL RESPONSE OF *Clarias gariepinus* FINGERLINGS
- 1:45 Stefanie Colombo**, Angelisa Osmond, Richard Bazinet, Michael Arts  
BIOTECH-BASED ALTERNATIVES TO FISH OIL IN RAINBOW TROUT *Oncorhynchus mykiss* DIETS

- 2:00 André Dumas**, Amanda Smith, Noppawan Chimsung, Stephanie Block, John Bowzer  
FATTY ACID DEPOSITION IN FILLETS OF POST-SMOLT ATLANTIC SALMON  
*Salmo salar* FED DIETS SUPPLEMENTED WITH DHA-RICH OIL EXTRACTED FROM  
*Schizochytrium* spp.
- 2:15 Diliara Iassonova**, Paula Arriagada  
PERFORMANCE EVALUATION OF PLANT BASED SOURCE OF LONG CHAIN  
OMEGA-3 FATTY ACIDS FOR GROWING AQUACULTURE INDUSTRY
- 2:30 Ronald Johnson**, Peter Nicklason, Bernadita Anulacion, Frank Sommers, David Marancik, Stephen Schreck, Houguo Xu, Mengqing Liang  
ADDITION OF LATE SEASON SUGAR KELP *Saccharina latissima* TO ALTERNATIVE  
PLANT BASED FEEDS FOR JUVENILE SABLEFISH *Anoplopoma fimbria*
- 2:45 Alison Goss Eng**, Devinn Lambert, Jamie Meadows  
U.S. DEPARTMENT OF ENERGY INVESTMENT IN ALGAE CULTIVATION AND  
BENEFITS AND OPPORTUNITIES FOR THE AQUACULTURE INDUSTRY
- 3:00 BREAK**
- 3:30 Femi Fawole**, Md. Sakhawat Hossain, Shyam N. Labh, Brian Small, Ken Overturf, Vikas Kumar  
INSECT (BLACK SOLDIER FLY) LARVAL MEAL AND OIL AS A SOURCE OF FEED  
INGREDIENT FOR RAINBOW TROUT *Oncorhynchus mykiss*
- 3:45 Hiroki Kihara**, Jonas Miller, Shinichi Yamada, Fumiaki Takakuwa, Yoshio Mukai, Amal Biswas, Hideki Tanaka  
DIETARY INFLUENCE OF TOTAL ANTIOXIDANT CAPACITY ON THE  
DISCOLORATION OF DARK MUSCLE IN YELLOWTAIL *Seriola quinqueradiata*
- 4:00 Amit Yadav**, Femi Fawole, Amit Sinha, Vikas Kumar  
DIETARY BENTONITE (A NATURAL AND LOW-COST CLAY) SUPPLEMENTATION  
MITIGATE THE IRON TOXICITY IN RAINBOW TROUT

## ECONOMICS AND MARKETS

Wednesday, February 12 8:30 AM - 5:00 PM Room 319

Chair: Frank Asche

- 8:30 Matt Parker**, Doug Lipton, Reginal Harrell  
OH SHUCK! WHAT HAPPENS IF EVERYTHING IS DEAD? EFFECTS OF  
CATASTROPHIC INVENTORY LOSS ON MARYLAND OYSTER-AQUACULTURE  
OPERATION NET PRESENT VALUE AND INTERNAL RATE OF RETURN
- 8:45 Babatunde Adeleke**, Gan Moodley, Simon Taylor, Deborah Robertson-Anderson  
QUANTIFIED SWOT ANALYSIS OF MAJOR AQUACULTURE SPECIES IN SOUTH  
AFRICA
- 9:00 Rune Nygaard**, Frank Asche  
THE EFFECTS OF REGULATION ON SALMON AQUACULTURE STOCKS
- 9:15 Ruth Beatriz Mezzalira Pincinato**, Atle Oglend, Martin D. Smith  
THE ECONOMIC VALUE OF CLEANERFISH

- 9:30 Vinícius Souza Ribeiro**, Manoel Xavier Pedroza Filho  
TILAPIA PRODUCTION IN BRAZIL: AN ANALYSIS OF EMERGING POLES
- 9:45 Taryn Garlock**, James Anderson, Frank Asche  
AQUACULTURE PRODUCTION AND FOOD SECURITY
- 10:00 BREAK**
- 11:00 Linda J. O'Dierno**, Michael Ciaramella, Paul Zajicek  
PERCEPTIONS OF FARMED SEAFOOD IN THE FOODSERVICE COMMUNITY
- 11:15 Andreea Cojocaru**, Audun Iversen, Ragnar Tveterås  
QUALITY DIFFERENTIATION IN THE ATLANTIC SALMON INDUSTRY: BARRIERS AND OPPORTUNITIES
- 11:30 Kamal Gosh**, Uttam Deb, Saroj Adhikari, Nabin Khanal, Madan Dey  
CONSUMERS' WILLINGNESS-TO-PAY FOR NEWLY DEVELOPED U.S. FARM-RAISED CONVENIENT CATFISH PRODUCTS: A CONSUMER BASE SURVEY STUDY
- 11:45 Uttam Deb**, Madan Dey, Saroj Adhikari, Nabin Khanal, Lin Xie, Peter Bechtel, John Bland, Casey Grimm  
CONSUMERS' ACCEPTANCE AND PREFERENCE FOR CONVENIENT CATFISH PRODUCTS: EVIDENCE FROM EXPERIMENTAL AUCTIONS
- 12:00 Bixuan Yang**, Frank Asche, James Anderson  
HOW DO SEAFOOD EXPORTERS RESPOND TO THE BORDER REJECTIONS?
- 12:15 Frank Asche**, Ursula Landazuri-Tveteras, Atle Oglend  
THE MARKET FOR SALMONIDS: SALMON TROUT AND IT'S RELATINSHIP TO ATLANTIC SALMON
- 12:30 LUNCH**
- 1:30 Matt Parker**, Doug Lipton, John DuBerg, Michael Rubino  
AN APPROACH TO DETERMINING ECONOMIC IMPACTS OF U.S. AQUACULTURE
- 1:45 Robert Botta**, Christa Court, Ed Camp, Frank Asche  
ECONOMIC CONTRIBUTIONS OF FLORIDA'S AQUACULTURE INDUSTRIES
- 2:00 Richard Bryant**, Siddhartha Dasgupta  
SALES OF LIVE CATFISH IN AFRICAN MARKETS
- 2:15 Siddhartha Dasgupta**, Richard Bryant, Boris Gomelsky, Noel Novelo  
BRINGING AQUACULTURE TO LIMITED-RESOURCE BEGINNING FARMERS: THE CASE OF TILAPIA
- 2:30 W. Christian Brayden**  
USING BUSINESS AND FINANCIAL PLANNING TO IMPROVE SHELLFISH FARM RISK MANAGEMENT IN MAINE – A CASE STUDY
- 2:45 Pratheesh O. Sudhakaran**  
ANALYSIS OF ECONOMIC PERFORMANCE OF THE QUAHOG TRANSPLANT PROGRAM IN RHODE ISLAND
- 3:00 BREAK**

- 3:30 Kwamena Quagraine**, Akua Akuffo  
TAPPING INTO LOCAL FOOD SYSTEMS FOR AQUACULTURE: WHAT SMALL PRODUCERS NEED TO KNOW
- 3:45 Jane Harrison**, Whitney Knollenberg, Emily Yeager, Carla Barbieri, Mitchell Carstens, Julie Leibach  
MARICULTURE TOURISM: CULTIVATING CONSUMER DEMAND AND COASTAL COMMUNITY SUPPLY
- 4:00 Donna Lanzetta**  
MANNA OCEAN FOUNDATION ORGANIC (TO THE CANADIAN STANDARDS) SEAFOOD CERTIFICATION PROGRAM
- 4:15 Read Porter**, Kathryn Kulaga  
IS IT LEGAL TO SELL SEAFOOD AS “ORGANIC” IN U.S. MARKETS?
- 4:30 Scott Houghtaling**  
NOAA FISHERIES LOAN PROGRAM AQUACULTURE / MARICULTURE PROJECTS
- 4:45 Kimberly Thompson**  
BRIDGING SCIENCE-BASED EDUCATION AND MARKETING TO SUPPORT RESPONSIBLE U.S. MARINE AQUACULTURE

## MACROALGAE

Wednesday, February 12 8:30 AM - 5:00 PM Room 318

Chairs: Charles Yarish, Simona Augyte

- 8:30 Charles Yarish**, Jang Kim, Scott Lindell, Michael Stekoll, Simona Augyte, Janet Kübler, David Bailey, Jean-Luc Jannink, Mao Huang, Kelly Robbins, Bren Smith, Loretta Roberson, Cliff Goudey, Dominic Manganelli, Hauke Kite-Powell, Erick Ask, Beau Perry  
FOOD, FEEDS, FERTILIZERS AND BIOFUELS – OPPORTUNITIES, CHALLENGES AND FUTURE DIRECTIONS OF OPEN WATER SEAWEED AQUACULTURE IN THE USA
- 8:45 Michael S. Stekoll**, Tamsen N. Peeples, Ann E. Raymond  
FROM FOOD TO FUEL: KELP MARICULTURE RESEARCH IN ALASKA
- 9:00 Steven Whitney**  
KELP FARMING IN ALASKA – EXPANSION, OPPORTUNITIES, AND CHALLENGES
- 9:15 Clifford A. Goudey**, Domenic Manganelli, David Bailey, Loretta Roberson, Scott Lindell  
OFFSHORE MACROALGAE FARM DESIGN – EXPERIENCE FROM ALASKA, NEW ENGLAND, FLORIDA, AND PUERTO RICO
- 9:30 Tobias Dewhurst**, David Fredriksson, Adam St. Gelais, Andrew Drach, Barry Costa-Pierce, Kathryn Johndrow  
FIELD VALIDATION FOR A HYDRODYNAMIC FINITE ELEMENT MODEL OF A MACROALGAE LONGLINE AT AN EXPOSED SITE



- 9:45 Adam St. Gelais**, David W. Fredriksson, Kathryn Johndrow, Tobias Dewhurst, Andrew Drach, Barry A. Costa-Pierce  
BRIDGING THE GAP BETWEEN A LARGE-SCALE FUTURE AND THE SMALL-SCALE NOW: A HOLISTIC DESIGN FRAMEWORK FOR SEAWEED FARMING PLATFORMS
- 10:00 BREAK**
- 11:00 Jang Kim**, Eun Kyoung Hwang, Han-Gil Choi, Young-Seok Han, Jung Suk Lee, Charles Yarish  
SEAWEED AQUACULTURE IN KOREA – FROM HISTORIC TRENDS TO CURRENT INNOVATION
- 11:15 Scott Lindell**, David Bailey, Simona Augyte, Schery Umanzor, Michael Marty-Rivera, Jean-Luc Jannink, Xiaowei Mao, Mao Huang, Kelly Robbins, Jeremy Schmutz, Kendall Barber, Cliff Goudey, Hauke Kite-Powell, Loretta Roberson, Charles Yarish  
SELECTIVELY IMPROVING STRAINS OF SUGAR KELP *Saccharina latissima* FOR FOOD AND FUEL
- 11:30 Simona Augyte**, Jean Luc Jannink, Xiaowei Mao, Kelly Robbins, Matt Hare, Schery Umanzor, Michael Marty-Rivera, Scott Lindell, David Bailey, Cliff Goudey, Charles Yarish  
POPULATION CONNECTIVITY OF SUGAR KELP *Saccharina* spp. IN THE NORTHWEST ATLANTIC FOR CULTIVATION AND BREEDING
- 11:45 Kathryn Johndrow**, Adam St. Gelais, David Fredriksson, Tobias Dewhurst, Andrew Drach, Barry Costa-Pierce  
MORPHOLOGICAL VARIABILITIES OF *Saccharina latissima* FARMED IN EXPOSED VS. PROTECTED SITES IN SACO BAY, MAINE
- 12:00 Susan Brawley**, Charlotte Quigley, Margaret Aydtlett, Ai Kitazumi, Benildo de los Reyes  
THERMAL TOLERANCE OF THE SEA VEGETABLE CROP *Alaria esculenta*
- 12:15 Gretchen Grebe**, Carrie J. Byron, Damian Brady, Alex Geisser, Kyle Brennan  
THE NITROGEN BIOREMEDIATION POTENTIAL OF *Saccharina latissima* CULTIVATION AND HARVEST IN THE GULF OF MAINE
- 12:30 LUNCH**
- 1:30 Michael H. Graham**  
SUSTAINABLE SEAWEED AQUACULTURE: WILL CALIFORNIA PLAY A ROLE?
- 1:45 Jessica Couture**, Simona Augyte, Darcy Bradley, Benjamin Halpern, Steven Gaines  
PREDICTING THE IMPACTS OF LARGE SCALE SEAWEED MARICULTURE ON WILD FISHERIES
- 2:00 Janet Kübler**, Douglas Bush  
CULTIVATION OF NOVEL SEAWEED SPECIES FOR CLIMATE CHANGE RESILIENT ABALONE FORAGE IN SOUTHERN CALIFORNIA
- 2:15 José A. Zertuche-González**, Stephanie Revilla-Lovano, Jose M. Sandoval-Gil, Laura K. Rangel-Mendoza, Alberto I. Galvez-Palazuelos, Jose M. Calderón-Guzmán  
OPTIMIZING SEAWEED BIOMASS PRODUCTIVITY IN POND CULTIVATION

- 2:30 Keelee Martin**, Alejandro Buschmann, Carolina Camus, Deniz Akin, Lisa Vollbrecht, Neil Sims  
LAND-BASED CULTURE TRIALS IDENTIFY CANDIDATE TROPICAL MACROALGAL SPECIES AND OPTIMAL CULTURE CONDITIONS FOR MARICULTURE IN HAWAII
- 2:45 Charles J. O'Kelly**  
HUSHED UP: PESTS, DISEASES, AND WEEDS IN ALGAL MASS CULTURE
- 3:00 BREAK**
- 3:30 Hannah Stefenoni**, Susanna Räisänen, Derek Wasson, Sergio Welchez, Camila Lage, Audino Melgar, Molly Young, Simona Augyte, Charles Yarish, Alexander Hristov  
EFFECTS OF THE MACROALGA *Asparagopsis taxiformis* ON ENTERIC METHANE EMISSION AND LACTATIONAL PERFORMANCE OF DAIRY COWS
- 3:45 Derek Wasson**, Hannah Stefenoni, Susanna Räisänen, Sergio Welchez, Camila Lage, Audino Melgar, Molly Young, Charles Yarish, Simona Augyte, Alexander Hristov  
INVESTIGATING THE EFFECTIVENESS OF SEAWEED SPECIES ON METHANE PRODUCTION AND RUMEN FERMENTATION *IN VITRO*
- 4:00 Balunkeswar Nayak**, Susan Holdt  
INNOVATIONS IN FOOD PROCESSING TECHNOLOGIES TO PRODUCE SAFE AND QUALITY SEAWEED PRODUCTS
- 4:15 Anthony Siccardi III**, John Carroll, Christopher Lee, Cristina Richardson, Emily Wells, Ryan Davis  
CONTINUED BIOMASS OPTIMIZATION OF ALGAL TURF SCRUBBERS FOR AQUACULTURE AND BIOFUEL APPLICATIONS
- 4:30 Brian Von Herzen**, Theresa Theuretzbacher  
MARINE PERMACULTURE TO REGENERATE OCEAN PRODUCTIVITY
- 4:45 Alexia Akbay**, Simona Augyte, Jonathan Simonds, Kirk Muller  
ENTREPRENEURIAL OPPORTUNITIES IN SEAWEED AQUACULTURE; THE CASE STUDY OF HAWAIIAN GROWN *Asparagopsis taxiformis* AT NELHA

## FISH TALES (NOAA) – CONTINUED

Wednesday, February 12 8:30 AM - 5:00 PM Room 307

Chair: Cliff Cosgrove

### SHELL FISH, FIN FISH, SELL FISH, EAT FISH: GRANT AWARDS FROM HARVEST TO TABLE

- 8:30 Welcome, Introductions, & Agenda Review**  
**Nikola Garber**, Chair: Deputy Director, NOAA Sea Grant  
**Cliff Cosgrove**, Co-Chair: Saltonstall-Kennedy (S-K) Program Manager, NOAA Fisheries  
**Derek Orner**, Moderator: NMFS
- 8:40 Megan Davis**, Raimundo Espinoza  
DEVELOPMENT OF A FISHERMEN OPERATED PILOT-SCALE QUEEN CONCH *Lobatus gigas* HATCHERY AND NURSERY FACILITY FOR SUSTAINABLE SEAFOOD SUPPLY AND RESTORATION OF WILD POPULATIONS IN PUERTO RICO

- 9:00 Stephen Philips**, Senior Program Manager, Pacific States Marine Fisheries Commission  
PACIFIC STATES MARINE FISHERIES COMMISSION AQUACULTURE PROJECTS
- 9:20 Neil Sims**, CEO Kampachi Farms  
MOVING TOWARDS SUSTAINABLE SEAFOOD PRODUCTION
- 9:40 Darren Okimoto, Hawaii Sea Grant**  
FACILITATING AQUACULTURE THROUGH HAWAII SEA GRANT
- 10:00 BREAK**
- 11:00 Keli'i Kotubetey**, *Paepae* o He'eia *Fishpond*  
HAWAIIAN NATIVE FISHPONDS
- 11:20 MOVING ALONG THE SUPPLY CHAIN: DISCUSSION/Q&A FORUM**  
Meghan Davis, Stephen Philips, Neil Sims, Darren Okimoto, Keli'i Kotubetey
- 12:30 LUNCH**
- PROMOTING AND MARKETING AQUACULTURE THROUGH GRANT AWARDS IN THE SEAFOOD INDUSTRY**
- 1:30 Welcome, Introductions, & Agenda Review**  
**Nikola Garber**, Chair: Deputy Director, NOAA Sea Grant  
**Cliff Cosgrove**, Co-Chair: Saltonstall-Kennedy (S-K) Program Manager, NOAA Fisheries  
**Derek Orner**, Moderator: NMFS
- 1:40 BRIDGING SCIENCE-BASED EDUCATION, OUTREACH, AND MARKETING TO SUPPORT RESPONSIBLE U.S. MARINE AQUACULTURE**  
**Oriana Poindexter**: Ocean Associates  
**Kim Thompson**: Program Manager, Seafood for the Future, Aquarium of the Pacific
- 2:10 WILD IDEAS**  
**Jacqueline Claudia**, CEO, Love the Wild
- 2:25 STAGING A MARKET COMEBACK: CROSSCUTTING SEAFOOD PROMOTION**  
**Jana Hennig**, Director, Positively Groundfish
- 2:40 PROMOTING U.S. SEAFOOD; AQUACULTURE**  
**Megan Davis**: Ph.D. Atlantic University, Harbor Branch Oceanographic Institute
- 3:00 BREAK**
- 3:30 PROMOTION AND MARKETING DISCUSSION**  
Oriana Poindexter, Kim Thompson, Jacqueline Claudia, Jana Hennig, Megan Davis, Others TBD

## ORNAMENTALS

Wednesday, February 12 8:30 AM - 5:00 PM Room 304

Chairs: Andrew Rossiter, Matt DiMaggio

- 8:30 Lauren Block**, Kelli Ann Kobayashi, Petra H. Lenz  
REARING OF LARVAL FISH IN COCULTURE WITH COPEPODS
- 8:45 Taylor Lipscomb**, Amy Wood, Shane Ramee, Matthew DiMaggio  
CHARACTERIZATION OF LARVAL DIGESTIVE SYSTEM ONTOGENY IN *Corydoras aeneus*
- 9:00 Anthony Nlewadim**, Okechukwu Alum-Udensi  
SOME EXOTIC FISH SPECIES IN NIGERIA AND THE RISKS TO BIODIVERSITY
- 9:15 Chatham Callan**  
YELLOW TANG *Zebrosoma flavescens* AQUACULTURE IN HAWAII; AN UPDATE ON COMMERCIALIZATION PROGRESS AT OCEANIC INSTITUTE
- 9:30 Matthew DiMaggio**, Taylor Lipscomb, Amy Wood, Quenton Tuckett, Shane Ramee, Joshua Patterson, Craig Watson  
DEVELOPMENT OF AQUACULTURE PROTOCOLS FOR BLACKBANDED SUNFISH *Enneacanthus chaetodon* AND FLAGFIN SHINER *Pteronotropis signipinnis*, TWO FLORIDA NATIVE ORNAMENTAL SPECIES
- 10:00 BREAK**
- 11:00 Taylor Lipscomb**, Amy Wood, Shane Ramee, Matthew DiMaggio  
HISTOLOGICAL, HISTOCHEMICAL AND BIOCHEMICAL CHARACTERIZATION OF LARVAL DIGESTIVE SYSTEM ONTOGENY IN TWO CHARACID SPECIES TO INFORM WEANING PROTOCOLS
- 11:15 Grace Sowaske**, Casey Murray, Sarah Hutchins, Taylor Lipscomb, Matthew DiMaggio  
EFFECTS OF MICROALGAE DENSITY, PREY DENSITY AND POTENTIAL FEED ATTRACTANTS ON SURVIVAL AND FEEDING INCIDENCE FOR PACIFIC BLUE TANG *Paracanthurus hepatus* AND MELANURUS WRASSE *Halichoeres melanurus*
- 11:30 Monika Schmuck**, Barbara Bailey  
THE DELICATE BALANCE OF AQUACULTURE AT A PUBLIC AQUARIUM
- 11:45 Konrad Dabrowski**, Kevin Fisher, Mackenzie Miller, Thomas Delomas, Alexander Kramer  
REPRODUCTION, DEVELOPMENT, GROWTH AND EFFECT OF STEROID MASCULINIZATION IN TRIHYBRID CICHLID ON POSSIBLE RESTORATION OF MALE FERTILITY UPSTREAM OF GENETIC SEX DIFFERENTIATION
- 12:00 Richard Masse**, Sydney Gamiao, Marcellus Thomas, Katie Stasser, Maya Munstermann, Scott Hardman, Tristan Sarda, Isabella Sanseverino, Maria Haws  
OBSERVATIONS OF HAWAIIAN FLAME WRASSE *Cirrhilabrus jordani* REPRODUCTIVE BEHAVIOR

WEDNESDAY

- 12:15 Shane Ramee**, Taylor Lipscomb, Amy Wood, Craig Watson, Matthew DiMaggio  
THE EFFECT OF DIETARY 17 $\alpha$ -METHYLTESTOSTERONE ADMINISTRATION ON SECONDARY SEX COLORATION IN ADULT FEMALE ROSY BARBS AND DWARF GOURAMIS
- 1:30 Elizabeth Groover**, Catham Callan, Renee Touse, Katie Hiew, Andrew Corley, Spencer Davis, Erin Pereira  
PLAN FOR ADDRESSING EARLY BOTTLENECKS IN *Zebrasoma flavescens* LARVAL SURVIVAL
- 1:45 Jose Reyes-Tomassini**, Rosa Kapparos, Megan Kidwell, Donna Snellgrove, Lewis Eaton  
A DIET ENRICHED WITH TRYPTOPHAN CAN SUPPRESS POST-SHIPMENT STRESS IN *Amphiprion ocellaris*
- 2:00 Beth Silvy**, Fred Shopnitz, Cortney Ohs, Angela Collins, Matt DiMaggio, Josh Patterson  
HOGFISH *Lachnolaimus maximus* BROODSTOCK HUSBANDRY, HAREM FORMATION, VOLITIONAL SPAWNING, AND LARVAL REARING

## A NEW GENERATION OF AQUACULTURE ENTREPRENEURS

Wednesday Feb 12, 11-12:30 room 301a

Chair: Carsten Krome

- 11:00 Carsten Krome**, Hatch Blue  
EARLY-STAGE VENTURE CAPITAL IN AQUACULTURE
- 11:15 Aryo Wiryawan**  
DIGITAL TRANSFORMATION IN INDONESIAN SHRIMP FARMING
- 11:30 Alexia Akbay**  
HOW SEAWEED COULD SHRINK LIVESTOCK'S GLOBAL HOOFPRIENT
- 11:45 Heidi Kuehnle**  
REDEFINING THE COLOR OF SEAFOOD AND BEYOND
- 12:00 Suzan Shahrestani**  
SHEDDING LIGHT (AND SOUND) ON SHRIMP IN AQUACULTURE
- 12:15 Stephen Gunther**  
USING DIGITAL TOOLS TO IMPROVE ANIMAL PERFORMANCE AND LINK PERFORMANCE OF FEED IN AQUACULTURE
- 12:45 Closing Remarks & Questions**

## AQUACULTURE IN A RESOURCE SCARCE WORLD

Wednesday, February 12 11:00 AM - 3:00 PM Room 303

Chair: Merrielle Macleod

- 11:00 Dane H. Klinger**, Garrett Goto, John N. Kittinger  
CASTING A WIDER NET: A JURISDICTIONAL APPROACH TO AQUACULTURE IMPROVEMENT PROGRAMS
- 11:15 Robert P. Davis**, Claude E. Boyd  
CAN WE SAVE LAND THROUGH PRODUCTION INTENSITY IN AQUACULTURE? A META-ANALYTIC APPROACH WITH SHRIMP FARMS
- 11:30 Blake Harris**  
ACCOUNTABILITY FOR AQUACULTURE OPERATIONS IN A RESOURCE SCARCE WORLD: THE ROLE OF ELECTRONIC TRACEABILITY
- 11:45 Matthew Recsetar**, Kevin Fitzsimmons, Joel Cuello  
USE OF A RECIRCULATING HYDROPONIC BIOREACTOR FOR CLEANING CONTAMINATED WATER FOR USE IN AQUACULTURE
- 12:00 Kimberly Darville**, Austin Stankus, Yvette DieiOuadi, Nathan Robinson, Carlos Fuentesvilla, Daniel Benetti  
AN AQUACULTURE DEVELOPMENT FUND IN THE CARIBBEAN – A FAO/UM/CEI INITIATIVE
- 12:15 Joseph Nakoa III**, Helen Meigs, Dale J. Sarver, Neil A. Sims, Lisa V. Vollbrecht  
THE POTENTIAL FOR CULTURE OF KYPHOSIDS AND OTHER HERBIVOROUS MARINE FINFISH
- 12:30 LUNCH**
- 1:30 Arturo González W.**  
IMPROVERS PROGRAM FOR ECUADORIAN SHRIMP INDUSTRY TO PROMOTE A BETTER USE OF PRODUCTION RESOURCES AND A PATHWAY TO SUSTAINABLE PRACTICES
- 1:45 J. Ronald Eastman**, James Toledano, Stefano Crema  
SATELLITE MAPPING OF THE DEVELOPMENT OF SHRIMP AQUACULTURE, AND ITS IMPACTS ON MANGROVES AND OTHER COASTAL WETLANDS
- 2:00 Madeline Craig**, Robert Davis, Susanna Brian  
A CLOSER LOOK AT INTEGRATED MANGROVE AQUACULTURE

## OFFSHORE AQUACULTURE

Wednesday, February 12 11:00 AM - 5:00 PM Room 311

Chair: Neil Sims

- 11:00 Neil Anthony Sims**  
HAWAII – A HOTBED OF OFFSHORE AQUACULTURE INNOVATION
- 11:15 Daniel Benetti**  
ASSESSING CHALLENGES LIMITING TECHNOLOGICAL AND COMMERCIAL VIABILITY OF OFFSHORE AQUACULTURE IN THE AMERICAS

- 11:30 Barry A. Costa-Pierce**  
A SOCIAL-ECOLOGICAL APPROACH TO THE DEVELOPMENT OF INTEGRATED OFFSHORE AQUACULTURE/WIND ENERGY SYSTEMS
- 11:45 Dennis J. Peters**, Neil A. Sims, Lisa D. Vollbrecht  
THE VELELLA EPSILON PROJECT: PIONEERING OFFSHORE AQUACULTURE IN THE SOUTHEASTERN GULF OF MEXICO; PRELIMINARY PERCEPTIONS AND CONCERNS RESULTING FROM A STAKEHOLDER ENGAGEMENT WORKSHOP
- 12:00 Dennis Peters**, Neil A. Sims, Lisa D. Vollbrecht  
THE VELELLA EPSILON PROJECT: PIONEERING OFFSHORE AQUACULTURE IN THE SOUTHEASTERN GULF OF MEXICO; CHAPTER 2 – PROJECT PERMITTING, STAKEHOLDER OUTREACH, AND PUBLIC SCOPING
- 12:15 Diane Windham**, James Morris  
ASSESSING OFFSHORE AQUACULTURE GEAR AND POTENTIAL PROTECTED SPECIES INTERACTIONS IN SOUTHERN CALIFORNIA: A COLLABORATIVE WORKSHOP
- 12:30 LUNCH**
- 1:30 Don Kent**, Paula Sylvia  
RE-PURPOSING OFFSHORE ENERGY INFRASTRUCTURE FOR FOOD PRODUCTION THROUGH OPEN OCEAN AQUACULTURE
- 1:45 Charlie M. Culpepper III**, Portia S. Sapp  
STREAMLINING OFFSHORE FINFISH MARICULTURE SITING AND PERMITTING IN FLORIDA STATE WATERS OF THE GULF OF MEXICO
- 2:00 Lisa Vollbrecht**, Neil Sims, Greg Rocheleau, Keelee Martin, Florian Hillenhagen, Donald Lasser  
BLUE FIELDS: OPEN-OCEAN ARRAY FOR HIGH-YIELD MACROALGAE CULTURE
- 2:15 Tyler Sclodnick**  
5 WAYS SUBMERSIBLE PENS CAN INCREASE YOUR FARM VALUE
- 2:30 Langley Gace**  
CUTTING EDGE SUBMERGED FEEDING TECHNOLOGY IN OPEN OCEAN AQUACULTURE
- 2:45 Gangqin Tu**, Haifei Liu, Zhiming Ru  
NUMERICAL ANALYSIS OF THE FLOWS AROUND FISHING PLANE NETS USING THE LATTICE BOLTZMANN METHOD
- 3:00 BREAK**
- 3:30 Tim Janssen**, Chris Ayan, Oran Arms, Dave Clark  
AGILE OCEAN OBSERVATION SYSTEMS FOR AQUACULTURE
- 3:45 Tobias Dewhurst**, Scott Lindell  
ENGINEERING ANALYSIS OF A MUSSEL BACKBONE SYSTEM FOR AN OPEN-OCEAN SITE
- 4:00 Donald B. Kent**  
RECENT PERMITTING AND TECHNOLOGICAL DEVELOPMENTS MADE TOWARD ADVANCING OPEN OCEAN FARMS IN U.S. FEDERAL WATERS

# STATE AQUACULTURE LEASING PROGRAMS

Wednesday, February 12 11:00 AM - 5:00 PM Room 317B

Chairs: Charlie Culpepper, Jacob Boyd

This session will provide an overview of multiple state aquaculture leasing programs. Each state presenter will cover regulatory processes and permitting requirements for shellfish, seaweed and net pen facilities, with a focus on federal permitting, application processes and state hierarchical structures. Presenters from the U.S. Army Corps of Engineers and Environmental Protection Agency will review specific federal permitting requirements. The session will conclude with a panel discussion on pathways to overcome challenges and identify opportunities for aquaculture leasing programs.

**8:30 ALABAMA**

Rusty Grice, Mississippi-Alabama Sea Grant Consortium

**8:45 STATE OF VIRGINIA AQUACULTURE LEASING AND PERMITTING OVERVIEW**

Robert (Ben) Stagg

**9:00 THE NORTH CAROLINA SHELLFISH LEASE PROGRAM**

Michael Graven, Jacob Boyd

**9:15 DELAWARE**

Ed Hale, Delaware Sea Grant

**9:30 CALIFORNIA**

Randy Lovell – California Dept. of Fish and Wildlife

**9:45 MISSISSIPPI**

Jason Rider, Mississippi Dept. of Marine Resources

**10:00 BREAK**

**11:00 FLORIDA**

Portia Sapp, Florida Dept. of Agriculture and Consumer Services

**11:15 Army Corps Permitting for Aquaculture: Comparison of NWP 48, RGPs and PGPs**

Brianne McGuffie, U.S. Army Corps of Engineers

**11:45 NPDES Permitting for Net Pen Facilities**

Peter Kozelka, EPA Region 9

**12:15 LUNCH**

**13:30 Panel Discussion on State Aquaculture Leasing Programs**

WEDNESDAY



# STERILITY IN AQUACULTURE – ADVANCES, PERFORMANCE, IMPACTS

Wednesday, February 12 11:45AM – 5:00PM Room 317A

Moderators: Dave Straus and Jim Parsons

This session will provide various methodologies to induce sterility in aquatic species. Functional sterility is an important management and production tool for aquaculture in many areas of the United States. The session is focused on what works, doesn't work, and why.

- 11:45 Anita Kelly**, Auburn University  
INDUCTION OF STERILITY IN HYBRID CRAPPIE AND HYBRID CATFISH
- 12:15 Konrad Dabrowski**, The Ohio State University  
PRODUCTION OF THE GYNOGENETIC FEMALE WALLEYE (*Sander vitreus*) AND  
INDUCTION OF SEX REVERSAL WITH METHYLTESTOSTERONE
- 12:30 LUNCH**
- 1:30 Sergey Nuzhdin**, University of Southern California  
DEVELOPMENT OF GENETICS-BASED SELECTIVE BREEDING OF STERILE KELP
- 2:00 Ximing Guo**, Rutgers University  
~~CANCELED~~ THE DEVELOPMENT AND COMMERCIALIZATION OF TRIPLOID OYSTERS
- 2:30 Greg Weber**, USDA Agricultural Research Service  
PRODUCTION AND PERFORMANCE OF TETRAPLOID AND INTERCROSS TRIPLOID  
RAINBOW TROUT
- 2:45 Ten-Tsao Wong**, University of Maryland  
STERILITY INDUCTION BY DISRUPTING EARLY GERM CELL DEVELOPMENT
- 3:00 BREAK**
- 3:30 Adam Luckenbach**, NOAA Northwest Fisheries Science Center INVESTIGATION OF  
APPROACHES FOR REPRODUCTIVE STERILIZATION OF SABLEFISH
- 3:45 Rex Dunham**, Auburn University  
TRANSGENESIS, GENE EDITING AND XENOGENESIS FOR CONTROLLING  
REPRODUCTION IN CATFISH
- 4:00 Xavier Lauth**, The Center for Aquaculture Technologies  
GENE EDITING TO INDUCE STERILITY IN FISH FARMING

WEDNESDAY

## ZEBRAFISH-MEDAKA

Wednesday, February 12 1:30 PM - 3:00 PM Room 301B

Chair: Yathish Ramena

- 1:30 N.D. Janson**, Sumi Jung, Myoung-Jin Kim, Jehee Lee  
CONSTRUCTING A TRANSGENIC ZEBRAFISH WHICH EXPRESSES L-GULONOGAMMA-LACTONE OXIDASE, IN ATTEMPT TO REVOKE VITAMIN C BIOSYNTHESIS AND BOOST THE TELEOST GROWTH
- 1:45 Matteo Zarantoniello**, Andrea Zimbelli, Basilio Randazzo, Martina Delli Compagni, Cristina Truzzi, Matteo Antonucci, Paola Riolo, Sara Ruschioni, Andrea Osimani, Vesna Milanovic, Elisabetta Giorgini, Ike Olivotto  
PHYSIOLOGICAL EFFECTS OF INSECT-BASED DIETS DURING *Danio rerio* LARVAL DEVELOPMENT
- 2:00 Saltuk Bugrahan Ceyhun**, Alper Baran  
A NOVEL ZEBRAFISH MODELLING FOR EVALUATING THE TOXICITY OF FOOD ADDITIVES
- 2:15 Shahid Mahoob**, Muhammad Farooq, Nael Abutaha, Mohannad Baabbad, Nawaf D. Almoutiri, Mohammad Ahmed A.M. Wadaan  
ZEBRAFISH AS BIOACTIVITY GUIDED DRUG SCREENING ANIMAL MODEL TO IDENTIFY ANTI-ANGIOGENIC COMPOUNDS FROM SAUDI MEDICINAL PLANTS

## BIOSECURITY & WATER QUALITY

Wednesday, February 12 1:30 PM - 4:00 PM Room 305

Chair: Jeffrey Odle

- 1:30 Jeffrey Odle**, Jessica Mical  
WHY CLEAN THEN DISINFECT – THE SCIENCE BEHIND AN EFFECTIVE C&D PROGRAM
- 1:45 Clémence Cordier**, Christophe Stavrakakis, Patrick Sauvade, Franz Coelho, Philippe Moulin  
ULTRAFILTRATION TO TREAT GAMETE EFFLUENTS FROM HATCHERIES
- 2:00 Desislava Bögner**, Mirko Bögner, Gregor Jähne, Matthew J. Slater  
**CANCELED** MAINTAINING WATER QUALITY STANDARDS IN RECIRCULATING AQUACULTURE SYSTEMS: CRITICAL REVIEW OF AVAILABLE DISINFECTION TECHNOLOGIES
- 2:15 Philippe Moulin**, Clemence Cordier, Lisa Charpin, Patrick Sauvade, Franz Coelho, Christophe Stavrakakis  
REUSE OF HATCHERY EFFLUENT FOR SPAT BREEDING USING MEMBRANE PROCESS
- 2:30 Salma Sultana**, Hafsa Ambreen, Tayyaba Sultana, Shahid Mahboob Rana  
RNA/DNA RATIOS ALTERATION AND MEAT QUALITY EVALUATION OF FRESHWATER FISH COLLECTED FROM KOT KHAIRA, JHANG
- 2:45 Tayyaba Sultana**, Sana Shahid, Salma Sultana, Laiq Ahmed, Shahid Mahboob Rana  
EVALUATION OF AQUATIC POLLUTION IN SELECTED ORGANS OF WILD FISH THROUGH HISTOPATHOLOGICAL STUDIES

## SHRIMP NUTRITION

Wednesday, February 12 2:30 PM - 5:00 PM Room 315

Chair: Allen Davis

- 2:30** **Rasina Rasid**, Monica Thiviamalar  
**CANCELED** ENHANCING FRESHWATER PRAWN *Macrobrachium rosenbergii* LARVICULTURE WITH *Centella asiatica*
- 2:45** **Silva Claudia**, Cinzia Boggino, Terry Ward, Orapint Jintasataporn, Srinoy Chumkam  
TRACE MINERAL AMINO ACID COMPLEXES (Availa® Zn, Mn, Cu and Fe) AND Zn-L-SELENOMETHIONINE (Availa® Se) IN WHITE LEG SHRIMP *Litopenaeus vannamei* DIETS ENHANCE COOKED COLOR
- 3:00** **BREAK**
- 3:30** **Harsha Galkanda-Arachchige**, Luke A. Roy, D. Allen Davis  
EFFECT OF MAGNESIUM TO CALCIUM RATIO IN LOW SALINITY WATER ON GROWTH OF PACIFIC WHITE SHRIMP *Litopenaeus vannamei*
- 3:45** **Jingping Guo**, João Reis, Guillaume Salze, Melanie Rhodes, D. Allen Davis  
HYDROLYSED SALMON MEAL AS A REPLACEMENT FOR SALMON MEAL IN PRACTICAL DIETS FOR PACIFIC WHITE SHRIMP *Litopenaeus vannamei*
- 4:00** **Kasondra Miller**, Kristy Allen, Misael Rosales-Leija, Waldemar Rossi  
EFFECTS OF DIETARY SOYBEAN MEAL AND SUPPLEMENTAL TRACE MINERAL SOURCE AND LEVEL ON THE PRODUCTION PERFORMANCE OF PACIFIC WHITE SHRIMP *Litopenaeus vannamei* CULTURED IN A CLEAR-WATER RECIRCULATING AQUACULTURE SYSTEM
- 4:15** **D. Allen Davis**, Jingping Guo, Aya S. Hussain, Albert Tacon, Jill K. Moser, Jill Holcomb  
CHOLESTEROL REQUIREMENT IN SEMI-PURIFIED DIETS OF JUVENILE PACIFIC WHITE SHRIMP *Litopenaeus vannamei*
- 4:30** **Zongjia Cheng**, Zhengguo Tao, Hulong Zeng, Lixia Tian  
EFFECTS OF ASTAXANTHIN DEPOSIT ON *Penaeus vannamei* WHEN FED NATURAL XANTHOPHYLL
- 4:45** **Jesus Zendejas Hernandez**  
CHALLENGES IN SHRIMP NUTRITION AND SUSTAINABILITY

WEDNESDAY

## GETTING IT RIGHT – AFS

Wednesday, February 12 1:30 PM - 5:00 PM Room 308B

Chair: Mick Walsh

- 1:30 Nathan Wilke**  
GETTING IT RIGHT: SHARED CHALLENGES AND NEW BRIDGES IN THE AQUACULTURE COMMUNITY
- 1:45 Steve E. Lochmann, Hope D. Lemley**  
CHALLENGES OF USING CALCEIN TO MARK LARGEMOUTH BASS FINGERLINGS
- 2:00 Brent Hinnners, Ryan Couture**  
OLFACTORY IMPRINTING OF HATCHERY FALL CHINOOK *Oncorhynchus tshawytscha* IN THE ELK RIVER
- 2:15 Yoh Yamashita, Manabu Kume, Takuji Noda, Toshihiro Wada, Hiromichi Mitamura, Takuhei Komaki, Tomoya Hori, Junichi Takagi, Alisa Kutzer, Yasunari Iwasaki, Tsuneo Fujita, Tatsuma Sato, Kaoru Narita, Manabu Yamada, Akira Matsumoto, Edouard Lavergne, Yuki Terashima, Nobuaki Arai**  
BIOTELEMETRY STUDIES ON POST-RELEASE BEHAVIORS OF CULTURED AND WILD JAPANESE EELS *Anguilla japonica* IN SHALLOW BRACKISH WATERS IN JAPAN
- 2:30 Ryan W. Schloesser, Paula Caldentey, Nathan P. Brennan, Kenneth M. Leber**  
KEY FACTORS INFLUENCING POST-RELEASE SURVIVAL OF HATCHERY-REARED JUVENILE SNOOK *Centropomus undecimalis*
- 2:45 Dalhatu Bawa, Muhammad Aliyu Sulaiman**  
~~CANCELED~~ AGE, GROWTH AND MORTALITY OF *Bagrus bayad* (FORSSKALL, 1775) FROM INLAND WATERS OF KEBBI STATE, NIGERIA
- 3:00 Baba Usman Ibrahim, Jehun Auta**  
FISHERY DIVERSITY AND CATCHASSESSMENT SURVEY OF JEBBA LAKE, NIGERIA

## ENVIRONMENTAL ISSUES

Wednesday, February 12 3:30 PM - 5:00 PM Room 303

Chair: Claude Boyd

- 3:30** **Steve Morton**, Jennifer Maucher-Fuquay, Antonio Bravo  
**CANCELED** USE OF CITIZEN SCIENTISTS TO MONITOR HARMFUL ALGAL BLOOMS, CHANGES IN ENVIRONMENTAL CONDITIONS AND ITS UTILIZATION IN AQUACULTURE
- 3:45** **Gianmarco David**, Reinaldo José da Silva, Clovis Ferreira Carmo, Eduardo Meneguzzi Brambilla, Paulo César von Kruger  
REAL TIME WATER QUALITY MONITORING IN BRAZILIAN HYDROELECTRIC RESERVOIRS FOR PREVENTION OF ENVIRONMENTAL RISKS TO CAGE AQUACULTURE
- 4:00** **Michael Pascucilla**, Sean Grace  
THE SOUND OF SILENCE; ENVIRONMENTAL BENEFITS OF SOLAR POWERED PUMP-OUT BOATS IN BRANFORD HARBORS
- 4:15** **Steve Naylor**, Marcia Chiasson  
ECOLOGICALLY SUSTAINABLE NET PEN AQUACULTURE IN LAKE HURON, ONTARIO, CANADA
- 4:30** **Hon Jung Liew**, Siti Izza Athirah Hamin  
GIANT FRESHWATER PRAWN *Macrobrachium rosenbergii* LARVAL IS SENSITIVE TO ACIDIFICATION
- 4:45** **Claude E. Boyd**, Aaron A. McNevin  
THE CASE FOR MANGROVE CONVERSION-FREE SHRIMP FARMS

## TILAPIA

Wednesday, February 12 3:30 PM - 5:00 PM Room 302

Chair: Kevin Fitzsimmons

- 3:30** **RuthEllen Klinger-Bowen**, Michael Wong, Lei Yamasaki, Tom Iwai, David Weese  
TILAPIA AQUACULTURE IN HAWAII: LESSONS ABOUT FNO DISTRIBUTION AND SPECIES COMPOSITION FROM ISLAND STREAMS
- 3:45** **Junning Cai**, Francisco Javier Martínez-Cordero, Soledad Delgadillo,  
**CANCELED** Juan Loustaunau, Edgar Sánchez Zazueta  
SOCIAL AND ECONOMIC PERFORMANCE OF TILAPIA FARMING IN MEXICO
- 4:00** **Lara Parata**, Debashish Mazumder, Jesmond Sammut, Suhelen Egan  
DIET AFFECTS THE GUT MICROBIOTA AND NUTRIENT ASSIMILATION PATTERNS OF GENETICALLY IMPROVED FARMED TILAPIA *Oreochromis niloticus*
- 4:15** **Brandylyn Thomas**, Boris Gomelsky, Noel Novelo, Alexander Kramer  
GENETIC VARIABILITY OF NILE TILAPIA *Oreochromis niloticus* STRAINS AS DETERMINED BY MICROSATELLITE DNA MARKERS
- 4:30** **Raquel Tatiane Pereira**, Fernando Jonas Sutili, Julia Laurain, Maria Angeles Rodriguez  
ALGO-CLAY COMPLEX ON NILE TILAPIA PERFORMANCE UNDER MYCOTOXIN POLICONTAMINATION