

Program

The 47th Scientific Symposium of UJNR Aquaculture Panel

Marine Aquaculture in a Changing Environment

Date:

November 12 9 :15 - 12:00

November 13 9 :15 - 17:00

Venue:

Okinawa Industry Support Center, 1831- 1 Oroku, Naha, Okinawa

Aim of the Symposium

The UJNR Aquaculture Panel is a cooperative research exchange between the U.S. and Japan jointly addressing environmental and technical issues that affect the aquaculture industries of both nations.

The 47th UJNR Aquaculture Symposium is the final symposium of a 3-year cycle with the theme Marine Aquaculture in a Changing Environment. Environmental changes impact aquaculture in many ways. Nutrient pollution is driving eutrophication and dead zones; ocean acidification is changing water chemistry, and climate change is already influencing our food supply, freshwater availability, weather and way of life. Aquaculture will be impacted by, and can also impact, these environmental changes over various scales. Aquaculture of finfish, shellfish and seaweed have different threats, benefits and opportunities related to environmental change.

Over the last two years, we discussed the potential of aquaculture to mitigate impacts of environmental change (*e.g.* carbon sequestration, bioextraction of nutrients and CO₂, antacidity, and oxygen production), impacts of environmental change on aquaculture production (*e.g.* effects of ocean acidification on shellfish aquaculture), and science to mitigate these impacts (countermeasures). This is the final year of the three year-plan, and the symposium theme is the Application of Aquaculture Technology to Provide Sustainable Seafood and Reduce Impacts of Environmental Change. This theme includes development of technology to increase marine aquaculture production to offset seafood deficit due to loss of capture fisheries impacted by environmental change, and to augment food deficits due to impacts of environmental change on inland agriculture.

Tuesday, November 12, 2019

Registration: 9:00 – 9:15

Opening Session

Welcome and Aim of the Symposium

Hideaki Aono (Japan Panel Chair, Japan Fisheries Research and Education Agency) 9:15 – 9:25

Session I. New techniques to assess and mitigate impacts of environmental changes on aquaculture

(Moderators: Simona Augyte and Natsuki Hasegawa)

1. Bacterial communities in marine sediments; a biological parameter to evaluate coastal environment
Tomoko Sakami (National Research Institute of Aquaculture, FRA) 9:25 – 9:55
2. Applications of environmental DNA data in support of aquaculture
Tom Noji (Northeast Fisheries Science Center, NOAA Fisheries) 9:55 – 10:25
3. Stable isotopic approach to investigate nitrogen pathway in coastal aquaculture area
Satoshi Watanabe (National Research Institute of Aquaculture, FRA) 10:25 – 10:55
4. Establishment of immunological assays and baseline profile of hemocytes in the hard clam *Mercenaria mercenaria* as evaluation biomarkers for environmental stresses
Huiping Yang (School of Forest Resources and Conservation, Institute of Food and Agricultural Sciences, University of Florida) 10:55 – 11:25
5. Purple urchin barrens: an opportunity for aquaculture and fisheries to work together to solve an environmental issue
Luke Gardner (California Sea Grant) 11:25 – 11:55

Wednesday, November 13, 2019

Session II. Impact assessment of environmental changes and conservation of fisheries environment in coral reef areas

(Moderators: Luke Gardner and Masakazu Hori)

6. Impacts of ocean acidification on Japan coastal water and marine fisheries
Haruko Kurihara (Invited speaker)(University of the Ryukyus) 9 :15 - 9 :45
7. Sustain seafood resources in the U.S. affiliated Pacific islands- status and strategies
Cheng-Sheng Lee (Center for Tropical and Subtropical Aquaculture, United States Department of Agriculture) 9 :45 - 10:15
8. Towards effective coral community restoration for sustainable fishery of a coral reef grouper *Epinephelus ongus*: implication of ecosystem-based management
Atsushi Nanami (Seikai National Fisheries Research Institute, FRA) 10:15 - 10:45
9. Scaling up coral restoration to meet the demands of a collapsing ecosystem
Tali Vardi (ECS for NOAA Fisheries Office of Science & Technology) 10:45 - 11:15
10. Sustainable large-scale coral restoration by establishing “artificial spawning hotspot”
Go Suzuki (Seikai National Fisheries Research Institute, FRA)..... 11:15 - 11:45
- Lunch Break 11:45 - 13:00

Session III. Production management under environmental changes in bivalve aquaculture

(Moderators: Cheng-Sheng Lee and Atsushi Nanami)

11. The influence of climate and environment on the growth and survival of Pacific oyster seed in US West Coast estuaries
Brett Dumbauld (Agricultural Research Service, United States Department of Agriculture)
..... 13:00 - 13:30
12. Comparative study of the impact of environmental changes on oyster culture between USA and Japan, as collaborative research under UJNR
Natsuki Hasegawa (Hokkaido National Fisheries Research Institute, FRA) 13:30 - 14:00
13. Oyster aquaculture using seagrass beds as a climate change countermeasure
Masakazu Hori (National Research Institute of Fisheries and Environment of Inland Sea, FRA)
..... 14:00 - 14:30
- Coffee Break 14:30 - 14:45

Session IV. Aquaculture technologies to respond to environmental changes; Seaweed breeding and feed development

(Moderators: Brett Dumbauld and Satoshi Watanabe)

14. Kelp, *Saccharina* spp, population genetics in the Northwest Atlantic for guiding a breeding program of thermally resilient strains
Simona Augyte (Dept. of Ecology and Evolutionary Biology, University of Connecticut) 14:45 - 15:15
15. Cell selection technique for establishment of low salinity tolerance strain in *Pyropia tenuipedalis*
Mahiko Abe (Applied Aquabiology, National Fisheries University, FRA) 15:15 - 15:45
16. Improvement of dietary effect on juvenile *Ruditapes philippinarum* using the dietary-supplements and new diet microalga
Yasuhiro Yamasaki (Applied Aquabiology, National Fisheries University, FRA) 15:45 - 16:15
17. Exploration of alternative protein sources in the development of a sustainable Japanese white trevally *Pseudocaranx dentex* juvenile diet
Jonas Miller (Uragami Station, Aquaculture Research Institute, Kindai University) 16:15 - 16:45

Science Symposium Closing

Michael Rust (US Panel Chair, NOAA Fisheries Office of Aquaculture) 16:45 - 17:00