



5th World Fisheries Congress



Fisheries for Global Welfare and Environmental Conservation

Oct. 20 (Mon) – 25 (Sat), 2008

Pacifico Yokohama (Yokohama, Japan)

Program & Abstracts

ORGANIZED BY

World Council of Fisheries Societies (WCFS)
The Japanese Society of Fisheries Science (JSFS)
Fisheries Research Agency (FRA)
Science Council of Japan (SCJ)

Oral Sessions

Session 1: Fisheries and Fish Biology

| Date and Time (Room No.) | Title | Author(s) | City, Country | Abstract No. |
|-----------------------------|--|---|---------------------|---------------------------|
| Oct 21, Tue (501) | 1a-1: New technologies in fisheries survey | Chairpersons: Kohji Iida, Sei-ichi Saitoh | | |
| 14:00-14:45 | History and perspective of fisheries acoustics | Furusawa M | Kanagawa, Japan | 1a-1-1 Keynote talk |
| 14:45-15:00 | A ubiquitous information service for the offshore fisheries activities around Japan | Saitoh S, Takahashi F | Hokkaido, Japan | 1a-1-2 |
| 15:00-15:15 | Exploiting the edge: evaluating predator-prey interactions between skipjack tuna, Pacific saury and flying squid using satellite remote sensing and GIS | Robinson MM, Saitoh S | Hokkaido, Japan | 1a-1-3 |
| 15:15-15:30 | Quantitative multi-beam sonar and underwater acoustic camera for fisheries survey | Iida K, Mukai T, Nishimori Y, Sato M | Hokkaido, Japan | 1a-1-4 |
| 15:30-15:45 | Three dimensional target strength of fish for resource survey using multibeam sonar | Kurnia M, Iida K, Mukai T | Hokkaido, Japan | 1a-1-5 |
| 15:45-16:00 | Field calibration of a multi-frequency acoustic system using a standard sphere | Amakasu K, Ogawa T, Sawada K | Tokyo, Japan | 1a-1-6 |
| Oct 21, Tue (501) | 1a-2: New technologies in fisheries survey | Chairpersons: Masahiko Furusawa, Kazuo Amakasu | | |
| 16:30-16:45 | Development of broadband split-beam method using dolphin-like sonar signal | Imaizumi T, Furusawa M, Amakasu K, Akamatsu T, Nishimori Y, Ogawa S | Ibaraki, Japan | 1a-2-1 |
| 16:45-17:00 | Echo-trace classification and discriminant analysis of pelagic fish schools based on acoustic and trawl data surveys | Charef A, Oshimo S, Aoki I | Tokyo, Japan | 1a-2-2 |
| 17:00-17:15 | Monitoring aggregations of coastal fish species...matching the technique to behaviour, habitat and budget | Mackie MC, Mackie MC, Parsons MJ, McCauley RD, Lewis PD | Hillarys, Australia | 1a-2-3 |
| 17:15-17:30 | Fundamental research on influence of underwater noise for the ultrasonic biotelemetry | Miyagi A, Miyamoto Y, Imaizumi T, Uchida K, Kanazawa M, Kaki-hara T | Tokyo, Japan | 1a-2-4 |
| 17:30-17:45 | A comparison of the spatial distributions and habitat use of single fish versus fish schools using high-resolution remote-sensing techniques in a coastal upwelling system | Reese DC, Brodeur RD, Churnside JH, O'Malley RT | Albany, USA | 1a-2-5 |
| 17:45-18:00 | Trial measurement on fishing time in case of conger eel tube fishery in Tokyo Bay | Yoshida T, Uchida Keiichi, Miyamoto Y, Kaki-hara T, Nanba T, Kanazawa M | Tokyo, Japan | 1a-2-6 |
| 18:00-18:15 | Influences of tuna longline drift pattern changed by ocean current on the underwater hook depth | Koyama S, Shimzu S, Yokawa K, Saito H, Miura T | Hokkaido, Japan | 1a-2-7 |
| 18:15-18:30 | The application of stereo-video technology to survey demersal fish assemblages | Watson DL, Harvey E, Shortis M, Seager J, Cappo M | Perth, Australia | 1a-2-8 |

| | | | | |
|----------------------|---|---|-------------------|------------------------|
| Oct 22, Wed (419) | 2c-1: Seed production | Chairpersons: Hirohiko Kagawa, Yoshitaka Sakakura | | |
| 10:30-11:00 | Environmental impact of aquaculture on coastal planktonic ecosystems | Olsen Y, Olsen LM | Trondheim, Norway | 2c-1-1 Keynote talk |
| 11:00-11:15 | Seasonal reproduction and spawning of blackspot tuskfish, <i>Choerodon schoenleinii</i> in captivity | Okuzawa K, Asami K, Yamamoto K, Sato T, Yoseda K | Okinawa, Japan | 2c-1-2 |
| 11:15-11:30 | Feasibility of intra-gonadal transplantation of germ cells in adult fish and implications for seed production | Majhi SK, Hattori RS, Rahman S, Yokota M, Watanabe S, Strussmann CA | Tokyo, Japan | 2c-1-3 |
| 11:30-11:45 | Ontogenetic changes in body density and phototaxis of phyllosoma larvae of the Japanese spiny lobster <i>Panulirus japonicus</i> : Implications for mass culture techniques | Hamasaki K, Mizumoto Y, Jinbo T, Murakami K | Tokyo, Japan | 2c-1-4 |
| 11:45-12:00 | Breeding and larval rearing of mangrove crab, <i>Sesarma mederi</i> , in different sediment types | Chairattana C | Bangkok, Thailand | 2c-1-5 |
| 12:00-12:15 | The use of different PUFA sources, <i>Spirulina</i> , <i>Schizochytrium</i> , <i>Peddiococcus</i> and <i>Chaetoceros</i> , for Black Tiger Prawn, <i>Penaeus monodon</i> , postlarvae | Ngamphongsai C, Donnuea S, Unakul P, Jirawanichpisal P | Bangkok, Thailand | 2c-1-6 |

| | | | | |
|----------------------|---|---|-------------------|--------|
| Oct 22, Wed (419) | 2c-2: Seed production | Chairpersons: Yngvar Olsen, Koichi Okuzawa | | |
| 16:30-16:45 | Significance of minute rotifer <i>Proales similis</i> as live food | Wullur S, Sakakura Y, Hagiwara A | Nagsaki, Japan | 2c-2-1 |
| 16:45-17:00 | Growth and grazing rates of a freshwater rotifer <i>Brachionus angurialis</i> isolated in Lao P.D.R. | Ogata Y, Tokue Y, Yoshikawa T, Kurokura H | Tokyo, Japan | 2c-2-2 |
| 17:00-17:15 | Development of the low-cost continuous culture system for copepod production | Tapaneeworawong P, Baipad N, Powtongsook S, Menasveta P | Bangkok, Thailand | 2c-2-3 |
| 17:15-17:30 | Ecological function of phytoplankton in larval rearing waters | Eguchi M, Nakase G | Nara, Japan | 2c-2-4 |
| 17:30-17:45 | Effects of different body weight of tilapia, <i>Oreochromis niloticus</i> on <i>Chlorella</i> sp. Production under 10 ppt salinity level: A new way of <i>Chlorella</i> production with tilapia culture 1 | Matsubara H, Senoo S | Sabah, Malaysia | 2c-2-5 |
| 17:45-18:00 | Improvement of fish larviculture using closed recirculation system in Japan | Yamamoto Y | Kagawa, Japan | 2c-2-6 |
| 18:00-18:15 | Estimation of the temperature environment for early development of the Japanese eel, with reference to their ontogenetic changes in specific gravity | Okamura A, Yamada Y, Horie N, Utoh T, Mikawa N, Tanaka S, Tsukamoto K | Aichi, Japan | 2c-2-7 |

| | | | |
|--|---|-----------------|------|
| Abstract 24 - 8d Contributions of fisheries to society | | | |
| Development of evaluation method of the fisheries policies with the eco- environmental analysis | Kurosawa K, Nagano A, Furuya A, Yokoyama J, Yokoyama S | Tokyo, Japan | 8d01 |
| Abstract 24 - 8e Roles of fisheries systems | | | |
| Development of net fishery for local community sustenance, educa- tional and environmental environment monitoring | Nomura Y, Asada M, Seino S, Asada T, Matsuishi T, Shimizu S, Sakurai Y | Hokkaido, Japan | 8e01 |

Session 9 Education and International Cooperation

| Title | Author(s) | City, Country | Abstract No. |
|--|----------------------------------|---------------------------------|--------------|
| Abstract 24 - 9a Fisheries and aquaculture as a method of poverty alleviation and their social impacts | | | |
| Assessment of fish in Emirate of Fujairah, United Arab Emirates (special study on normal caught fish and aquaculture product) | Al Qaydi S | Al Ain, United Arab Emirates | 9a01 |
| Design of underwater sounds to reduce impingements of fish in water power plants in Taiwan; a preliminary report | Shao Y, Yu H, Lee W, Wu Y, Yan H | Taipei, Taiwan | 9a02 |
| Abstract 24 - 9b International cooperation in training and higher education | | | |
| Application of biological survey in shallow waters to summer schools in university laboratory in Japan | Iwasaki S, Shoji J | Hiroshima, Japan | 9b01 |

2c-1-5

BREEDING AND LARVAL REARING OF MANGROVE CRAB, *Sesarma mederi*, IN DIFFERENT SEDIMENT TYPES

Chompunut Chairattana^{1,2}

Department of Aquaculture, Faculty of Sciences and Technology, Suratthani Rajabhat University, Suratthani, Thailand, 84100, ¹, Department of Marine Science, Faculty of Science, Chulalongkorn University, Bangkok, Thailand 10330²

*E-mail: chairattanae@hotmail.com

Eight gravid female crabs were collected from mangrove area. The females were placed individually into 20 L seawater (18 ppt) with aeration. After hatching, the larvae were counted. The amount of larvae from 8 crabs was between 43,400 - 207,433. Then the larvae were rearing with stocking density of 86 larvae/liter. The larvae were fed with rotifer and newly hatched *Artemia* nauplii. The results showed that the larvae developed from zoeal stage to megalopa stage within 18 days and another 20 days to young crab stage. Survival rate was low. So in the later trails, *Chlorella* was added into the rearing tanks in order to decrease the transparency. The survival rate was improved up to 15.2%. Then the effect of different sediment types on growth and survival rate was studied. Results indicated that young crabs cultured in the tanks filled with mangrove and shrimp pond sediment had higher survival and growth rate than those cultured in the tank without sediment ($p < 0.05$). However, growth and survival rate of the crabs in the tank with mangrove sediment was not significantly different to those cultured in the tank with shrimp pond sediment.

2c-1-6

The use of different PUFA sources, *Spirulina*, *Schizochytrium*, *Peddiococcus* and *Chaetoceros*, for Black Tiger Prawn, *Penaeus monodon*, postlarvae.

Chansawang NGAMPONGSAI^{1,2}, Seri Donnuea^{1,2}, Panida Unakul¹, Pikul Jirawanichpisal¹

National Center for Genetic Engineering and Biotechnology, 113 Thailand Science Park, Pathayothin Road, Klonglaung, Pathumthani, 12120, THAILAND¹, Center of Excellence for Marine Biotechnology, Faculty of Science, Chulalongkorn University, Bangkok, 10330, THAILAND²

*E-mail: chansawang@biotec.or.th

Black Tiger Prawn post larvae, *P. monodon*, from PL1, were fed with *Artemia* nauplii enriched with 4 different types of PUFA sources, spray dried *Spirulina*, *Schizochytrium*, *Peddiococcus* compared to *Chaetoceros* as control group. The larvae were reared in 2-L of 30 ppt seawater with aeration. The stocking density was 100 PL/L. The water was changed every other day. The *Artemia* nauplii were enriched with the PUFA sources and fed to postlarvae 4 times a day. The survival, average weight and length were recorded. There were 4 consecutive experiments. There were no statistic differences of the survival rate among PUFA sources used in all experiments. In the first two and the last experiments, the *Artemia* nauplii enriched with *Spirulina* had the highest survival than the others. However, postlarvae fed with *Spirulina*-enriched-*Artemia* had lower average weight than that of the other experimental groups due to the higher density in the experimental tanks, except the group fed with *Peddiococcus*-enriched-*Artemia*. Thus, in the third experiment, the mixed of *Spirulina* and *Schizochytrium* and the mixed of *Spirulina* and *Peddiococcus* were included. The survival rate and average weight of mixed *Spirulina* and *Schizochytrium* were also higher than control group.

2c-2-1

Significance of minute rotifer *Proales similis* as live food

Stenly Wullur¹, Yoshitaka Sakakura², Atsushi Hagiwara¹

Graduate School of Science and Technology, Nagasaki University, Japan¹, Faculty of Fisheries, Nagasaki University, Japan²

*E-mail: d707063d@cc.nagasaki-u.ac.jp

The body size of *Proales similis* (mean±SD = 80.7±9.1 µm) is smaller than that of SS-type rotifer *Brachionus plicatilis* (148.6±14.7 µm). Due to its small size, *P. similis* can be utilized as first food for fish larvae, which require small food item. In this study, the effect of HUFA enrichment on lipid composition of *P. similis* was investigated. *P. similis*, SS-type *B. plicatilis* were fed alone or in combination to seven-band grouper *Epinephelus septemfasciatus* larvae, and the effect on feeding, growth, survival and tryptic activity of the larvae was examined. HUFA enrichment on *P. similis* resulted in higher total lipid content; 2.4% (per dry weight) for unenriched and 2.6% (per dry weight) for enriched group. Compositions of 22:6n-3 (0%), 18:3n-3 (0%) and 18:2n-6 (3.3%) in percent total lipid also increased to 17.5%, 4.5% and 19.7%, respectively. Higher survival rate of the seven-band grouper larvae was observed when *P. similis* was used as food. High initial feeding was detected in dietary treatments containing *P. similis* compared to SS-type alone. Larvae in mixed treatment demonstrated significantly faster initial growth and higher tryptic activity.

2c-2-2

Growth and grazing rates of a freshwater rotifer *Brachionus angualis* isolated in Lao P.D.R.

Yuka Ogata, Yuri Tokue, Takashi Yoshikawa, Hisashi Kurokura

The University of Tokyo

*E-mail: aa076258@mail.ecc.u-tokyo.ac.jp

The genus *Brachionus* is a cosmopolitan rotifer species that inhabits both in freshwater and saltwater. The salt-brackish water species such as *Brachionus plicatilis* have been well studied for decades as a suitable live feed for rearing fish larvae, and their mass production method has been established. In contrast, freshwater rotifer species are not widely investigated despite of their potential as a live feed in freshwater fish culture. Lao P.D.R. (Laos) is an inland country in Southeast Asia, where freshwater fish production is still in an early phase of development. In the study, a rotifer *Brachionus angualis* was isolated from freshwater ponds in Laos, and the growth and grazing characteristics of this rotifer was investigated. The optimum conditions for stable culture of the rotifer in high density were determined, and a potential of its use for seedling production in Laos are discussed.