INFORMATION OF INTEREST
Bivalve depuration: fundamental and practical aspects: new FAO manual
Interesting video about Pangasius farming in Vietnam
Interesting opinion paper "Potential of sponges and microalgae for marine biotechnology" by Wijffels (2007)
Two interesting articles about multi-trophic-aquaculture: "Multitrophic integration for sustainable marine aquaculture" by Chopin et al. and "Mariculture waste management" by Buschmann et al
The Asian Fisheries Science E-journal volume 21 number 3 is now available at the AFS website: www.asianfisheriessociety.org For the table of contents (TOC) click here
Farming Fish for the Future: WorldWatch Report

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SYMPOSIUM ON CATFISH AQUACULTURE IN ASIA: PRESENT STATUS AND CHALLENGES FOR SUSTAINABLE DEVELOPMENT
5-7th December, 2008
Can Tho University, Can Tho City, Vietnam

ORGANIZERS:
− Can Tho University
− Network of Aquaculture Centers in Asia-Pacific (NACA)
− ASEM Aquaculture Platform

WORKSHOP OVERVIEW
Catfishes, especially species of the families Pangasidae (i.e. Pangasius bocourti and Pangasianodon hypophthalmus) and Clariidae (Clarias macrocephalus and its hybrid (Clarias macrocephalus x C. gariepinus) amongst others have been commercially farmed in Asian countries for decades. In Vietnam, P. bocourti (Basa) and P. hypophthalmus (Tra) have been farmed for 50 years, and their production reached 1.2 millions MT in 2007, making these farming practices one of the fastest growing and most important industry globally. Recently, catfish farming is also increasingly popular in many other Asian countries.
Aquaculture increasingly contribute to the global aquatic product market. Processed products of Basa and Tra are currently marketed over 100 countries. Recognising the current importance of catfish aquaculture, Can Tho University (CTU) in conjunction with the Network of Aquaculture Centers in Asia-Pacific and the ASEM Aquaculture Platform announce the holding of this international symposium "Catfish Aquaculture in Asia: Present Status and Challenges for Sustainable Development". This two-day symposium and the follow-up field trip will provide an excellent opportunity for international and local scientists, practitioners and marketing groups (i) to exchange information on the management of catfish culture (ii) to share the latest research findings and achievements in catfish culture; (iii) to exchange trading information on catfish; and (iv) to identify future demands and enhance research collaborations for sustainable development of catfish aquaculture. Detail information for registration can be found at the Symposium website:
http://www.ctu.edu.vn/colleges/aquaculture/thuysanweb/catfishsymposium/index.htm

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Fax: +84710 830323
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1ST INTERNATIONAL CONGRESS ON AQUATIC ANIMAL HEALTH MANAGEMENT AND DISEASES
January 27-28, 2009
Tehran, Iran
ORGANIZER:
Veterinary Council I. R. Iran, with active collaboration of Contemporary Conference Organizers as co-organizer and with full support of Iran Fisheries Organization, Iranian Fisheries Research Organization, Iran Veterinary Organization, Faculty of Veterinary-University of Tehran, Iran Department of Environment and related organizations on
TOPICS:
- Diseases, Prevention and Treatment
- Nutritional Health Management
- Water Quality Management
- Health Management in Farms
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APPLICATION OF AN INEXPENSIVE AND HIGH-THROUGHPUT GENOMIC DNAEXTRACTION METHOD FOR THE MOLECULAR ECOLOGY OF ZOOPLANKTONIC DIAPAUSING EGGS
Javier Montero-Pau1, Africa Gómez, Joaquín Muñoz-2008
Limnol. Oceanogr.: Methods 6: 218–222
Abstract:
We describe the application of a simple, low-cost, and effective method of DNA extraction (hot sodium hydroxide and Tris, HotSHOT) to the diapausing propagules of continental aquatic invertebrates for its use in PCR amplification. We illustrate the use of the technique in cladocerans, rotifers, anostracans, notostracans, and copepod diapausing eggs. We compare the performance of the HotSHOT technique to the currently most widely used method for DNA extraction of zooplankton eggs and individuals, the chelating resin (or Chelex) technique. The HotSHOT technique overcomes several of the problems posed by Chelex and permits easy optimization for its use with 96-well plates for high-throughput DNA extraction and subsequent genetic characterization. We foresee a wide use of this technique in the future from DNA barcoding of diapausing stages to the genetic characterization of the diapausing egg banks of continental aquatic invertebrates.
(Department of Biological Sciences, University of Hull, Hull, HU6 7RX, UK; email of Africa Gómez: a.gomez@hull.ac.uk)

BIOMETRICAL STUDY OF ARTEMIA URMIANA (ANOSTRACA: ARTEMIIDAE) CYSTS HARVESTED FROM LAKE URMIA (WEST AZERBAIJAN, IRAN)

Alireza Asem, Nasrullah Rastegar-Pouyani, Naser Agh-2007
Turk. J. Zool. 31: 171-180
Abstract:
Artemia urmiana was reported from Lake Urmia by Günther in 1899. The objectives of the present study were to investigate the diameter of untreated and decapsulated cysts and chorion thickness at 26 stations in Lake Urmia. One-way ANOVA (Tukey test, $P < 0.05$) was used for analyzing the data. Only 31 pair means of untreated cysts among 26 stations showed significant differences, but, on the other hand, 157 pair means of decapsulated cysts among stations showed significant differences. There was a high variation in cyst diameter among the different localities in Lake Urmia. It was shown that this lake consists of recognizable sections producing cysts with different hatching characteristics, which can be used for diverse aquacultural purposes.
(Department of Biology, Faculty of Science, Razi University, 67149 Kermanshah, Iran; email of Alireza Asem: alireza_1218@yahoo.com

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LETTER —
HISTORICAL RECORD ON BRINE SHRIMP ARTEMIA MORE THAN ONE THOUSAND YEARS AGO FROM URMIA LAKE, IRAN
Alireza Asem-2008
Journal of Biological Research-Thessaloniki 9: 113 – 114,
(Protectors of Urmia Lake National Park Society (NGO), Urmia, Iran; West Bio-Processor Inc., Urmia, Iran; Iranian Artemia Research Center (IARC), Golmankhane Port, Urmia, Iran)

INTENSIVE ROTIFER PRODUCTION IN A PILOT-SCALE CONTINUOUS CULTURE RECIRCULATING SYSTEM USING NONVIABLE MICROALGAE AND AN AMMONIA NEUTRALIZER
C. D. Bentley, P. M. Carroll, W. O. Watanabe, A. M. Riedel-2008
Journal of the World Aquaculture Society 39(5): 625 – 635
Abstract:
A study was conducted to test the performance of a high-density (>3000 individuals/mL) continuous recirculating system for rotifers (B. rotundiformis) fed nonviable Nannochloropsis oculata and using sodium hydroxymethanesulfonate to neutralize ammonia. Three different microalgae feed rates (g of N. oculata [68 × 109 cells/mL] per million rotifers/d) were tested in successive trials. In Trial 1 (feed rate = 1.5), during a 30-d period, rotifers were harvested daily to 3000 individuals/mL, for an average yield of 178 million/d. Feed efficiency (million rotifers/g/d) was 0.33. In Trial 2 (feed rate = 1.1), during a 32-d period, an average of 106 million rotifers were harvested daily, and feed efficiency was 0.26. In Trial 3 (feed rate = 1.3), during a 30-d period, an average of 107 million rotifers was harvested daily, and feed efficiency was 0.23. An economic analysis based on a feed rate of 1.5 showed that production cost was 40% lower than the traditional batch culture method (US$ 0.29 vs. 0.46 per million rotifers/d). The continuous culture system tested reliably produced large quantities of rotifers on a daily basis without the use of a biofilter and with a lower production cost than a batch culture system.
(Center for Marine Science, University of North Carolina Wilmington, Wilmington, North Carolina 28403-5927 USA)

EFFECTS OF MATERNAL AGE ON FECUNDITY, SPAWNING INTERVAL, AND EGG QUALITY OF NILE TILAPIA, OREOCHROMIS NILOTICUS (L.)
G. Tsadik Getinet-2008
Journal of the World Aquaculture Society 39(5): 671 – 677
Abstract:
Effects of maternal age on fecundity, spawning interval, and egg quality of Nile tilapia, Oreochromis niloticus (L.), was examined for four age groups (4, 9, 16, and 24 mo) in circular concrete tanks in a recirculating system. Fecundity (eggs per spawn), weight (g), and egg quality were monitored every 4

d for the 168-d experimental period. Eggs per spawn correlated with maternal age, while it did not correlate with body weight. Eggs per spawn increased by twofold between 4- and 24-mo-old females, while eggs per female per d did not differ. Implying that eggs per female per d was influenced by spawn per female as well. Eggs per female per d was 1.8 and 2.4 times higher in 9-mo-old females than 16- and 24-mo-old females, respectively. Eggs per female per d showed a decline concurrent with per spawn per female trend after 18-mo old. Four-mo-old females produced eggs that were more uniform in size and weight than others. While egg size (mm) and weight (mg), and their variations within eggs per spawn increased, percent fertilization and hatchability decreased with age of females. Biological optimum age range for reproducible production of good quality eggs was 6–18 mo. This could be adopted in selecting breeders for better seed production.
(Ethiopian Institute of Agricultural Research, National Aquaculture Center, P.O. Box 1055, Addis Ababa, Ethiopia)

LARVAL PERFORMANCE OF MATRINXÃ, BRYCON AMAZONICUS (SPIX & AGASSIZ 1829), AFTER MATERNAL TRIIODOTHYRONINE INJECTION OR EGG IMMERSION
Elisabeth Criscuolo Urbinati, Lúcia Helena Vasques, José Augusto Senhorini, Valéria Leão Souza, Flávio Daolio Gonçalves-2008
Aquaculture Research 39(13): 1355 – 1359
Abstract:
This study compared the larval performance of matrinxã, Brycon amazonicus, after maternal triiodothyronine (T3) injection or egg immersion of T3. In the first experiment, three groups of females (n=4) induced to spawning received pituitary extract (CPE) and a corn oil injection (control), or CPE plus 10 mg or 20 mg kg−1 bw T3 dissolved in corn oil (experimental). Larvae were sampled for body weight and length measurement at hatching (0 h) and 12, 24, 36, 48 and 60 h thereafter. Hatching time, hatching success and abnormal development were monitored. In the second experiment, fertilized eggs from four females were immersed in T3 solutions (0, 0.01, 0.05 and 0.10 mg L−1) and larvae were sampled at hatching (0 h) and 6, 18, 30, 42, 54, 126 and 198 h thereafter. Hatching time was not affected by either means of hormone treatment. Abnormalities decreased as the T3 concentration increased in larvae from T3-treated broodfish but the number of dead larvae increased proportionally. Larvae from T3-injected females had higher weight from 24 h after hatching and greater length from hatching, while the weight of larvae produced from T3-immersed eggs changed at 198 h and length from 126 h of rearing. Both routes of T3 administration affected the early growth of matrinxã but the effect was observed earlier when broodstock females were injected.
(Aquaculture Center of the University of Sao Paulo State, Via de Acesso Prof. Paulo Donato Castelane, 14.884-900 Jaboticabal, SP, Brazil; email of Elisabeth Criscuolo Urbinati: bethurb@caunesp.unesp.br)

INDUCTION OF TRIPLOIDY IN LARGE YELLOW CROCKER PSEUDOSCIAENA CROCEA (RICHARDSON, 1846): EFFECTS OF PRESSURE SHOCKS AND GROWTH PERFORMANCE IN THE FIRST REARING YEAR
Jianhe Xu, Feng You, Xiongfei Wu, Peijun Zhang, Yongjian Lin, Honglei Jiang, Chunjing Zheng-2008
Aquaculture Research 39(13): 1369 – 1376
Abstract:
The precociously sexual maturation in large yellow crocker Pseudosciaena crocea has become a serious problem. In an attempt to solve this problem, the production of sterile triploids could be an effective strategy. In this study, triploid P. crocea was obtained by subjecting fertilized eggs to pressure shock. Flow-cytometry analysis was used to assess ploidy level. In terms of triploid rate and hatching rate, the optimal conditions of pressure shock for triploidy induction in P. crocea were 7500 psi for 3 min shock at 3 min after fertilization at 20 °C. With the application of these parameters, 100% triploid fish were produced. During the first rearing year, triploid P. crocea had a similar growth performance compared with its diploid counterpart before the age of 8 months and showed a significant advantage at the age of 10 and 12 months in body weight and body length ($P<0.05$). At the

age of 12 months, the carcass weight of triploids was markedly higher than that of diploid control, and gonadal somatic index was significantly lower than that of their diploid control. During the first rearing year, survival in triploid group was 76.44%, inferior to its diploid control (83.21%).
(Key Laboratory of Marine Biotechnology of Jiangsu Province, Huaihai Institute of Technology, Lianyungang, China; email of Feng You: youfeng@ms.qdio.ac.cn

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APPLICATION OF SPERM CRYOPRESERVATION IN SELECTIVE BREEDING OF THE PACIFIC OYSTER, CRASSOSTREA GIGAS (THUNBERG AQUACULTURE RESEARCH
Serean L. Adams, John F. Smith, Rodney D. Roberts, Achim R. Janke, Nick G. King, Harry Robin Tervit, Stephen C. Webb-2008
Aquaculture Research 39(13): 1434 – 1442
Abstract:
The robustness of Pacific oyster, Crassostrea gigas (Thunberg), sperm cryopreservation in the context of selective breeding based on family lines was investigated. Irrespective of egg density, high fertilization success was achieved with cryopreserved sperm when sperm:egg ratios of 1000:1 to 10 000:1 were used. Variation among replicate runs on the same oyster batches was minimal, indicating that cryopreservation and larval rearing procedures were repeatable. Twenty independent single male–female crosses were made to assess the utility of cryopreserved sperm in selective breeding. The fertility of unfrozen sperm was generally a poor predictor of cryopreserved sperm fertility. Based on D-larval yields, 17 of the 20 crosses were likely to yield adequate spat for selective breeding (>105 D-larvae from 1 million eggs), two were marginal (5 × 104 D-larvae) and one was inadequate (4 × 103 D-larvae). An alternative fertilization strategy to improve D-yield from a given number of sperm was then tested. Fertilizing 10 million eggs at a sperm:egg ratio of 200:1 increased the total D-yield when compared with fertilizing 1 million eggs at a sperm:egg ratio of 2000:1 for the same male–female pair. We conclude that, despite wide variation in fertility, cryopreserved sperm is useful for family production.
(Cawthron Institute, Private Bag 2, Nelson, New Zealand; email of S. L. Adams: serean.adams@cawthron.org.nz)

SCREENING AND CHARACTERISATION OF POTENTIALLY PATHOGENIC BACTERIA ASSOCIATED WITH ATLANTIC COD GADUS MORHUA LARVAE: BATH CHALLENGE TRIALS USING A MULTIDISH SYSTEM
Nina Sandlund, Øivind Bergh-2008
Diseases of Aquatic Organisms 81(3): 203-217
Abstract:
In intensive aquaculture systems, high concentrations of nutrients and high densities of fish larvae provide favorable conditions for opportunistic pathogenic bacteria to flourish. We screened potentially pathogenic bacterial strains isolated from moribund Atlantic cod Gadus morhua larvae, pollack Pollachius pollachius, coalfish Pollachius virens, Atlantic halibut Hippoglossus hippoglossus, rotifers, algae and water samples from different hatcheries. Three identical challenge experiments tested a total of 53 strains. A multidish system was used: cod eggs were placed in single wells, together with 2 ml of sterile seawater, and exposed to the bacterial cultures. Final bacterial concentrations in the wells were 106 and 104 CFU ml–1. Eggs and larvae not exposed to bacteria were used as unchallenged controls. Challenged controls were exposed to Vibrio anguillarum strain 610. Eggs were challenged approximately 48 h prior to hatching and mortality was recorded daily throughout the yolk-sac period. In spite of the high challenge dose of 106 CFU ml–1, only 5 bacterial strains tested caused higher mortality than the unchallenged controls. Four of these strains were identified by 16S rDNA and gyrase B gene (GyrB) sequencing as resembling V. anguillarum and 1 strain resembled Carnobacterium sp. Most of the larvae exposed to these strains died within 10 d of challenge. Serotyping of the strains resembling V. anguillarum gave inconclusive results. This indicates differences in serology compared to the serotypes O1, O2 and O3, associated with disease. Three bacterial strains seemed to have a slower infection rate, indicating a longer incubation period.

The remaining 45 strains did not seem to have a negative effect on larval survival, suggesting that these are not primary pathogens.

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