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ASIAN FISHERIES SOCIETY

e-Newsletter

MESSAGE FROM EDITOR



Wishing all readers a very happy, healthy, productive and prosperous 2016.

Year 2015 ended with a good note. Some of the recent assessments have indicated that the world will need an additional 68-78 million tons of fish by 2030 to meet the growing demand. Much of this, if not all additional requirement has to come from aquaculture as marine and freshwater stocks have been overexploited. This has to be achieved in spite of the fact that availability of water and land resources are on the decline and horizontal expansion of traditional aquaculture in ponds and tanks may not be the only solution. Keeping this in view and realising the importance of cage aquaculture in marine and freshwaters, the Asian Fisheries Society has been organising a series of conferences on cage aquaculture and the latest in the series – Cage Aquaculture in Asia-5 (CAA5) was held in Kochi, India in November 2015. The conference was well attended and has come up with a number of recommendations detailed in the relevant section of this newsletter.

Another landmark event in 2015 has been US-FDA approving genetically modified Salmon, generally known as AquAdvantage salmon as fit for consumption, making it the first genetically altered animal approved for human consumption opening doors for other GE animal production. The approval is being fiercely opposed by some consumer and environmental groups, that the safety studies were inadequate and that wild salmon populations might be affected if the engineered fish were to escape into the oceans and rivers.

Gender issues in fisheries and aquaculture are gaining importance and attracting the attention of scientists and planners and preparations are in full swing for the upcoming 6th Global Symposium on Gender in Aquaculture and Fisheries (GAF6) scheduled for August 2016 in Bangkok, Thailand in conjunction with 11th AFAF. The other major event of the Society for 2016 is the organisation of 11th Asian Fisheries and Aquaculture Forum (11th AFAF) with the theme “ASEAN Seafood for the World and Asian Food Security for the World” scheduled for 3-7 August 2016 in Bangkok, Thailand. AsiaPacific-FishWatch is making progress with completion of species profile on longtail tuna (*Thunnus tonggol*) which has been uploaded on its website.

Let us all look forward to a year of efforts at sustainable development of fisheries and aquaculture.

M. V. Gupta

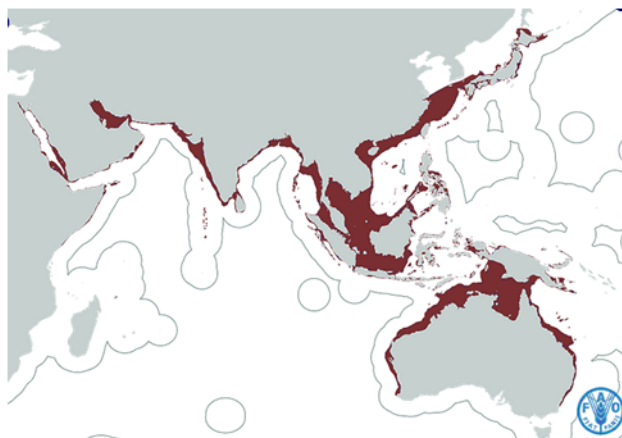
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ASIA PACIFIC-FISHWATCH

As this AFS Newsletter goes to press, the species profile for *Thunnus tonggol* (longtail tuna) is being uploaded. Thanks to the notice for writers disseminated by the AFS list, we attracted a very good field of expert writers for the various pages of the profile, and several experts rigorously peer reviewed the drafts before uploading. Please view the species profile on our website <http://www.asiapacfish.org/> under the Species menu.

Although a member of the genus *Thunnus*, which includes species such as the wide-ranging oceanic tunas yellowfin tuna (*Thunnus albacares*), bigeye tuna (*Thunnus obesus*), albacore tuna (*Thunnus alalunga*) and Southern Bluefin Tuna (*Thunnus maccoyii*), longtail tuna is a coastal species (map). Because of its coastal distribution, the fact that it is caught by a wide range of different gears of different scales and managed along with many different species of fish all mean that management and sustainability of longtail tuna is very challenging. The global catch has increased dramatically in recent decades, from a very small catch in the 1970s to about 250,000 tonnes annually. Local and international markets are important.



Map: distribution of *Thunnus tonggol*. Source. FAO <http://www.fao.org/fishery/species/2495/en>

In addition to information on the AsiaPacific-FishWatch website, AFS members can keep abreast of Asia-Pacific fisheries and aquaculture news by liking our Facebook page (<https://www.facebook.com/asiapacificfishwatch>), and following us on Twitter (@Asiapacfish, <https://twitter.com/Asiapacfish>).

On 2016, AsiaPacific-FishWatch will be seeking funding and partnerships to draw up the profiles for additional species. We welcome your suggestions on priorities and funding opportunities.

Contributed by Meryl J Williams

GENDER IN AQUACULTURE AND FISHERIES UPDATE

Following extensive discussion among the GAF6 Organizing Committee, the overall GAF6 title and its themes have been finalised. The 6th Global Symposium on Gender in Aquaculture and Fisheries (GAF6) will be held as part of the 11th Asian Fisheries and Aquaculture Forum from 3-7th August 2016 in Bangkok.

The overall frame of the Symposium is **ESFA**, which reflects the multiple facets of security for people in fish supply chains, including the food security theme of the AFAF

You can find more specific topics and their formats described at this link

<http://genderaquafish.org/2016-gaf6-august-bangkok-thailand/gaf6-themes/>

The programme offers many opportunities to contribute, especially as follows:

Symposium Themes

Special Workshops

1. Implementation of the gender elements of the Voluntary Guidelines on Small-scale Fisheries
2. GAF 101 (proposed training workshop)

Panel and Networking

3. The fish industry, gender and social development

Special Sessions

4. Regional updates on gender in fisheries and aquaculture
5. Gender in fish trade and value chains
6. Focus Thailand & Mekong Region: GAF in Thailand/ Mekong region
7. Youth and fish
8. GAF6 Oral & Poster Presentations
 - (i) Fishing communities and wellbeing, including violence against women
 - (ii) Climate change and disaster preparedness
 - (iii) Thinking beyond the framework of gender and fisheries
 - (iv) Gender and food safety

Field Visit

9. Putting gender integration ideas into action (with field visit)

GAF Network Meeting

10. First GAF Network Meeting

We look forward to your participation!

LINKS

Website: <http://genderaquafish.org/>

Facebook: <https://www.facebook.com/pages/AFS-Gender-in-Aquaculture-and-Fisheries/181176555231544>

Twitter: @Genderaquafish <https://twitter.com/Genderaquafish>

(<http://genderaquafish.org/2016-gaf6-august-bangkok-thailand/gaf6-organization/>)

Paper.li: Genderaquafish <http://paper.li/f-1343620155>

Google Group: <https://groups.google.com/forum/#!forum/genderaquafish>

Contributed by Meryl J Williams

NEWS FROM AFS SECRETARIAT

- ◆ The AFS Strategic Plan and AFS Constitution were uploaded on AFS website in November 2015.
- ◆ New features of membership account were launched. Secretariat will send notice to all members to update their details.

Username: ID Number password: afs@123

The Paypal System is in error since July 2015. Members who wish to make membership payment, please pay by Telegraphic Transfer (TT) or bank in to AFS account. The operation status of Paypal system will be announced once the errors have been rectified.

- ◆ Dates for holding 47th Council meeting have been changed from 22-26 February to 7-9th April 2016 in Bangkok.
- ◆ The 11AFAP web site has been launched and interested participants can register at an early bird rate and submit abstracts.
- ◆ For abstract submission guidelines, please visit <http://www.enaca.org/modules/afaf/abstracts.php>
- ◆ The Kanazawa Research Grant form will be uploaded in AFS website soon.
- ◆ Call for Nominations for 12th Council and AFS Awards forms also will be uploaded in our website soon.

NEWS FROM INDIAN BRANCH (AFSIB)

Organisation of 5th International Symposium on Cage Aquaculture (CAA5)

The 5th International Symposium on Cage Aquaculture in Asia (CAA5) was organized by the ICAR-Central Marine Fisheries Research Institute (CMFRI), Kochi, Asian Fisheries Society (AFS) and the Asian Fisheries Society, Indian Branch (AFSIB) in Kochi, India during 25 -28 November, 2015. The Symposium was inaugurated by Dr. S. Ayyappan, Secretary, Department of Agricultural Research and Education (DARE) and Director General, Indian Council of Agricultural Research (ICAR), New Delhi. . The function began with a welcome address by Dr. A. Gopalakrishnan, Convener, CAA5 and Director, CMFRI, Kochi. Dr. Alice Joan Ferrer, Vice President, Asian Fisheries Society, Malaysia gave a review on the activities of the Society over the years and conveyed the future programmes of the Society.

In his Presidential address, Dr. J. K. Jena, Chairman, AFSIB emphasized the need for modernization of cages and necessity of suitable government policies to support cage farming. Dr. Mohan Joseph Modayil, Member CAG, AFS and the Guest of Honour, highlighted the prospects of the cage culture to a developing country like India where fish is not just an item of protein but also an item of entrepreneurship. Dr. Derek Staples immediate Past President, AFS, in his address stressed that the fisheries society in Asia needs to undergo a major reform with respect to connectivity among Asian countries.

On the occasion, AFSIB presented 'Innovation Awards' to entrepreneurs and scientists for their significant contribution towards development of cage culture in India.

During the 3-days Symposium as many as 5 keynote presentations, 18 lead presentations, 38 oral presentations, beside the theme lecture were made by renowned experts from India and overseas. The presentations were made under 6 thematic sessions: marine production systems, inland production systems, breeding and seed production, nutrition and feed, health and environment management and economics, livelihood and policies. In addition, 61 papers were presented in the poster session.

The following recommendations emanated from the symposium:

1. Considering the emerging importance of cage aquaculture on the economy and life of the Asian region, the CAA5 recommends a precautionary development agenda for environment and resource friendly, sustainable and inclusive way forward for Asian countries by sharing information and experiences for the benefit of all.
2. The CAA5 recommends collective efforts between Asian countries to foster a green approach by following best management practices for providing safe fish.
3. The CAA5 recommends development of breeding and grow-out technologies of indigenous candidate species, specific to each country, with emphasis on diversification in both inland and marine cage aquaculture.
4. The CAA5 recommends greater focused research attention on feed development, with emphasis on reduced use of fish meal and fish oil, and feed management approach for prospective candidate species for cage aquaculture in the Asian region.
5. The CAA5 recommends development and implementation of country-specific disease surveillance and management plans for addressing existing diseases and preventing future outbreaks.
6. The CAA5 recommends a greater thrust on R&D on multispecies farming; involving fish, molluscs, seaweeds and scavengers for utilization of multi-trophic food niches for preventing environmental deterioration.
7. The CAA5 recommends development and adoption of National policies for each country, taking into consideration harmonized approaches delineating maximum biomass production for sites in inland and marine water bodies, so as to prevent adverse impacts on the aquatic environment of neighbouring countries.
8. The CAA5 recommends mapping of sites for cage aquaculture, taking into consideration local area development plans, environmental safeguards and user rights; further, notifying and demarcating culture sites must receive attention in each country so as to promote harmonious development.
9. The CAA5 recommends facilitation of private-public participation in commercial cage farming to attract increased investment and entrepreneurial development.
10. The CAA5 recommends sharing of knowledge and skill for development of cage aquaculture through collaborative programmes in research, training and human resource development.



Lighting of lamp



Release of the Souvenir

National Consultation on “Rainbow Trout Farming in India: Prospects and Challenges for Strategic Development”

ICAR-Directorate of Coldwater Fisheries Research (ICAR-DCFR) organized two days **National Consultation on “Rainbow Trout Farming: Prospects and Challenges for Strategic Development”** during 20-21 September, 2015 at Bhimtal, Nainital, India in collaboration with Department of Biotechnology, New Delhi and National Fisheries Development Board, Hyderabad. The National Consultation was aimed at addressing the problems and challenges of the rainbow trout (*Oncorhynchus mykiss*) farming in India. About 70 participants attended the Consultation.

National workshop on “Coldwater Endemic Fishes of North Eastern Himalaya”

ICAR-Directorate of Coldwater Fisheries Research (ICAR-DCFR), organised two day National workshop on “Coldwater Endemic Fishes of North Eastern Himalaya” during 5-6 November 2015 at Gangtok, Sikkim, India.

FORTHCOMING EVENTS

National Seminar on "Fisheries and Aquaculture: Livelihood Security, Sustainability and Conservation

AFSIB in collaboration with other Indian Societies/organisations is organizing “National Seminar on "Fisheries and Aquaculture: Livelihood Security, Sustainability and Conservation" during 21-22 January, 2016. The Seminar would be organised by North East Society for Fisheries and Aquaculture (India) and Asian Fisheries Society Indian Branch in collaboration with Central agriculture University, Imphal, Manipur, India with the prime objective to encourage sustainable aquaculture and fisheries development in North east India.

2nd International Symposium on "Genomics in Aquaculture

2nd International Symposium on "Genomics in Aquaculture" organized by ICAR-Central Institute of Freshwater Aquaculture, Bhubaneswar, India is scheduled for 28-30 January, 2016, in collaboration with Association of Aquaculturists, India and the Asian Fisheries Society Indian Branch.

Contributed by Dr.Joykrushna Jena

NEWS FROM TAIWAN BRANCH

10th Symposium of World's Chinese Scientists on Nutrition and Feeding of Finfish and Shellfish

The 10th Symposium of World's Chinese Scientists on Nutrition and Feeding of Finfish and Shellfish (SWCSNFFS) with the theme ***“high quality, safety and accuracy aquaculture”*** was held on 22-26 October 2015 in Wuhan, China. This meeting brought together about 1,350 fish and shrimp nutrition scientists, farmers and key commercial workers from USA, Canada, United Kingdom, France, Spain, Norway, China, Viet Nam, Malaysia and Taiwan to discuss progresses in fish and shrimp nutrition.

The symposium covered nutrient requirements and ingredient utilization; nutritional physiology and animal health; food safety and animal quality control; feed quality control and processing; and feeding physiology and technology. Dr. Yu-Hung Lin, Executive secretary of AFS Taiwan Branch along with 53 scientists and commercial workers from Taiwan attended the conference.



2015 Fresh Agricultural Products E-commerce Forum

During the E-Commerce Expo Asia 2015, “Fresh Agricultural Products E-Commerce Exhibition” was held during 6-9 October, 2015 to show the results for agricultural brands with E-commerce platforms.

2015 Taiwan Best Grouper Award

To enhance the value chain of the grouper industry and to respond to the need among contemporary consumers for simple and easy-to-cook dishes, the Fisheries Agency of Taiwan presents awards every year for the best grouper producer in Taiwan. The 2015 award was given to 3 fish farmers and 3 others from the processing industry.

2015 Taiwan Aquarium Expo

The Council of Agriculture of the Executive Yuan held the 2015 Taiwan Aquarium Expo in Kaohsiung on October 16---19. Latest products and technologies were exhibited to improve the ornamental fish production.

Rural Unlimited Innovative Future Forum

To explore the unlimited potential of rural areas and to increase interaction between various fields, the Soil and Water Conservation Bureau of the Council of Agriculture held the Rural Unlimited Innovative Future Forum on October 21, 2015.

Fisheries Youth Homecoming Event

To assist the fisheries industry's second generation to return home and assume the family business and to encourage and guide them in participating in fishery businesses, the Fisheries Agency organized a fisheries youth symposium on May 28, 2015.

Best Taiwan Snapper Award

To enhance quality of Taiwan snapper and to respond to the need of the current generation of consumers for simple and easy-to-cook dishes, the Fisheries Agency organized the National Best Taiwan Snapper Competition for the first time on 17 November, 2015 in Taipei. Ten fish farmers and two others from the processing industry received awards. An exhibition regarding Taiwan snappers was organized at the venue.

Taiwan International Fisheries and Seafood Show

To promote fishing, aquaculture, and technology for the processing of aquatic products, the Taiwan External Trade Development Council and the Worldwide Expo Services Ltd. (WES expo) jointly organized the “Taiwan International Fisheries and Seafood Show” in Kaohsiung on 19-20 November, 2015.

**Contributed by chair AFS Taiwan Branch,
Dr. Jiang-Shiou Hwang**

UPCOMING CONFERENCES ORGANISED BY AFS & BRANCHES/NETWORKS

11th Asian Fisheries and Aquaculture Forum

11th Asian Fisheries and Aquaculture Forum (11AFAF) is scheduled for 3-7 August 2016 in Bangkok, Thailand and is being hosted by Asian Fisheries Society and Network of Aquaculture Centers in Asia-Pacific (NACA).

Submission of Abstract: 11AFAF web site has been launched and you can register at an early bird rate and submit an abstract. For more info kindly visit <http://www.enaca.org/modules/afaf/welcome.php>.

Preparation of abstracts: You *must register for the conference before you can submit abstracts. Upon registering, you will be issued with a conference registration number that you can use to [login to the abstract submission area](#)*. Those submitting individual abstracts will be required to follow the guidelines listed below:

- ◆ Title (maximum 25 words, bold capital Letters, 16-point Times New Roman font with scientific names italicized).
- ◆ Conference theme under which the abstract is submitted.
- ◆ A list of co-authors (12-point Times New Roman font) and affiliation (10-point Times New Roman Font).
- ◆ Name of presenting author should be in bold letters.
- ◆ Name and email address of corresponding/presenting author.
- ◆ An abstract of 300 words or less formatted using this [sample template \(download\)](#).
- ◆ 12-point Times New Roman, 1.15 spacing.
- ◆ Paragraphs should be separated by a blank line and should not be indented.
- ◆ Preferred form of presentation (oral or poster).
- ◆ Abstracts must be in English - the official language of the forum. Use only one page, standard A4 paper size (portrait). Margins should be set at 2.5 cm on all sides.

Submission: Registered participants can [upload abstracts through the website](#). Please note that:

- ◆ Name files for upload using your last name and the first three words of the abstract title.
- ◆ File names should only use English alphanumeric characters (a-z, 0-9), underscores and spaces, eg:
- ◆ "Smith - polyculture of carps.docx"
- ◆ Only Microsoft Word documents (.doc, .docx) and zip files (.zip) are permitted for upload (if your abstract includes graphs or photos please upload them together as a zip file).
- ◆ The maximum file size for uploads is 1 MB.
- ◆ Multiple abstracts may be submitted, but please upload them one at a time.
- ◆ **The server will reject files that do not conform to these guidelines.**

The Scientific Committee will assess submitted abstracts on the basis of technical merit and relevance to the 11AFAF themes. Abstracts may be accepted for either oral or poster presentation.

Poster competition: An award of US\$100 and certificate will be issued for the best poster of the forum, as judged by the organisers. The winner will be announced during the closing ceremony.

Timelines:

The call for abstracts opened on **15 November 2015**.

The call will close at midnight on **15 February 2016**.

Those who have submitted abstracts will be notified as to whether their abstract has been accepted (either for oral presentation or poster presentation) or rejected by **30 March 2016**.

Dr. M.V. Gupta receives Sunhak Peace Prize



Dr. M.V. Gupta receiving Sunhak Peace Prize from Ms. Hak Ja Han Moon, Founder of the prize

Dr. M.V. Gupta received the inaugural Sunhak Peace Prize, billed by the organisers as alternative to Nobel Peace Prize, on 28 August 2015 in Seoul, South Korea in a glittering ceremony attended by over 1000 delegates from over 50 countries. Sunhak Peace Prize was established in 2015 to recognise individuals or organisations that have made significant contributions towards a sustainable and lasting peace through innovations in human development, conflict resolution and ecological conservation. Dr. Gupta was recognised for developing innovative technologies and implementation methods to address food crisis of the poor. Dr. Gupta shared the prize with His Excellency, Mr. Anote Tong, President of Republic of Kiribati. .

NEW PUBLICATIONS

The Breeding and Culture of Small Mud Carp (*Cirrhinus microlepis*) in Lao PDR

Researchers from Ubon Ratchathani University, Thailand and Department of Livestock and Fisheries of Champasak province, Lao PDR have been successful in artificial breeding of mud carp (*Cirrhinus microlepis*) which is on vulnerable species list of IUCN. Small Mud carp is considered as symbol fish of Champasak province as it is mostly found in this area. In view of its declining population, researchers from both the countries initiated research to conserve this vulnerable species. The wild broodstock were collected from the Mekong river at Pathumphon town and have been successfully bred and fingerlings produced. The fingerlings are being raised in earthen pond of a fish farmer in Pathumphon town to assess the economic feasibility of farming the species. Also efforts are being made to conserve the species. For more information, please contact Coordinator of the project Asst.Prof. Kanjana Payooaha (kanjanapayooaha@yahoo.com).

SEAFDEC/AQD organises first National Mud Crab Conference

Aquaculture Department (AQD) of SEAFDEC in collaboration with Department of Science and Technology, Philippine Council for Agriculture, Aquaculture and Natural Resources Research and Development (DOST-PCAARRD) and University of Philippines in the Visayas (UPV) organised the first National Mud Crab Conference during 16-18 November 2015 in Illoilo, Philippines. The conference attended by over 200 participants discussed mud crab biology, husbandry, feeds and feeding, management, diseases, feeds and feeding, post-harvest, markets and marketing, etc. DOST-PCAARRD has established Philippine National Standards that will serve as guidelines to exporters.

Researchers discover size gene for salmon

The size of returning Atlantic salmon is largely dependent on the number of years that the salmon remains at sea before returning to spawn in the river. The genetic basis of this trait has not been previously known, making the management of the impact of fishing difficult. In many Atlantic salmon populations, the sea-age at maturity, i.e. the number of years at sea, has been declining.

A joint Finnish-Norwegian-Scottish study has discovered a single gene that very strongly influences the variation in age at maturity, and therefore size, in salmon. The result may also help research related to the timing of puberty in humans, and health issues related to late or early puberty onset.

For full publication: Nicola J. Barson, Tutku Aykanat, Kjetil Hindar, Matthew Baranski, Geir H. Bolstad, Peder Fiske, Céleste Jacq, Arne J. Jensen, Susan E. Johnston, Sten Karlsson, Matthew Kent, Thomas Moen, Eero Niemelä, Torfinn Nome, Tor F. Næsje, Panu Orell, Atso Romakkaniemi, Harald Sægrov, Kurt Urdal, Jaakko Erkinaro, Sigbjørn Lien, Craig R. Primmer 2015. Sex-dependent dominance at a single locus maintains variation in age at maturity in salmon. *Nature*, 2015; DOI: 10.1038/nature16062

GE Salmon Approved For Human Consumption By US-FDA



A genetically engineered salmon from AquaBounty Technologies with a conventionally raised sibling roughly the same age.

The Food and Drug Administration of USA (FDA) approved a genetically engineered salmon as fit for consumption, making it the first genetically altered animal to be cleared for American supermarkets and dinner tables.

The AquAdvantage salmon, as it is known, is an Atlantic salmon that has been genetically modified so that it grows to market size faster than a non-engineered farmed salmon, in as little as half the time. The AquAdvantage salmon contains a [growth hormone](#) gene from the Chinook salmon and a genetic switch from the ocean pout, an eel-like creature, that keeps the transplanted gene continuously active, whereas the salmon's own [growth hormone](#) gene is active only parts of the year. The company has said the fish can grow to market weight in 18 to 20 months, compared with 28 to 36 months for conventionally farmed salmon.

"The F.D.A. has thoroughly analyzed and evaluated the data and information submitted by AquaBounty regarding the AquAdvantage salmon and determined that they have met the regulatory requirements for approval, including that food from the fish is safe to eat," Bernadette Dunham, Director of the agency's Center for Veterinary Medicine, said in a statement. The officials said the fish would not have to be labelled as being genetically engineered, a policy consistent with its stance on foods made from [genetically engineered crops](#). However, it issued draft guidance as to wording that companies could use to voluntarily label the salmon as genetically engineered or to label other salmon as not genetically engineered.

The approval by FDA caps a long struggle for AquaBounty Technologies, the company that first approached the [FDA](#) in the 1990s. The approval of the GE salmon has been fiercely opposed by some consumer and environmental groups, which have argued that the safety studies were inadequate and that wild salmon populations might be affected if the engineered fish were to escape into the oceans and rivers.

Despite the approval, it is likely to be at least two years before any of the salmon reaches supermarkets, because it would take about two years for even these fast-growing salmon to reach market size. It is also not likely there will be much of the salmon on the market because the approved production facility, which is in Panama, has the capacity to produce only about 100 tons of fish a year -a tiny amount compared with the more than 200,000 tons of Atlantic salmon the United States imports each year.

The fish are supposed to be raised inland in contained tanks to lessen the chances that they will escape into the wild. AquaBounty and its supporters say this will also be less stressful on the environment than using pens in the ocean. And it could eventually allow the fish to be raised in the United States, rather than being imported, as most farmed Atlantic salmon is.

For now, however, the fish are being raised in Panama, from eggs produced in Prince Edward Island, Canada. If the salmon were bred or raised elsewhere, for marketing to Americans, that would require separate approvals.

The approval could help other efforts to develop genetically modified animals. Scientists and biotechnology industry executives have complained that the long, unexplained delay in approving the salmon was a deterrent to the field. Several other attempts to develop genetically engineered animals for consumption, like a pig whose manure would be less polluting, have fallen by the wayside.

Now, however, there has been a surge of interest in developing new genetically altered farm animals and pets because new techniques, including one known as Crispr-Cas9, allow scientists to edit animal genomes rather than add genes from other species. That has made it far easier to create altered animals.

Scientists in China, for instance, recently created goats with more muscle and longer hair. Researchers in Scotland used gene editing to create pigs resistant to African swine [fever](#). It is not yet clear whether animals created this way would fall under F.D.A. regulation.

UPCOMING CONFERENCES

Smart Shrimp Aquaculture for the Asia Pacific Region

20-22 January 2016, Asian Institute of Technology, Bangkok, Thailand. For more information contact Convenor Dr. Krishna Salin at salink@ait.asia or visit www.ait.ac.th

India International Seafood show

22-24 January 2016. Chennai, India. The show organised by Marine Products Export Development Authority of India . For details please visit: www.indiaseafoodexpo.com

AquaIndia 2016

29-30 January 2016, Visakhapatnam, India. A biennial event organised by the Society of Aquaculture Professionals, Chennai, India. For additional information contact Mr. Senthil Kumar at contact@aquaprofessional.org

International Conference of the Fisheries Transparency Initiative

3 February, 2016. Nouakchott, Mauritania. The 1st International Conference of the Fisheries Transparency Initiative (TiFi) is a global multi-stakeholder initiative aimed at enhancing responsible and sustainable fisheries through transparency and participation. For more information, contact: Ms. Andrea Durighello at adurighello@governance-platform.org

SeaWeb Seafood 2016

1-3 February, 2016. St. Julian's, Malta. The conference will address future fish production, supply chain and consumption for solutions to sustainable seafood production. For information visit: www.seafoodsummit.org

Aquaculture 2016

22-26 February, 2016. Paris Hotel, Las Vegas, Nevada, USA. Triennial international conference and Exposition organised by World Aquaculture Society, For

NEW Responsible Aquaculture Development for Food Security and Economic Progress

29 February-11 March, 2016. Wageningen, Netherlands. The course is being organised by Wageningen UR Center for Development Innovation. For details visit www.wageningenur.nl

International Conference on Marine Science and Aquaculture 2016 (ICOMSA 2016)

23-24 March, 2016. Kota Kinabalu, Malaysia. This annual event was formerly known as International Seminar on Marine Science and Aquaculture. For details visit: www.ums.edu.my/ipmbv2/icomsa/

VICTAM 2016.

29-31 March, 2016. Bangkok, Thailand. Biennial event organised in conjunction with FIAAP and GRAPAS. VICTAM deals with feed machinery, while FIAAP deals with feed additives and GRAPAS deals with rice, flour milling and grain processing. For additional information contact: Ashih Kala-maarcservices@gmail.com. Website: victim.com

4th International Symposium on Genomics in Aquaculture (GIA 2016)

20-22 April 2016. Athens, Greece. The conference is coordinated by Nordland University (Norway) and the institute of Marine Biology, Biotechnology and Aquaculture of the Hellenic Center for Marine Research-HCMR (Greece). For details visit: www.gia2016.com

Asian-Pacific Aquaculture 2016.

26-29 April, 2016. Surabaya, Indonesia. Annual meeting of the Asian Pacific chapter of World Aquaculture Society with the theme “profitability, sustainability and responsibility for the future”. For more information, visit: www.was.org

4th International Climate Change Adaptation Conference

10-13 May 2016. Rotterdam, The Netherlands. For details visit: www.adaptationfuture2016.org

Disclosing Sustainability: The Transformation Power of Transparency

24-25 June, 2016. Wageningen, Netherlands. For more details write to conference.enp.nl

IPC2016

21-23 June, 2016, Budapest, Hungary. International Scientific Conference on Probiotics and Prebiotics – IPC2016.

IIFET 2016

12-15 July 2016 in Aberdeen, Scotland, UK. 18th Annual Conference of International Institute of Fisheries Economics with the conference theme of “Challenging new frontiers in the global seafood sector – a Northern Enlightenment. For details visit: www.iifet-2016.org

LACQUA 2016

28 November-1 December, 2016. Annual meeting of the Latin American & Caribbean chapter of World Aquaculture Society. For more information, visit: www.was.org

IPC is the worldwide leading scientific conference on probiotics and prebiotics. For further information please visit the conference homepage www.probiotic-conference.net.

AFS MEMBERSHIP RENEWAL NOTICE

Dear AFS Members:

Thank you all AFS Members for your ongoing commitment and support towards the Society!

The Secretariat has started to update the Members details in database.

Therefore, the Secretariat requests all AFS members to up-date their membership dues and contact information, to the Secretariat via email at info@asianfisheriessociety.org

Kindly renew your membership dues using online payment system at <http://www.asianfisheriessociety.org/join.php> or you may also request the membership form from Secretariat via info@asianfisheriessociety.org.

Membership is open for all!

**Please apply your membership at
<http://www.asianfisheriessociety.org/join.php>.**

**If you have any question, kindly email us at
info@asianfisheriessociety.org**

SYNOPSIS OF PAPERS VOLUME 28 (ISSUE 3) :

ASIAN FISHERIES SCIENCE JOURNAL

Reproductive Biology of the Sulu Shrimp *Metapenaeus suluensis* Racek and Dall 1965 (Crustacea, Malacostraca: Penaeidae) in Iloilo River, West Central Philippines

KATHLEEN DATO-ON-SUBONG and ANNABELLE G.C. DEL NORTE-CAMPOS

The reproductive biology of the Sulu shrimp *Metapenaeus suluensis* in Iloilo River, West Central Philippines was studied over a 1-year period from June 2013 to May 2014. The smallest sexually mature female was 92 mm total length and the smallest mature male was 81 mm. Gonadosomatic indices of both sexes show major spawning from March to April, with a secondary season in September to October. The interruptions to the progression of monthly modal size frequency distributions, along with the absence of spent individuals suggest that mature individuals emigrate to spawn outside the river.

Performance of Deming and Passing-Bablok Regression Analysis in Detecting Proportionality in the Stock-recruitment Relationship

SEIZO HASEGAWA, NAOKI SUZUKI and KAZUMI SAKURAMOTO

Simulation studies were conducted to investigate whether a simple, Deming, or Passing-Bablok regression analysis can detect proportionality in the stock-recruitment relationship (SRR) when the data contain process and/or observation errors. The results indicated that the Deming and Passing-Bablok regressions were much more able to detect proportionality between recruitment (R) and spawning stock biomass (SSB) than was simple regression analysis. When the Deming and Passing-Bablok regressions were applied to data for the Japanese sardine, *Sardinops melanostictus*, Pacific sardine, *Sardinops sagax*, and chub mackerel, *Scomber japonicas*, the slopes were not statistically different from unity and no density-dependent effect could be detected.

Length-weight Relationship and Condition Factor of Juvenile Nile Tilapia *Oreochromis niloticus* (Linnaeus 1758) fed diets with *Pyropia* spheroplasts in Closed Recirculating System

A.M. SHAHABUDDIN, M.N.D. KHAN, D. SAHA, E. AYNA, K. WONKWON, W.W. MURRAY, T. YOSHIMATSU and T. ARAKI

This study was conducted to assess the nutritional effects of *Pyropia* spheroplasts (PS) on the physical growth proportions of length-weight (L-W) relationship and condition factor (K) of juvenile Nile tilapia *Oreochromis niloticus* (Linnaeus 1758) in a closed recirculating system. Four different iso-energetic diets were prepared with different levels of PS (Diets 1 to 3) including a diet without PS as a control (Diet 4). Fish were fed with 38% protein diets and the results of this study showed that there was no significant difference ($P>0.05$) between groups according to protein intake. The condition factor (K) varied from 1.2-1.7, while the highest value was observed in fish fed with Diet 3 (50 g·kg⁻¹ PS) and the lowest was obtained in the control. Results showed that the PS can be used as fish feed ingredient for the proportional isometric growth of Nile tilapia.

Age, Growth and Population Dynamics of an Endangered Fish *Sahyadria denisonii* (Day 1865) from the Western Ghats Hotspot of India

S. SAJAN, T.V. ANNA MERCY and V. MALIKA

The population structure, age, growth, mortality and harvest intensity of redline torpedo barb *Sahyadria denisonii* (Day 1865) in the River Valapattanam was studied using length-frequency based analysis. The von Bertalanffy growth functions estimated were $L_{\infty}=158 [1-e^{-0.8(t+0.0203)}]$ and growth parameters of von Bertalanffy equation were $L_{\infty}=158$ mm, $K=0.8$ year⁻¹ and $t_0=-0.0203$. The present level of exploitation ($E=0.60$) is higher than the Gulland equation ($E=0.5$) which is an indication of over exploitation. The recruitment pattern was continuous, and displaying a single major peak event per year. Management practices recommend the establishment of a closed season from November to February to protect the spawning stock and stock wise river ranching of captive bred young ones.

SYNOPSIS OF PAPERS VOLUME 28 (ISSUE 4) :

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Effects of Water Temperature on Embryonic Development, Hatching Success and Survival of Larvae of Siamese Mud Carp *Henicorhynchus siamensis* (Sauvage 1881)

PIYATHAP AVAKUL and TUANTONG JUTAGATE

The objectives of this study are to investigate (a) the effect of different water temperature (26, 28, 30, 32 and 34 °C) on embryo development and newly-hatched larvae of Siamese mud carp *Henicorhynchus siamensis* (Sauvage 1881) and (b) the effect of acute temperature change to the newly hatched *H. siamensis* larvae. The development was divided into two phases viz., firstly, from zygote to gastrula periods and, secondly, segmentation to hatching periods. The *H. siamensis* larvae did not successfully hatch at the incubation temperatures of 26 and 34 °C. The development times of the three remaining temperatures were relatively closed at the first phase, in contrast to the second phase, which were quite varied. The hatching times at 28, 30 and 32 °C were about 652, 485 and 457 min, respectively. The percentages of hatching success of the three respective temperatures were $73.76 \pm 2.37\%$, $73.90 \pm 1.44\%$ and $61.42 \pm 1.19\%$, respectively. For the effect of acute temperature changes, numbers of dead larvae were not significantly different between 30 and 28 °C (P-value = 0.30), but there was a significant difference between 30 and 32 °C (P-value < 0.01).

Effects of Artificial Substrate on Growth Performance, Survival and Production of Freshwater Prawn, *Macrobrachium rosenbergii* (de Man 1879) in Cages in Laguna de Bay, Philippines

HANNIBAL M. CHAVEZ

The effects of the number of artificial substrates on growth performance, survival and production of freshwater prawn, *Macrobrachium rosenbergii* (de Man 1879) were evaluated in cages in Laguna de Bay, Philippines. Juvenile prawns (1.97 ± 0.27 g; 5.52 ± 0.19 cm) were stocked in cages (L x W x D: 2 x 3 x 2 m or 12 m³) at 20 pieces m⁻³. Three treatments with three replicates each were used: T₁ = without substrate; T₂ = with 6 pieces artificial substrates and T₃ = with 12 pieces artificial substrates. After 160 days, mean weights were 46.10 g, 45.57 g and 52.20 g in T₁, T₂ and T₃, respectively. Production was highly significant among treatments (P<0.01). Highest total production was recorded in T₃ (17.90 kg) and T₂ (16.40 kg) while T₁ has the lowest production (12 kg). Survival was significantly different among treatments (P<0.05). Highest survival was recorded in T₃ (85.83%) and T₂ (83.05%) and the lowest was observed in T₁ (63.19%). Survival and production were greatly influenced by the increased number of substrates. The higher the number of artificial substrates installed, the greater the survival and production of prawns.

Assessment of the Trash-fish Diet for Snakehead Aquaculture in Vietnam: Species Composition and Chemical characterisation

HIEN, TRAN THI THANH, DINH, TRAN DAC, PHU, TRAN MINH and BENGTON, DAVID A.

Traditional snakehead (*Channa striata* (Bloch 1793) and *Channa micropeltes*, (Cuvier 1831), Channidae) culture techniques in Vietnam have been based on capture of fingerling snakehead from the wild and feeding was based on trash-fish taken from the wild and chopped up for use as snakehead feed. From August to October 2008, freshwater trash fish samples (3 kg composite samples) were collected at three distribution sites in Chau Doc, Thoai Son and Chau Thanh districts, An Giang province, the Mekong Delta, Vietnam. Thirty-three species of freshwater fish were identified in the freshwater trash-fish samples, 12 of which were juveniles of commercially important species. Marine trash-fish samples were also collected at the same distribution sites for analysis of chemical composition and product freshness. Chemical composition of freshwater trash-fish indicates their protein levels to be nutritionally adequate for snakehead aquaculture. Marine trash-fish showed high Total Volatile Base Nitrogen (TVB-N) values, compared to freshwater trash-fish, indicating that they are not fresh. The fish stocks of these freshwater trash-fish species should be assessed and the inland fishery should be managed properly, especially in flood season.

Effects of Chicken Manure Extract on the Population Growth, Mixis Induction and Body Size of the Freshwater Rotifer *Brachionus angularis* Gosse 1851

ERICK OCHIENG OGELLO and ATSUSHI HAGIWARA

This study investigated the effects of chicken manure extract (CME) on the population growth, mixis induction and body size of the freshwater rotifer *Brachionus angularis* Gosse 1851. Four concentrations of CME (0.5, 1.0, 2.0 and 3.0 mL·L⁻¹), each in triplicate, were used in glass jars containing 20 mL of sterilised pond water. We placed 30 clones (24 h old) of *B. angularis* in each jar and added the CME at specified concentration except in the control jars. *Chlorella vulgaris* Beijerinck 1890 (2.5×10⁶ cells·mL⁻¹) was supplied daily in all jars. The treatments were incubated at 25 °C in darkness for 7 days without exchanging water. CME significantly ($P<0.05$) increased the rotifer population density and amictic females from day 4-7 at 2.0 mL·L⁻¹ but reduced the mixis induction rate. However, the CME did not significantly ($P>0.05$) affect the unfertilised mictic females. The specific population growth rate was significantly ($P<0.05$) highest at 2.0 mL·L⁻¹ of CME. The resting egg production decreased with increasing concentrations of CME. The lorica length increased at 3.0 mL·L⁻¹ of CME but the lorica width was unaffected by CME. These results suggest that addition of 2.0 mL·L⁻¹ of CME enhances the population growth and regulates lorica size and hence can be applied in the freshwater larviculture initiatives.

A Preliminary Study of the Age and Growth of Paddletail Snapper *Lutjanus gibbus* (Forsskal 1775) in Bunaken Marine Park, North Sulawesi, Indonesia

CEYLENA J. HOLLOWAY, DANIEL J. BUCHER and LEE KEARNEY

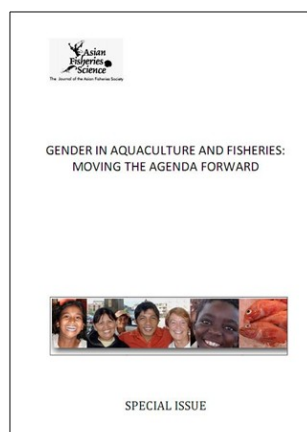
Paddle tail snapper *Lutjanus gibbus* (Forsskal 1775) is an important target species of commercial, recreational, artisanal and indigenous fisheries in tropical Indo-Pacific waters, but away from the centre of its distribution it is often avoided as being a high risk for ciguatera poisoning. This study investigated the age and growth of a tropical population of *L. gibbus* in Bunaken Marine Park, Indonesia. A total of 95 specimens were sampled with fork lengths between 151-312 mm. From growth increments on sectioned otoliths, ages ranged from 1-9 years old, with ages 3 and 4 years being the most common. Growth in length was described by the von Bertalanffy growth function with parameters $L_{\infty} = 274$ mm (fork length), $K = 0.78$ and $t_0 = -0.24$. The population of *L. gibbus* in Bunaken Marine Park consists of fast-growing fish that attain smaller size than populations at higher latitudes, which may possibly contribute to a lower risk of ciguatera poisoning. The fast population turn-over characteristics of *L. gibbus* indicates the potential of the population to sustain high harvest pressure. However, the lack of management of the fishery could still lead to over-exploitation.

Perceptions of Fishers towards Marine Reserves in Iloilo Coastal Communities, Central Philippines

CHERYL JOY J. FERNANDEZ¹ and RODELIO F. SUBADE²

A marine reserve, or marine protected area (MPA), enhances the health of the marine ecosystem, secures livelihoods, and improves community well-being. Despite successful implementation of reserves all over the world, little attention has been given to participation and cooperation between stakeholders in less known and small MPAs. This paper investigates fishers' perceptions of marine reserves in their communities, with an emphasis on the similarities and differences in their perceptions: (1) when their municipal governance is strong; (2) when their incomes are different; and (3) when they are members of non-government organisations (NGOs), or people's organisations (POs). Using survey data from 175 fishers in 5 coastal communities, north of the Province of Iloilo, fishers' perceptions were analysed regarding conflict between various stakeholders in reserves management, as well as their opinions regarding the level of participation in POs and in the overall improvement of coral reefs. Results of the study showed that improvement in the quantity and quality of coral reefs from establishment of marine reserves can be enhanced if fishers have higher incomes, are members of a people's organisation, or have less conflict with other fishers and their local government. Thus, attempts to improve local marine conditions through MPAs should address local participation and membership to POs.

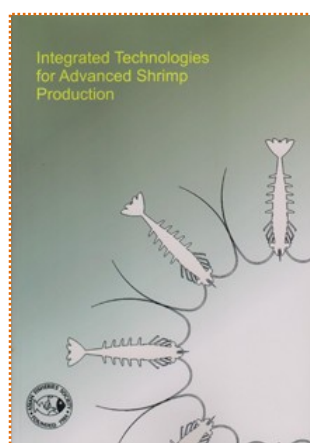
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Gender in Aquaculture and Fisheries: Moving the Agenda Forward **MERYL J WILLIAMS, MARILYN PORTER, POH SZE CHOO, KYOKO KUSAKABE, VEIKILA VUKI, NIKITA GOPAL AND MELBA BONDAD-REANTASO**

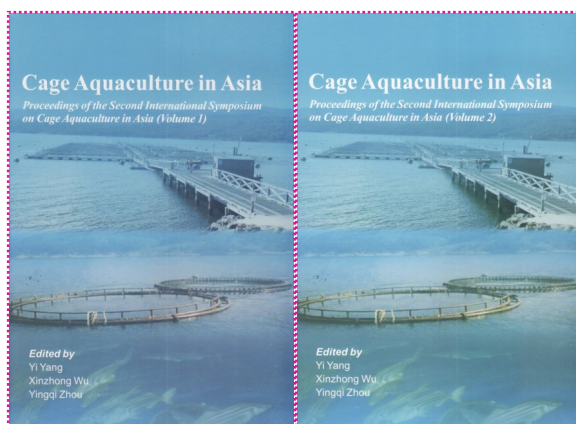
Gender in aquaculture and fisheries is still under-researched but interest is increasing. This volume shows progress in visualizing women's contribution to fisheries and aquaculture and also in structural analysis on value chains and institutions. Faced, however, with additional challenges such as climate change and economic integration, more nuanced analysis is now needed on ecological, economical, political and cultural systems. Factors such as class, age, ethnicity, race, caste, religion etc all come into play to define/condition gender relations.



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