



Asian Fisheries Society e-Newsletter

DISSEMINATING INFORMATION ON AQUACULTURE & FISHERIES IN ASIA AND ASIA-PACIFIC REGION

From the Editor

The year 2014 has been declared as “**International Year of Family Farming**” by the 66th Session of United Nations general Assembly in recognition of the importance small-scale farming plays in poverty alleviation and food security. The same holds true in the case of small-scale fisheries and aquaculture which contribute substantially not only to food security, but also to nutritional and livelihood security of millions in developing countries. Nearly five years of negotiations by FAO with its member-states has ultimately resulted in adopting international guidelines for sustainable management of small-scale fisheries at recent CoFI meeting.

The recently released report of High Level Panel of Experts of Committee on World Food Security, on the role of fisheries and aquaculture in food and nutritional security highlighted that the sector in spite of its contribution to food and nutritional security, received little attention in food and nutritional strategies at national level. Let us hope and strive to get the attention of planners and administrators in our countries to give due recognition to the contribution of the sector and come up with appropriate policies and governance for the sustainable growth of the sector and livelihood of all those involved.

AsiaPacific Fishwatch has completed information on skipjack tuna, one of the commercially important fishes of Asia-Pacific and is in the process of collecting information on yellowfin tuna to be followed by other economically/commercially important species.

Three important conferences under the auspices of the Society are scheduled during this year: (i) 10th Indian Fisheries and Aquaculture Forum (10ifaf) scheduled for 12-15 November 2014 in Lucknow, India organised by the Indian Branch of Society; (ii) 5th Global Symposium on Gender in Aquaculture and Fisheries (GAF5) In conjunction with 10ifaf during 12-15 November 2014, in Lucknow, India; and (iii) 9th Symposium on Diseases in Asian Aquaculture (DAA9) in Ho Chi Minh City, Vietnam during 24-28 November 2014 organised by Fish Health Section of the Society.

The newsletter also provides a list of conferences/symposia to take place in the next 12 months. I look forward to more contributions to the newsletter from the Members.

M. V. Gupta



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President's Message



The 45th Council Meeting of the Asian Fisheries Society was held on 21st April, 2014 in UPM, Malaysia and following are the highlights:

Incoming President: Dr. Joykrushna Jena, Director of the National Bureau of Fish Genetic Resources (NBFGR), Lucknow, India has been elected as the Incoming President of AFS.

Committee Structure Updated:

Prof Neil Loneragan has been appointed as Vice President of 11th Council, while Dr Alice Ferrer was appointed as Chair for Forum and Conference Committee of 11th Council.

The Council approved nomination of Dr Thaithaworn Lirwitayaprasit as the co-opted Councillor of 11th AFS Council.

Council Advisory Group (ACG): President announced the appointment of Council Advisory Group (ACG) consisting of Dr Chan-Lui Lee, Prof Mohan Modayil and Dr Meryl Williams, with Dr Lee as the Coordinator for the group.

Working Group for Strategic Plan: The Council agreed to organize one workshop to discuss and agree on the AFS Strategic Plan drafted by Dr. Derek Staples to capture the input of councillors. The group members are Prof Neil Loneragan, Dr Alice Ferrer, Prof Hong-Yung Chen and Dr Phu Hoa Nguyen.

Generic Conference Website: The Council approved the selection of INI Technologies Pvt. Ltd, India for the development of Generic Conference Website, intended to assist all future hosts of AFS conferences and serve as the archival site for all conference materials held by the Society. The new AFS website is expected to be available for comments from the Council by September 2014.

Membership: 48 new members joined AFS in 2013 and Indonesia recorded the highest number with a total of 23 new members. India continued to have the highest members with 68.4% of total members by the end of 2013. President requested all branches and sections to contact all past and new members and encourage more scientists, academics and students to join AFS.

11AFAF and ISAFE2: Councillors received briefing on the progress in organizing 11AFAF by NACA in Thailand in 2016 and the 2nd International Symposium on Aquaculture and Fisheries Education (ISAFE2) to be jointly organized by AFS and Shanghai Ocean University, Shanghai, China and scheduled for 22-24 April, 2015 (<http://isafe2.shou.edu.cn>).

AFS Journal and its accessibility: The Asian Fisheries Science Journal (AFSJ) has been listed in the National Academy of Agricultural Sciences India (NAAS) and is continuing to improve under the guidance of the Editor-in-Chief Prof. Mohamed Shariff. This includes improved turn around and editing of journal articles and improved standards of submissions and publications. However, the number of papers are still very low – often 5-6 articles/issue. Regional scientists are encouraged to send their papers for publication in the AFSJ.

AFS e-Newsletter: The Council reiterated the importance of the Society's e-newsletter and agreed to contribute more articles and make the newsletter informative for the members and also non-members who visit the AFS site.

Branches and Sections: All Branches and Sections of the Society have made good progress and taken more actions that are efficient. Council has approved of appointment Dr Rodelio Subade as a new Coordinator of AFSSRN at end of January 2013.

AsiaPacific-FishWatch Breaks Information Barriers

Two-thirds of the world's fish are harvested or farmed in the Asia-Pacific region, yet information on the fish is often difficult to find, piecemeal and confusing. The Asian Fisheries Society and its partners set out to break through this critical information barrier by creating AsiaPacific-FishWatch. AsiaPacific-FishWatch (www.asiapacfish.org) is developing profiles of the most important types of fish and shellfish produced in the Asia-Pacific region, covering the seas, rivers, lakes and farms of the western and central Pacific ocean and the Indian ocean. The profiles will be comprehensive and cover sustainability, production, supply chains, environment and climate, and biology. "Our aim is to explain Asia-Pacific fish products for consumers, the general public, fish exporters and importers, development agencies, fisheries managers and scientists," says Dr Meryl Williams, the project Director.

All information in AsiaPacific-FishWatch is reviewed by the top experts in each commodity and subject. It is non-partisan and does not engage in advocacy. Its content emphasizes information relevant to sustainability and people in the supply chain.

The new AsiaPacific-FishWatch website was publicly launched in November 2013 (<http://www.asiapacfish.org/index.php/item/17-asiapacific-fishwatch-breaks-information-barriers>), Now that we have completed information on skipjack tuna (<http://www.asiapacfish.org/index.php/species/item/5-skipjack-tuna>), we are in the process of finalizing the species profile for yellowfin tuna (see <http://www.asiapacfish.org/index.php/species/item/18-yellowfin-tuna>). Members will be notified when all the yellowfin information is complete and the next species are being loaded.

Now that the information on tunas is nearing completion as test or pilot profiles, we are in the process of seeking funds for the preparation of more species, including some key aquaculture species. In the meantime, we have set up news and information outlets using: Twitter (follow all the latest on Asia-Pacific fisheries and aquaculture regional news on @Asiapacfish), and Facebook: "like" us on <https://www.facebook.com/asiapacificfishwatch> and catch up with the news.

Contributed by: Meryl J Williams

Gender In Aquaculture and Fisheries Update

This year, 2014, has been a very active one for members involved in gender in aquaculture and fisheries. We are focusing on publishing the proceedings from our last Symposium, preparing for our next one, and keeping our network dynamic through online social media. Review, revision and editing of the successful manuscripts arising from papers presented at the 4th Global Symposium on Gender in Aquaculture and Fisheries (GAF4) is being completed for publication in Special Issue of *Asian Fisheries Science* journal. Guest Editors are Nikita Gopal (Chief Guest Editor) and Meryl Williams, Poh Sze Choo, Marilyn Porter and Kyoko Kusakabe. Our previous AFS journal Special Issue, based on GAF3, was published just over a year ago (<http://genderaquafish.org/events/gaf3-2/contents-asian-fisheries-science-25s/>).

One of the regional developments from GAF4 was the start of Thematic Gender Studies led by the Network of Aquaculture Centers in Asia-Pacific (NACA). The Studies will cover gender in aquaculture studies at national level and case studies for Cambodia, Lao PDR, Thailand, and Vietnam have already commenced. It is a direct result of the NACA planning workshop supported by NORAD and held as part of GAF4. The new NACA project is funded through the USAID MARKET (Maximizing Agricultural Revenue Through Knowledge, Enterprise Development and Trade) project. National team members from each country are meeting in Bangkok in June to start the serious work after a desk study earlier in the year paved the way.

GAF5 will be held from 12-15 November this year, in Lucknow, India, as part of the 10th Indian Fisheries Forum and Aquaculture Forum at the invitation of the Forum organizers. Organizing Committee and enthusiastic sub-committees < <http://genderaquafish.org/gaf5-2014-lucknow-india/gaf5-organization/> > are already on the job. Full details of the draft program, which will be more varied than in the past, and which will include a National Day, can be found on website: < <http://genderaquafish.org/gaf5-2014-lucknow-india/themes/> >. It is also aimed to include events with grass-roots women's organisations and non-government organisations, as well as movies and videos. All are invited to come and participate.

Social media efforts continue to prosper, thanks to the efforts of Piyashi DebRoy (India), Danika Kleiber (Canada) and N.C. Shyla (India) through our website (<http://genderaquafish.org/>) which has regular posts of news items, conference and other information. We use this platform to reach out and exchange information with other audiences through Facebook, Twitter and Paper.li. In addition, we have a dedicated Google Group that exchanges e-mails. We would welcome more people to join us and contribute on all these media.

LINKS

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

Facebook: <https://www.facebook.com/pages/AFS-Gender-in-Aquaculture-and-Fisheries/18117655231544>

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

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

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

Contributed by: Meryl J Williams and Nikita Gopal

Fish Health Section

The Fish Health Section (FHS) of the Asian Fisheries Society (AFS) will be organising the 9th Symposium on Diseases in Asian Aquaculture (DAA9) in Ho Chi Minh City, Vietnam from 24-28 November 2014. The FHS is credited with holding triennial symposia on “**Diseases in Asian Aquaculture**” (DAA) where members and aquatic animal health professionals meet to discuss broad issues and specific topics related to aquatic animal health in Asian Aquaculture.

FHS has conducted earlier symposia: DAA1 in Bali, Indonesia (1990); DAA2 in Phuket, Thailand (1993); DAA3 in Bangkok, Thailand (1996); DAA4 in Cebu, The Philippines (1999); DAA5 in Gold Coast, Australia (2002); DAA6 in Colombo, Sri Lanka (2005); DAA7 in Taipei, Taiwan (2008); DAA8 in Mangalore, India (2011). Each of these symposia brought together more than 300 aquatic animal health scientists, students, government researchers and industry personnel from over 30-40 countries. In keeping with the unique tradition of previous DAA symposia, DAA9 in Vietnam is going to be a unique experience that you don't want to miss.

Please see details under conferences section.

Asian Fisheries Social Sciences Research Network (AFSSRN)

Coordinator of AFSSRN is in the process of getting in touch with the past members of the network and potential new members, especially those who attended network meetings during the 2007 and 2011 Asian Fisheries Forum in Kochi, India and Shanghai, China, respectively. All the past members and those social scientists interested are requested to contact the Coordinator Dr. Rod Subade (redabus@yahoo.com). If there is enough interest, the Coordinator is planning to organise meeting during the “*International Scientific Conference on Fisheries and Aquaculture Sciences: Towards disaster and climate resilience (ISCFAS)*” scheduled for 22-23 October, 2014 in Iloilo City, Philippines (see details under conferences section).

News From Indian Branch : The 10th Indian Fisheries and Aquaculture Forum (10ifaf)

The Indian Branch (AFSIB) in collaboration with National Bureau of Fish Genetic Resources (NBFGR), Lucknow, India is organising the 10th Indian Fisheries and Aquaculture Forum (10ifaf) and is scheduled for 12-15 November, 2014 at Lucknow, India.

The Indian Branch since its inception in 1986, has been providing a platform for discussion at the national level on issues related to research, development, education and policies by organizing Indian Fisheries Forum (IFF) every three years in different parts of the country. Indian Fisheries Forum (IFF) has now been renamed **10th Indian Fisheries and Aquaculture Forum (10 ifaf)**, with the theme '**Towards Responsible Aquaculture and Sustainable Fisheries**'.

The technical sessions would be organised under 11 thematic areas and each thematic area would include lead presentation by invited experts, panel discussions and oral presentations of selected research papers by the participants. The papers presented in the forum will be **published as a Special volume** in the *Indian Journal of Fisheries* after due review process.

Parallel events: During the Forum it is proposed to organise different parallel events, including Workshops and Aqua-farmers' meet, Exhibitions, etc.

Awards: For recognition of talents, several awards would be conferred during 10ifaf, which includes 1) **Young Scientist Award**; 2) **Prof. H.P.C. Shetty Award**; and 3) **Professors T.J. Pandian and A.J. Matty Award by AFSIB**; 4) **Dr. Pillay Aquaculture Award** by the Pillay Aquaculture Foundation and 5) **Shri J.V.H. Dixitulu National Award** by the Association of Aquaculturists, Marine Biological Association of India and the Inland Fisheries Society of India, besides Best Poster Presentation award.

News From Taiwan Branch

The Taiwan Fisheries Society Annual Meeting and Conference was held at the National Chiayi University on January 18, 2014. This was one of the largest Fisheries Society Meetings and Conferences ever held in Taiwan.

The “7th Asia and Oceania Society for Comparative Endocrinology (AOSCE) Inter-congress” with the theme “Overcoming Challenges in The 21st Century” was held at the National Taiwan Ocean University (NTOU), Keelung, Taiwan from 18 to 24 March 2014. Scientists from 13 countries participated in this conference.

The Ocean Sciences Annual Conference and Bilateral 10th Cross-Strait Ocean Science Conference was organized at Howard Civil Service International House, Taipei, Taiwan from April 27 to May 1, 2014. This was a joint conference of the Ocean Sciences Annual Conference of Taiwan and a bilateral conference of Cross-Strait Ocean Sciences Conference with China. The conference was attended by about 400 scientists mostly from Taiwan and China.

One of the founders of the Asian Fisheries Society, the first Chair of the Taiwan Branch of AFS as well as former President of AFS and Academician, Dr. I Chiu Liao has been bestowed with “**The order of the Rising Sun, Gold Rays with Neck Ribbon**” award by the government of Japan in recognition of his outstanding contribution to the aquaculture sector. Many Taiwanese alumni from Tokyo University as well as VIPs from the Taiwanese Societies of Education, Science and Aquaculture Industry have attended this ceremony in the Japan Interchange Association in Taipei. In the past, Dr. Liao received the Taiwan Presidential Science Prize and Lifetime Achievement Award in 2009 and Lifetime Achievement Award from the Global Aquaculture Alliance (GAA) in 2012.



Dr. Liao receiving “The Order of the Rising Sun, Gold Rays with Neck Ribbon” award from Mr. Tarui Sumio, Chief Representative of Japan Interchange Association and representative of the Emperor of Japan.

Contributed by Dr. Jiang-Shiou Hwang

UPCOMING CONFERENCES ORGANISED BY ASIAN FISHERIES SOCIETY & BRANCHES/NETWORKS



10th Indian Fisheries Forum (10ifaf)

Towards Responsible Aquaculture and Sustainable Fisheries

12-15 November, 2014

Organized by
Asian Fisheries Society, Indian Branch (AFSIB)

In collaboration with
National Bureau of Fish Genetic Resources (NBFGR)



The 10th Indian Fisheries and Aquaculture Forum (10ifaf), with the theme 'Towards Responsible Aquaculture and Sustainable Fisheries' will be hosted by the Indian Branch of AFS in collaboration with the National Bureau of Fish Genetic Resources (NBFGR) at Lucknow, India during 12-15 November, 2014. The Forum is expected to provide an unique platform for scholarly interaction for sustainable development of the Fisheries and Aquaculture sectors. Over 1000 delegates from the country and abroad are expected to participate in 10ifaf.

The Technical programme would be conducted under 3-4 parallel sessions for oral presentations and also poster sessions in following 11 thematic area.

- Fisheries Resource Management
- Aquaculture-Breeding & Production Systems
- Fish Genetics and Biotechnology
- Fish Nutrition, Biochemistry & Feed Technology
- Aquatic Animal Health
- Fishery Biology, Toxicology & Environment Health
- Harvest and Post-harvest Technology
- Fisheries and Aquaculture Engineering
- Social Sciences in Fisheries
- Fisheries Policy and Governance
- Fisheries Education and HRD

Along with the 10ifaf, two international events, viz., '5th Global Symposium on Gender in Aquaculture' and 'International Workshop on Aquatic Animal Disease Surveillance' would also be organised as parallel programmes.

The "International Workshop on Aquatic Animal Disease Surveillance" will be organised during 13-14 November 2014. The objectives of the Workshop are to discuss the prevailing surveillance systems all over the world, especially in the Asia-Pacific region and to develop future strategies for sharing of information and expertise and developments between the different countries of the region, so as to have better preparedness for combating any disease threat to aquaculture and trade. International and national experts will be invited for presentations.

The 10ifaf intends to have several other parallel events including organization of farmers meet and an exhibition. The preparation for the 10ifaf is on full swing. There has been overwhelming response for participation in the events.

Awards: For recognition of talents, several awards would be conferred during 10ifaf, which includes three awards by AFSIB: (i) **Young Scientist Award;** (ii) **Prof. H.P.C. Shetty Award;** and (iii) **Professors T.J. Pandian and A.J. Matty Award; Dr. Pillay Aquaculture Award** by the Pillay Aquaculture Foundation; and **Shri J.V.H. Dixitulu National Award** by the Association of Aquaculturists, Marine Biological Association of India and the Inland Fisheries Society of India, besides Best Poster Presentation award.

Further details regarding the 10ifaf, Sponsorship, participation in the Exhibition etc. are available at the website: www.10ifaf.in or contact **Dr. J. K. Jena**, Convener, 10th Indian Fisheries and Aquaculture Forum. Phone (Off): 91-0522-2440141, 2442440; Fax: 91-522-2442403 E-mail: 10ifaf2014@gmail.com

Important Dates:

Submission of Abstracts	:	01 January– 31 July, 2014
Communication of Acceptance of Abstracts	:	31 August, 2014
Last date of Submission of Application for different Awards	:	31 August, 2014
Last date of Submission of Full Paper	:	31 October, 2014
10 th Indian Fisheries and Aquaculture Forum	:	12 - 15 November, 2014

5th Global Symposium on Gender in Aquaculture and Fisheries

In conjunction with 10 ifaf, a Special Session on the **5th Global Symposium on Gender in Aquaculture and Fisheries (GAF5)** would be organized during 12-15 November 2014. GAF5 aims to be a vital platform for examining the progress towards achieving gender equality in aquaculture and fisheries through inspiring plenary addresses, workshops involving grassroots gender/women's groups representatives, oral and poster presentations, a national session, a film showing and panel discussion, plus more. This is the first time that an Asian Fisheries Society GAF event will be held in conjunction with the Indian Fisheries Forum, the 10ifaf.

Registration: The registration fee for participation in 10ifaf is as follows:

Indian Delegates

Members of AFS/AFSIB..... Rs. 5,000
 Non-members of AFS/AFSIB..... Rs. 7,000
 Students/Observers/Spouses..... Rs. 3,000

Overseas Delegates

Participants from SAARC Countries (Members of AFS/AFSIB)US\$ 150
 Participants from SAARC Countries (Non-members of AFS/AFSIB)US\$200
 Participants from other countries (Members of AFS/AFSIB)..... US\$ 200
 Participants from other countries (Non-members of AFS/AFSIB)....US\$300

Further details regarding the 10ifaf, Sponsorship, participation in the Exhibition etc. are available at the website: www.10ifaf.in or contact **Dr. J. K. Jena**, Convener, 10th Indian Fisheries and Aquaculture Forum. Phone (Off): 91-0522-2440141, 2442440; Fax: 91-522-2442403 E-mail: 10ifaf2014@gmail.com

9th Symposium on Diseases in Asian Aquaculture (DAA9)

The Fish Health Section (FHS) of the Asian Fisheries Society (AFS) will be organising the **9th Symposium on Diseases in Asian Aquaculture (DAA9)** in Ho Chi Minh City, Vietnam from 24-28 November 2014. The FHS is credited with holding triennial symposia on **"Diseases in Asian Aquaculture" (DAA)** where members and aquatic animal health professionals meet to discuss broad issues and specific topics related to aquatic animal health in Asian Aquaculture.

The Department of Animal Health (DAH) under the Ministry of Agriculture and Rural Development (MARD) will be the local host and will organize the event in close cooperation with FHS. To this effect, a MOU has been signed between FHS (AFS) and DAH (MARD) on 18 March 2013. Japanese Society of Fish Pathology (JSFP) has come forward to be a co-sponsor of DAA9.

Registration Details:

A. FHS (AFS) Regular Members

Early Registration: 300 USD (From 1st April-31st July 2014)
 Late Registration: 350 USD (1st Aug to 24th Nov 2014)

B. FHS (AFS) Student Members

Early Registration: 200 USD (From 1st April-31st July 2014)
 Late Registration: 250 USD (1st Aug to 24th Nov 2014)

C. Non-Members

Early Registration: 350 USD (From 1st April-31st July 2014)
 Late Registration: 400 USD (1st Aug to 24th Nov 2014)

D. Vietnamese Nationals

Early Registration: 200 USD (From 1st April-31st July 2014)
 Late Registration: 250 USD (1st Aug to 24th Nov 2014)

E. Vietnamese Students

Early Registration: 150 USD (From 1st April-31st July 2014)
 Late Registration: 200 USD (1st Aug to 24th Nov 2014)

Submission of Abstracts: Online submission of abstracts will be open from 1st April to 31st August 2014. Guidelines and template are available in the website (www.9aa.org) for online submission.

DAA9 Proceedings: JSFP has agreed in principle to publish up to 30 papers presented at the DAA9 as a special on-line issue of Fish Pathology journal. Acceptance is subject to meeting the peer review process of the Fish Pathology Journal. Those of you who are considering to publish your presentations, kindly prepare the manuscripts as per the requirement of Fish Pathology journal. Full papers must be submitted before 24th Nov 2014.

Student Travel Awards: FHS awards up to 10 student travel awards to qualified post graduate and PhD students to present their work at DAA9. Selected students will be exempt from registration fee and provided with opportunity to make an oral presentation. Interested students must submit their abstract and full paper as per stipulated guidelines to the student award committee before the deadline of 31st Aug 2014. The decision of the student award committee is final.

Sponsorship: Past DAA events have been sponsored and supported by international and regional organizations, private international and national companies that are interested in promoting the concept of improved bio-security and better aquatic animal health management. Organizations and companies interested in sponsoring and supporting the DAA9 event in Vietnam are welcome to contact the organizers for further details about sponsorship modalities.

For additional details, contact:

Prof Chadag Mohan, Chairperson of FHS (AFS) at v.chadag@cgiar.org
 Dr Puttharat (AAHRI), Secretary of FHS (AFS) at puttharat@hotmail.com
 Dr Luan Tran Dinh (DAH), LOC at tdluan.dah@gmail.com
 Dr Le Van Khoa (DAH), LOC at lvkhoa@dah.gov.vn

Please look out for new information on DAA9 and FHS (AFS) on our website

<http://www.daa9.org>

NEWS

FAO-CoFI Adopts Guidelines on Small-scale Fisheries

Member-states of FAO at 31st meeting of CoFI held in June 2014 adopted international guidelines on small-scale fisheries, an international instrument on small-scale fisheries in marine and freshwaters, based on the recognition of small-scale fisheries as a principal contributor to poverty alleviation and food security. These guidelines, which are voluntary focuses on needs of developing countries covering fishing as well as post-harvest and upstream activities.

S Korean Researchers Artificially Breed Alaska Pollock

In the face of steadily shrinking catches of myeongtae, or Alaska pollock, a member of the cod family, a team of researchers from the Deep Ocean Water and Fishery Resource Center, the National Fisheries Research & Development Institute and Gangneung Wonju National University successfully spawned the fish for the first time and produced approximately 94,000 young Alaska pollock, also called walleye pollock, in the last few weeks.

Of the some 94,000 pollock born, the research team plans to nurture 10,000 of them to be used as future egg and sperm donors while releasing the rest once they grow to a size of five to seven centimeters (1.9 to 2.7 inches).

Source: Samudra News Alerts, 14 May 2014

Shrimp Diseases – EMS (Early Mortality Syndrome)

Three case studies undertaken by GAA (Global Aquaculture Alliance) in conjunction with World Bank and Responsible Aquaculture Foundation on disease management in the last three years, has revealed several conditions associated with disease outbreaks: close proximity among farms, unregulated transfer of animals, stress from crowding, poor sanitation, inadequate government veterinary services and lack of communication and cooperation among farms.

Now GAA is spearheading a follow-up study on EMS in conjunction with the World Bank, Allfish and Seafood Industry Research Foundation. As part of this study, GAA has launched a comprehensive survey designed to collect information on EMS from countries affected or threatened by EMS, including China, Vietnam, Malaysia, Thailand, India and Mexico. Those interested can participate in the survey by logging on to: www.gaalliance.org/survey. GAA hopes to incorporate the lessons learned from this study into a new zone management standard within its Best Aquaculture Practices certification program.

Source: Global Aquaculture Advocate May/June 2014

NACA elects its new Director General

NACA Governing Council elected Dr. Cherdasak Virapat as Director General of NACA, who will commence duties in June 2014 for a five year term. Dr. Virapat is presently Executive Director of International Ocean Institute (IOI), Bangkok, where he has been working since May 2008.

Source: enaca.org

Ocean Summit Calls for Action Against Over-Fishing and Pollution

The Global Ocean Action Summit for Food Security and Blue Growth organised by Government of Netherlands in collaboration with FAO, the World Bank, and the governments of Grenada, Indonesia, Mauritius, Norway and USA during 22-25 April 2014 in Hague and attended by over 600 stakeholders - Governments, business leaders and NGOs from 80 countries committed to a set of concrete actions responding to the need to restore productive and resilient oceans.

The summit called for:

- A stand alone sustainable development goal on oceans as part of post-2015 Development Framework;
- Much stronger recognition of escalating impacts from climate change and ensure incorporating into international process and events heading towards 2015 UN Framework Convention on climate change (UNFCCC) conference of parties;
- Eliminate harmful fisheries subsidies that contribute to overfishing and over capacity;
- Strengthen the mandate of Regional Fisheries Management Organisations and their financing;
- Invest in small and medium scale fisheries and local communities;
- Build on existing partnerships like the Global Partnership for Oceans, etc.;
- Share knowledge, experiences and solutions.

At the summit more than ten new commitments to cross-boundary partnerships were entered into, leading to action in many places around the world.

Source: <http://www.fao.org/news/story/en/item/230743/icode/>

Open access institutional repository of Central Marine Fisheries Research Institute, India

Central Marine Fisheries Research Institute, India (CMFRI) undertakes in-depth studies on all aspects of marine fisheries and marine aquaculture. Over 9,000 publications of the Institute going back to 1948 have been digitised and are available for downloading through E-prints@CMFRI, the Open Access Institutional Repository. The repository could be accessed through www.cmfri.org.in and users anywhere in the world can freely download the research outputs.

The repository got 352th rank among World Web Institutional Repositories 2014 announced by Consejo Superior de Investigaciones Cientificas (CSIC), Spain. As per user statistics, 119,015 users from 209 countries visited the repository during 12 months from April 2013 to March 2014.

Source: *Cadalmin: CMFRI Newsletter No. 140*

Aquaculture without Frontiers (AwF) Completes a Decade of Voluntary Service

Aquaculture without Frontiers (AwF) was founded in Brazil at a World Aquaculture Society (WAS) conference in 2003 and launched as a charity at another WAS conference in Hawai'i in 2004 with the objective of alleviating poverty in developing countries through small-scale aquaculture.

During the period 2003-2012 AwF raised nearly US\$450,000 through individual and corporate donations and work was carried out in many locations around the world. Many of its small-scale aquaculture projects were conducted with partner NGOs in Asia, such as World Vision and Caritas. AwF also carried out tsunami relief in Indonesia and India on behalf of WAS and supported by YSF. In addition, it organized two farmer to farmer programs in conjunction with the University of Arizona, USA.

The full history of AwF from 2003 to 2012 was published in *World Aquaculture*, 45(1):24-39. The current ambitions and activities of AwF, which is under new management, can be viewed on its website www.aquaculturewithoutfrontiers.org

Contributed by Michael B. New

FAO Releases “State of World Fisheries and Aquaculture 2014” Report

According to the FAO’s “The State of Fisheries and Aquaculture” report released on 19 May 2014, global fisheries and aquaculture production totalled 158 million tons in 2012, around 10 million tons more than 2010. Marine fish production was stable at about 80 million tons. The growth in production was driven by rapid expansion of aquaculture including the activities of small-scale farmers.

The renewed focus on the so-called “Blue World” comes as the share of fisheries production used as food for humans has increased from 70% in the 1980s to a record high of more than 85% (136 million tons in 2012). At the same time, per capita consumption of fish has increased from 10 kg in the 1960s to more than 19 kg in 2012. Trade in fish and fish products has reached \$ 130 million in 2012, of which 54% was from developing countries.

FAO estimates that fisheries and aquaculture support livelihoods of 10-12% of the world’s population. In 2012, the sector provided jobs to some 60 million people, of whom 84% in Asia.

Full report can be downloaded from <http://www.fao.org/3/a-i3720e.pdf>

A short video from FAO on “Blue Growth” can be downloaded from <http://www.youtube.com/watch?v=RZ7g94yiD6g&feature=youtu.be>

Prof. Fatimah Yusoff and Professor Wing-Keong Ng Honoured

“Professor Fatimah Yusoff (Universiti Putra Malaysia) and Professor Wing-Keong Ng (Universiti Sains Malaysia) who are ex-council member and member of Asian Fisheries Society, respectively, were recipients of the “**Top Research Scientists Malaysia**” award given by the Academy of Sciences Malaysia (ASM, the leading ‘think tank’ of the nation for matters related to science, engineering, technology and innovation,). The award was given based on their significant contributions to the fisheries, environment and aquaculture fields of research. At the same award ceremony, both Prof. Fatimah and Ng were also conferred as Fellows of the ASM by the Prime Minister of Malaysia.



Sino-Japan-Korea and Southeast Asia 2014 International Symposium of Aquatic Products Processing, Quality and Safety Held in Qingdao, China

The symposium jointly hosted by China Society of Fisheries, Ocean University of China, Sponsored by Qingdao Better Biotechnology Co., Ltd, and supported by Asian Fisheries Society, was held in Qingdao during 13-14 May 2014.

More than 30 internationally renowned scholars from Japan, Korea, Southeast Asia, the United States, Spain and other countries and regions, participated in the meeting, together with more than 240 domestic scholars from 30 universities and institutes.

The symposium was organised under four thematic areas: (i) Aquatic products processing and preservation, (ii) Aquatic resources high-valuation and utilization, (iii) Aquatic products nutrition and safety, and (iv) Aquatic food biotechnology. This meeting plays a central role in the core status of Asian Aquaculture industry, and promotes the development of aquatic products processing in Asia, and pushes forward the assurance of aquatic product quality and safety.



NEW PUBLICATIONS

Sustainable Fisheries and Aquaculture for Food Security and Nutrition

The report produced by the team of High Level Panel of Experts (HLPE) on food security and nutrition of the Committee on World Food Security, presents a synthesis of existing evidence regarding complex pathways between fisheries and aquaculture and food and nutritional security. The report points that scant attention has been paid so far to the sector at national level and in wider development discussions and interactions and makes a number of recommendations to achieve sustainable development of the sector and make an impact on food security and nutrition. Full report can be downloaded from: http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE_Reports/HLPE-Report-7_EN.pdf

State of World Fisheries and Aquaculture 2014

The new edition of FAO's State of World Fisheries and Aquaculture highlights the growing role of fish feeding the world. Full report can be downloaded from: <http://www.fao.org/3/a-i3720e.pdf>

Improving Productivity and Environmental Performance of Aquaculture

This latest working paper published by the World Resources Institute (WRI), estimates that aquaculture production has to more than double by 2050, rising from 67 million tons in 2012 to 140 million tons by 2050. The report examines scenarios of aquaculture growth and environmental impact in 2050 and makes a number of recommendations for sustainable growth of aquaculture. Full report can be downloaded from: http://www.wri.org/sites/default/files/WRI14_WorkingPaper_WRR5_FINAL_online.pdf

Production and Contribution of Nutrient-rich Small Fish (SIS) in Pond and Wetlands for Nutrition and Livelihoods in Asia

The proceedings of two day regional workshop can be downloaded from: http://worldfishcenter.org/resource_centre/WF-3728.pdf

SAMUDRA Report No. 67

SAMUDRA Report No. 67, the triannual journal on fisheries, communities and livelihoods features articles from Asia, Africa, and Europe, as well as reports on the Sub-regional Dialogue on Labour, Migration and Fisheries Management, organized at Chulalongkorn University, Bangkok, Thailand, from 11 to 13 December 2013; report on the Technical Consultation on International Guidelines for Securing Sustainable Small-scale Fisheries, held in Rome over two sessions, during 20-24 May 2013 and 3-7 February 2014; and an analysis of the Philippines government proposal for a 40-m no-dwelling zone in the wake of Typhoon Yolanda. The report can be accessed at: <http://www.icsf.net/en/samudra/article/EN/67.html?limitstart=0>

YEMAYA Issue No. 45

The latest edition of Yemaya issue No. 45, dated April 2014, carries articles from Canada, India and elsewhere. A principal focus is on the Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines) of FAO. It can be accessed at <http://www.icsf.net/en/yemaya/article/EN/44.html?limitstart=0>

An Ecosystem Approach to Fisheries

The publication tackles the issue of dealing with the impacts of fisheries on the ecosystem and how participatory approaches like co-management can make a difference in balancing ecological concerns with human well-being. For complete report, visit: (http://www.icsf.net/images/EAF_final_26Nov13_1.24pm.pdf)

Small-scale Fisheries: Their Contribution to Food Security, Poverty Alleviation and Sustainability

The publication points out that at least 20 per cent of the animal protein intake of the three billion people of the world's population is derived from fish. For full report, please visit: http://www.icsf.net/images/ssf/SSF_BROCHURE_English.pdf \

NEW PUBLICATIONS

Draft Voluntary Guidelines for Securing Sustainable Small-scale Fisheries (SSF)

The publication tracks the history of how FAO has been working to develop guidelines for SSF. For details, please visit: http://www.icsf.net/images/ssf/ENGLISH%20_SSFguidelines_leaflet.pdf

Guide to Deep-sea Cartilaginous Fishes of Indian Ocean

Indian Ocean is home to about 36% of world's deep-sea cartilaginous sps. : 117 deep-sea sharks, 61 skates and 17 chimaeras. Realising that catch reporting on cartilaginous fishes is poor as compared to those on bony fishes, FAO has come up with "Identification Guide to the Deep-sea Cartilaginous Fishes of Indian Ocean". This publication with high resolution pictures can be downloaded from: <http://www.fao.org/3/a-i3486e.pdf>

The Potential Impacts of Mandatory Labeling for Genetically Engineered Food in the United States

Although genetic engineering products are being used around the world, their use in food products has become a contentious issue for some consumers. Many U.S states are considering legislation to mandate labelling of such products. This publication examines arguments for and against labelling, the costs involved with labelling and experiences in countries that use mandatory labelling.

The publication can be downloaded at: [https://www.cast-science.org/download.cfm?](https://www.cast-science.org/download.cfm?PublicationID=282271&File=1030fe49a27b784c85cc3c53195b4a2b1a4bTR)

[PublicationID=282271&File=1030fe49a27b784c85cc3c53195b4a2b1a4bTR](https://www.cast-science.org/download.cfm?PublicationID=282271&File=1030fe49a27b784c85cc3c53195b4a2b1a4bTR)

UPCOMING CONFERENCES

IIFET Conference

The biennial conference of the International Institute for Fisheries Economics and Trade is scheduled for 7-11 July 2014 in Brisbane, Australia. Among the themes (<http://iifet2014.org/themes-topics/>) is "Gender issues in fisheries and aquaculture". Thanks to the AquaFish-CRSP, the theme of gender established a toehold in the last IIFET conference (see the report and links to papers at: <http://genderaquafish.org/events/iifet-gender-sessions-2012-dar-es-salaam-tanzania/>). To register, go to: <http://iifet2014.org/call-for-submissions/>

International Conference on Fisheries Sciences 2014

The conference scheduled for 30 July – 1 August 2014 in Colombo, Sri Lanka is expected to feature a broad range of technical, social and legal aspects of national and international interest. For further details visit: www.marinfish.org

Seafood Expo Asia 2014

This expo is being scheduled for 2-4 August 2014 in Wanchai, Hongkong. For more details, visit: www.seafoodexpo.com/asia

Tenth International Conference on Recirculating Aquaculture

This conference scheduled for 22-24 August 2014 in Roanoke, Virginia, USA, is expected to feature presentations and poster sessions from leading experts in recirculation aquaculture. For more details, visit: www.recircaqua.com/icra.html

International Symposium on Aquatic Animal Health

American Fisheries Society will hold its once in 4 years international symposium on aquatic animal health in Portland, Oregon, USA and is scheduled for 31 August to 4 September 2014. For additional information please visit: www.afs-fhs.org

ICFA 2014, Sri Lanka

International Conference on Fisheries and Aquaculture, Colombo (ICFA 2014), is being organised by The International Institute of Knowledge Management (TIKM) in Colombo and is scheduled for 9-10 September, 2014. For details visit: <http://aquaconference.com/call-for-papers/>

International Scientific Conference on Fisheries and Aquaculture: Towards Disaster and Climate Resilience (ISCFAS)

The conference organised by UP Visayas and Manila Observatory is scheduled for 22-23 October, 2014 in Illoilo City, Philippines. The conference is being organised under the theme areas: (i) climate change and disaster risk reduction; (ii) coastal ecosystems in the face of climate change; (iii) actors and institutions involved; (iv) recovery and rehabilitation framework; and (v) climate smart technologies. For details, please visit: <http://www.upv.edu.ph/upv/index.php/call-for-papers-and-invitation-to-participate-in-the-international-scientific-conference-on-fisheries-and-aquatic-sciences-towards-disaster-and-climate-resilience>

10th Indian Fisheries and Aquaculture Forum (10ifaf)

The Indian Branch of the Asian Fisheries Society in collaboration with National Bureau of Fish Genetic Resources (NBFGR) is organising the 10th Indian Fisheries and Aquaculture Forum (10ifaf) with the theme "Towards Responsible Aquaculture and Sustainable Fisheries" and is scheduled for 12-15 November, 2014 in Lucknow, India. For additional information visit: www.10ifaf.in

5th Global Symposium on Gender in Aquaculture and Fisheries

In conjunction with 10 ifaf, a Special Session on the 5th Global Symposium on Gender in Aquaculture and Fisheries (GAF5) is scheduled for 12-15 November 2014 in Lucknow, India, in conjunction with 10th Indian Fisheries and Aquaculture Forum. For details visit: www.10ifaf.in

BIT's Annual World Congress of Aquaculture and Fisheries 2014

The BIT's Annual World Congress of Aquaculture and Fisheries 2014 is scheduled for 16-18 October 2014 in Dalian, China. For information, log on to: <http://www.bitcongress.com/wcaf2014/>

9th Symposium on Diseases in Aquaculture (DAA)

The Fish Health Section (FHS) of the Asian Fisheries Society (AFS) will be organising the 9th Symposium on Diseases in Asian Aquaculture (DAA9) in Ho Chi Minh City, Vietnam from 24-28 November 2014. For details visit: <http://www.daa9.org>

UPCOMING CONFERENCES

GOAL 2014

Global Aquaculture Alliance's annual GOAL (Global Outlook on Aquaculture Leadership) conference is scheduled for 7-10 October 2014 in Ho Chi Minh City, Vietnam. Disease risk management, leadership and innovation, food safety, aquafeed sustainability are among themes that will be discussed in the conference. For more details, visit www.gaalliance.org/GOAL2014

Global Inland Fisheries Conference

This ground breaking conference being organised by FAO and scheduled for 26-30 January 2015 in Rome, Italy, will for the first time addresses opportunities for freshwater fisheries on a global scale. This is for a cross-sectoral call to raise the profile of inland fisheries and better incorporate them in agriculture, land use and water resource planning through development of improved assessment framework and value estimation. For more details, visit: www.inlandfisheries.org/?page_id=94

ASEAN Fisheries and Aquaculture Conference and Exposition 2015

This conference with a theme of "ASEAN Seafood for the World" is tentatively scheduled for May 2015. For updated information, please visit: www.seafdec.org

World Aquaculture 2015

International annual conference and exposition of World Aquaculture Society (WAS) is scheduled for 26-30 May 2015 in Incheon, South Korea . For additional information, visit www.was.org

AFS Membership Renewal Notice

Dear AFS Members:

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

The Secretariat requests all AFS Members to update their membership details and dues via AFS log in account at : www.asianfisheriessociety.org.

Username: Membership ID

Password: afs@123 (Please update your password)

Kindly renew your membership dues using online payment system at: <http://www.asianfisheriessociety.org>

The Secretariat



**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**

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Effect of Insecticide Containing Deltamethrin on Immune Response of the Giant Freshwater Prawn, *Macrobrachium rosenbergii* (De Man 1879)
DANG THI HOANG OANH, TRAN VIET TIEN and NGUYEN THANH PHUONG

Study on natural immune responses of freshwater prawn, *Macrobrachium rosenbergii* (De Man 1879) exposed to deltamethrin in laboratory condition was performed. Prawns (17 ± 2.3 g) were maintained in water containing concentrations of deltamethrin at 0.0025; 0.025 and 0.125 mg·L⁻¹. Prawns in control group were maintained in water without deltamethrin. Results of immunological analyses revealed that total haemocyte count, granular cells, hyaline cells and phenoloxylase activity decreased significantly ($P < 0.05$) in treatment groups compared to the control group at 24, 48, 72 and 96 h after exposure. Respiratory burst activity in the treatment groups increased significantly ($P < 0.05$). However, in the group exposed to 0.125 mg·L⁻¹ deltamethrin, superoxide dismutase activity decreased at 24, 72 and 96 h exposure to deltamethrin compared to the control group, but no difference was observed at 48 h. These results suggest that exposure to deltamethrin suppressed the immune responses of *M. rosenbergii*.

Improvement of Carbohydrate Quality in Rice Bran Using Microwave Irradiation for Nile Tilapia Feed Production
KANOKWAN SANSUWAN, KARUN THONGPRAJUKAEW, SATIT KOVITVADHI, PISAMAI SOMSUEB and UTHAIWAN KOVITVADHI

This study was performed to evaluate the effects of microwave irradiation duration (0, 10, 20 and 30 min) on chemical composition, physicochemical properties and *in vitro* carbohydrate digestibility of rice bran. Moisture content was different among irradiated rice brans and decreased with longer irradiation time ($P < 0.05$). This resulted in an increase in crude protein content on dry matter basis in rice bran irradiated for 10 min ($P < 0.05$). This also caused a decrease in crude fibre content ($P < 0.05$) with a relative increase in available carbohydrate ($P > 0.05$). Lipid and ash contents did not change after irradiation. Microstructure, thermal transition parameters and relative crystallinity were enhanced after irradiation. Changes in these characteristics resulted in the *in vitro* increase in carbohydrate digestibility using crude digestive enzyme extract from Nile tilapia, *Oreochromis niloticus* (Linnaeus 1758). The results indicate that microwave irradiation for 10 min is appropriate for improving the quality of available carbohydrate in rice bran for tilapia feed production.

Successful Induction of Intra-specific Androgenesis in Widow Tetra, *Gymnocorymbus ternetzi* (Boulenger 1895) Using UV-irradiation
C. JUSTIN DAVID and G. MARIMUTHU

A protocol for elimination of the maternal egg genome in widow tetra (WT), *Gymnocorymbus ternetzi* (Boulenger 1895) using contrasting black and albino strains was successfully optimised. UV-irradiation for 3 min inactivated the maternal nuclear genome in eggs of the black WT. A single layer of black WT eggs exposed to a UV-G bulb (254 nm, 40 W) at a height of 25 cm and at a final intensity of 4.2 W·m⁻² successfully eliminated the WT egg genome. Androgenotes were generated by fusing genome-inactivated eggs with fresh sperm. Fertilisation was achieved by mixing fresh albino tetra sperm with irradiated eggs and adding water to initiate sperm motility. Following fertilisation by fresh albino WT sperm, 22-min-old embryos were shocked at 41 °C for 2 min to restore diploidy. Survival of androgenotes was 11 % and 8 % at hatching and maturity while that of the controls were 94 % and 67 %, respectively. Hatched haploid androgenotes showed normal embryonic development but exhibited severe haploid syndrome while diploid androgenotes resembled albino WT and displayed a diploid karyotype.

Age and Growth of the Snake Fish *Trachinocephalus myops* (Forster 1801) in Tateyama Bay, East Japan, Using Otolith Ring Marks
MASASHI YOKOTA, YUKIHIRO FUKUO and SEIICHI WATANABE

The snake fish *Trachinocephalus myops* (Forster 1801) is a commercial target, and its meat might provide an alternative material for fish paste in the future. This study reports on the relationships between otolith morphometry, age, and growth rate of *T. myops* in Tateyama Bay, and estimates of the growth parameters for the species around this coastal area in Japan. Monthly changes in the marginal growth rate and the frequency of the opaque zones indicated that the otolith edge of the opaque zone is formed once a year around June. The estimated ages of the sampled fish ranged from 2 to 11 years. The spawning season, estimated by the monthly changes in the gonadosomatic index, was August and September. The relationship between fork length (L ; mm FL) and age (t ; year) was expressed by the von Bertalanffy growth curve as:

$$L_t = 378.1(1 - \exp(-0.236(t - (-0.80))))$$

male:

$$L_t = 423.7(1 - \exp(-0.247(t - (-0.66))))$$

female:

This relationship suggested that the body is larger in the female than in the male.

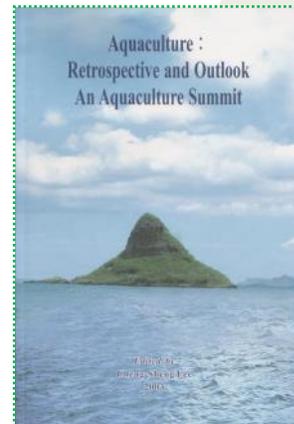
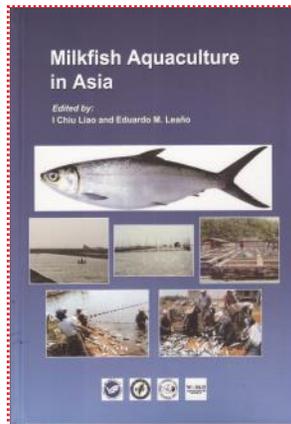
Feeding Strategies and Diet Composition of Oil Sardine *Sardinella longiceps* Valenciennes 1847 in the Trawl Bycatches off Parangipettai, Southeast Coast of India
S. PURUSOTHAMAN, A. SILAMBARASAN, N. JAYAPRABHA and P. MURUGESAN

The feeding strategies and diet composition of oil sardine, *Sardinella longiceps* (Valenciennes 1847) caught during January to December 2010 by trawl net off the Parangipettai southeast coast of India was studied in detail. There was a preponderance of empty stomachs in all the months. Diatoms (66.5%) and zooplankton (18.5%) were the major components of the food items. Dinoflagellates (15%) also formed a major part of the stomach content throughout the year. The preferences for diatoms were found to be higher in male fish (40.04%) than in female (38.46%). Copepods were more abundant in male (11.08%) than in female (10.35%). But dinoflagellates were less abundant in male (9.44%) than in female (10.35%). The semi digested matter (41.46%) was higher in male than in female (43.32%). The monthly gastro somatic index ranged from 0.85 to 2.40 in male and 0.89 to 2.42 in female and values were generally higher prior to premonsoon months. It is obvious that composition and preference of food are the same in both sexes.

First Record of the Calanoid Copepod *Pseudodiaptomus serricaudatus* (Scott, T. 1894), (Copepoda: Calanoida: Pseudodiaptomidae) in the Equatorial Indian Ocean
VALETA REBELLO, JAYU NARVEKAR, PADMAVATI GADI, ARATI VERENKAR, MANGESH GAUNS and S. PRASANNA KUMAR

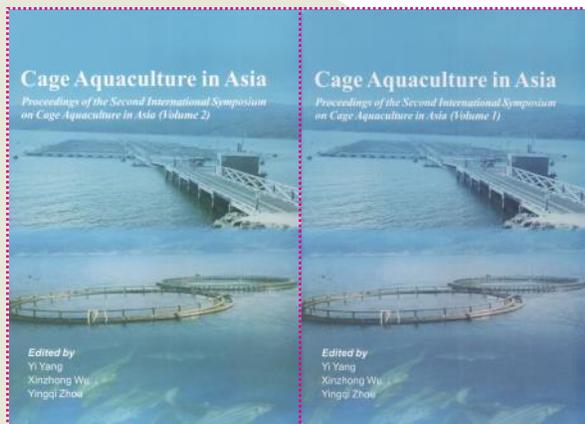
Pseudodiaptomus serricaudatus (Scott, T. 1894), a planktonic copepod belonging to the family Pseudodiaptomidae, though has worldwide distribution, has been reported only from estuarine and coastal waters. This is the first report of the occurrence of demersal calanoid copepod, *P. serricaudatus* in the open oceanic waters of the Equatorial Indian Ocean (EIO; 4°N, 77°E). This species, collected during September 2010, was found to be one of the most abundant copepods with a density of 113 ind·m⁻³. We suggest that this species might have advected from the estuarine and coastal waters off the southern parts of the west coast of India under the influence of prevailing monsoon currents.

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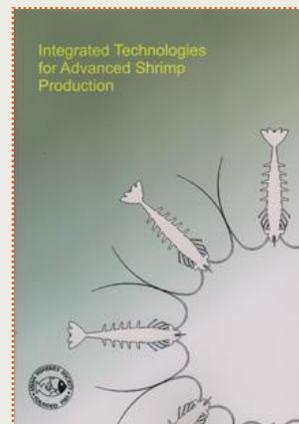


Milkfish Aquaculture in Asia
Edited by: I Chiu Liao and Eduardo M. Leaña
Member: US\$ 25 | Non Member: US\$ 40

Aquaculture: Retrospective and Outlook an Aquaculture Summit
Edited by: Cheng-Sheng Lee
Member: US\$ 25 | Non Member: US\$30(RM90)

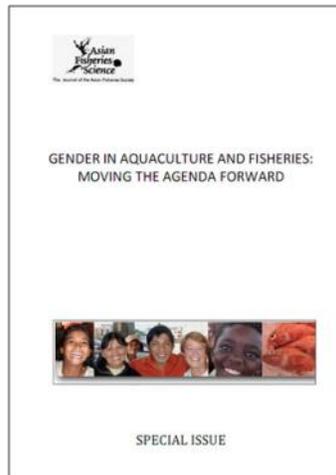


Cage Aquaculture in Asia: Proceedings of the Second International Symposium on Cage Aquaculture in Asia (Volume 1 and Volume 2)
Edited by: Yi Yang, Xinzhong Wu and Yingqi Zhou
Member: US\$ 70 | Non Member: US\$80



Integrated Technologies for Advanced Shrimp Production
Edited by: Asian Fisheries Science
Member: US\$ 10 | Non Member: US\$20

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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.