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ASIANFISHERIES SOCIETY

e-Newsletter

MESSAGE FROM EDITOR

I wish all the members of AFS and readers of its publications a very happy and productive 2024.

Many major activities have taken place during the last 6 months by branches and sections of AFS: Global symposium on gender in aquaculture and fisheries – GAF8, Fish health conference 2023, Cage aquaculture in Asia conference (CAA7), panel discussions by the Asian Fisheries and Social Sciences Research Network (AFSSRN), etc., details of which are in relevant sections of this newsletter. Indian branch of AFS has scheduled its 13 Indian Fisheries and Aquaculture Forum during February 2024 in Kolkota.

Once again, members of AFS (individual and institutional) are requested to share details of the activities they are undertaking – results of research/projects undertaken, conferences and training programs being organised, recommendations from conferences organised, synopsis of major publications, etc. for wider dissemination among scientific community, as the Newsletter is read by not only members of AFS, but also by students and researchers of fisheries and aquaculture, at large.

M. V. Gupta

Editor

Inside this issue:

Message From the President

Dear AFS members,

Greetings from your President in early 2024. I hope that all have enjoyed a good end to 2023 and productive start to 2024. It was a very busy end of the year for the AFS Council and people involved in the organisation of the 7th Cage Aquaculture in Asia (CAA7) symposium, held in beautiful Haikou on Hainan Island, China.

The 65th Council meeting was the 2nd AFS hybrid Council meeting and involved Councilors, and Branch, Section and Network heads of AFS. It was held immediately before the CAA7 and AFS members were involved as speakers and Chairs of Sessions during CAA7. Our thanks to Hainan University for hosting us and all the logistical arrangements they made, particularly Professor Zhou Yougan, Dean of the School of Marine Biology and Aquaculture and Dr Dongdong (Grace) Zhang, Secretary of the Local Organising Committee, and her team for their excellent work. We are also very grateful for the work by Prof. Liping Liu and his team at Shanghai Ocean University for their contributions as co-convenors of the meeting.

Both the Council meeting and the CAA7 were very vibrant and energised meetings. At the Council meeting, we heard reports on the activities across Branches, Sections and Networks of the AFS, and considered important matters for our society, particularly the following four: 1) finding a replacement Editor-in-Chief for the Journal of Asian Fisheries Society; 2) identifying the tasks and timeline required to implement our new web system; 3) planning for our future conferences and forums and 4) connecting with research students and early career researchers. Each of these is described briefly below.

1) The Journal – the meeting agreed that I would take on the role of Editor-in-Chief for the interim and a bonus to these discussions was that four Councillors agreed to join the Editorial Board as Associate Editors. Our sincere thanks to Prof. Alice Ferrer (Socioeconomics); Prof. Wilfredo Campos (fisheries assessment and biology, pelagic fish); Dr Murni (Fish Health) and Dr. Nur Leena Wong (bivalve aquaculture) for agreeing join the Journal. We are also grateful for the work of Dr. Sanjoy Banerjee to keep the journal during this time.

2) *The development of the web* – Dr David presented to the Council and discussed the needs for implementing the new web site. The Executive Committee of Council (EXECOMM) and Council will keep progressing this as a priority in 2024.

3) Future conferences and forums (including webinars) – Council had productive discussions on the plans for the 14th Asian Fisheries and Aquaculture Forum (12-15th February 2025, New Delhi) guided by a very information presentation by Dr Jena on behalf of the Indian Branch and organisers of 14AFAF. The Fish Health Section and Indian Branch reported that the 12th Diseases in Aquatic Animal symposium (DAA12) will be held in India in August 2025. Possible venues for the 5th International Symposium on Aquaculture and Fisheries Education (ISAFE5 – later in 2025, Vietnam or Thailand) and the CAA8 (for 2026, possibly Indonesia) were also discussed.

- *Webinars* – Prof. Alice shared her experience from three webinar groups on the requirements for an effective webinar series. Councilors agreed to develop a webinar program and to contribute at least one webinar in 2024.

4) Engaging with research students and early career researchers – a proposal from Dr Clara Obregon and me, for engagement activities and the resources needed for them, was discussed. Council agreed to support this initiative and our first meeting of a small group of students and ECRs is scheduled for 17th January 2024. This initiative will report to the EXECOMM and the Workshop and Training Committee. Watch this space!

Other matters

One of the great benefits of the Council meeting in Hainan and being involved in CAA7 was that we reconnected with members in Vietnam, Thailand and Nepal and gained new connections across the region. It also brought three AFS Presidents (Prof. Shualin Huang, Prof. Alice Ferrer and me) and the incoming President (Prof. Liping Liu) together.

Council members have produced some important literature – notably the book "Mullet and its Aquaculture" edited by Dr I. Chiu Liao and Dr Eduardo M. Leano; and an FAO report "The status of marine fishery stock assessments in the Asian region and the potential for a network of practitioners", with AFS Councillors Prof. Wilfredo Campos, Prof. Budy Wiryawan and me as technical experts who facilitated the workshop, and edited and wrote the report. Details of these publications are provided in the news section on the AFS website.

Our congratulations to Prof. Alice Ferrer on her appointment as Vice-Chancellor of Academic Affairs at the University of Philippines, Visayas.

The coming year

Councillors and Heads of Section, Branches and the Network were energised and enthused following the 65th Council meeting and CAA7. Our challenge is to maintain this momentum and share our enthusiasm will all members and prospective new members. To do this, EXECOMM will meet towards the end of January 2024 and Council is planning to meet at the Universiti Putra Malaysia sometime between May and July.

I wish all members well for their research, teaching and engagement activities in 2024. If you have ideas on how the Society can be more effective and activities that the society might consider, please contact the AFS Executive Officer, a Councillor or me. Thank you all for your support and thanks again to Hainan University (Professor Zhou Yongcan and Dr. Dongdong Zhang) and Shanghai Ocean University (Prof. Liping Liu) for co-convening CAA7 with AFS, and all the logistic support for the Council meeting and CAA7.

President 14th AFS Council
Professor Emeritus Neil Loneragan

GAF Section Business

The GAFS ExeComm held two online meetings on July and December 18, 2023 to discuss the business of the GAFS for the coming months.

GAF8 Publications and Products

Waves of Art Series : The Waves of Art Series-2 of the BoBP IGO was planned in partnership with GAFS and ICAR- Central Institute of Fisheries Technology (ICAR-CIFT) on the side lines of "Global Symposium on Gender in Aquaculture and Fisheries Conference-GAF8" at Kochi, India during November 21–23, 2022. It was not sheer coincidence that the theme of the first two issues of the *Waves of Art Series* portrayed women and gender issues, but it was a conscious effort to recognize the role of women in fisheries. The BOBP IGO had co-organized a sketching event with ICAR-CIFT, preceding the GAF-8, which received significant attention among the stakeholders. Artists from Tamil Nadu and Kerala states of India participated in the event and the publication as released during the inaugural programme of GAF8 (*Bay of Bengal Programme "Waves of Art: Women in Fisheries Through the Eyes of Artists" First Series* - https://bobpigo.org/publications/BOBP-Waves-Art-Women-Fisheries-Through-Eyes-Artists.pdf).

The second publication was a compilation of the art works made by those who participated in the event and also few subject matter experts and distinguished artists, who had contributed to this edition, on special request.

- Bay of Bengal Programme "Waves of Art: Women in Fisheries Through the Eyes of Artists" Second Series - https://www.bobpigo.org/publications/Waves%20of%20Art-Series-2-Women%20in%20Aquaculture%20and%20Fisheries.pdf

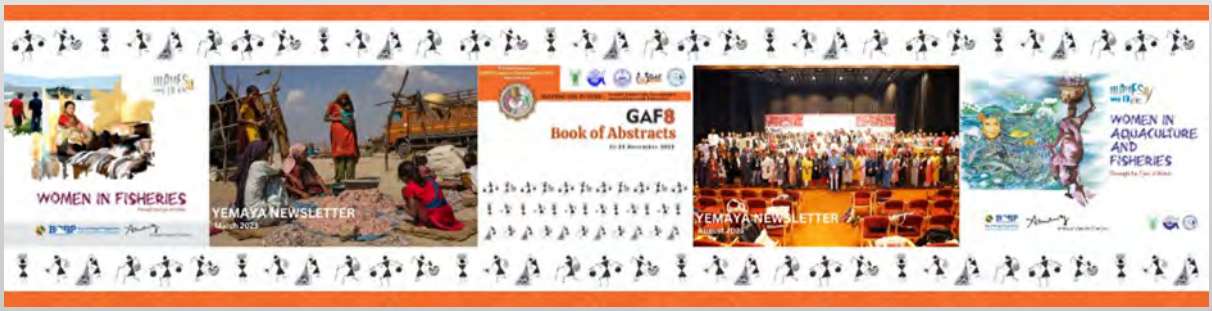
ICSF Yemaya Newsletter

GAF8 was supported by ICSF through its publication 'Yemaya'. The Yemaya Newsletter #66 presented the report of the panel discussion from GAF8 titled '*Women in Fisheries: Shared Experiences*' which highlighted key issues facing women in the fisheries sector today.

- Yemaya #66: "Building Solidarities" panel discussion report from GAF8: https://www.icsf.net/yemaya/building-solidarities/

Yemaya Newsletter #67 was a Special Issue that presented an overview of all thematic presentations from the GAF8, 21-23 November 2022. The presentations at the conference revealed that women in aquaculture and fisheries across the world are putting in long hours of hard labour in conditions that are becoming increasingly more challenging due to climate change impacts and the growing risk of biological and environmental disasters. The exclusive report carried details of all presentations made and the recommendations that emerged from the Conference.

- Yemaya # 67:"GAF8: Shaping the Future" feature: https://www.icsf.net/yemaya-articles.php?id=9790



Project

GAFS has been awarded a 46 months project "*Making nature-based climate solutions (NbCS) in aquaculture in Southeast Asia monitoring more gender-responsive: What gets measured gets done*" supported by IDRC Canada's AQUADAPT-SEAPAC grant. Based on existing gender monitoring frameworks, we will develop a reflexive and context specific gender monitoring framework for nature-based climate solutions in aquaculture. We will pilot in three areas: Philippines (on seaweed culture), Thailand and Cambodia (on rice-fish culture). The project will be administered from Asian Institute of Technology, and managed and implemented by GAFS.

The lack of data as well as a lack of holistic understanding of gender relations in aquaculture leads to serious gaps in monitoring and evaluation schemes that wish to include gender outcomes, including NbCS aquaculture. Therefore, GAFS aims to develop a gender monitoring schema and test the processes by which women and men participate in NbCS aquaculture that help achieve transitions to greater sustainability under climate change. There will be forums to share the findings and training sessions on gender monitoring.

Webinar Collaboration

The CAFI SSF Network (Global Network for capacity building to increase access of small-scale fisheries to financial services) organised a Webinar Talk Series on "Occupational hazards & risk coverage – Special focus on women insurance products in fisheries and aquaculture" on 25 September 2023. GAFS collaborated in organising the webinar along with FAO, MiN (Micro Insurance Network) and Insurance Development Forum (IDF). The webinar conveyed to its member organizations and interested participants views of insurance industry, women member-based fisherfolk organizations, government representatives and academic researchers on risk and insurance needs of fisherwomen. The webinar discussed key entry points that may enable and support pathways which are needed for an inclusive financial Blue Transformation Innovation, to develop women-centric insurance products and service delivery models and distributions network that are accessible to SSF communities.

GAFS Communications

GAFS continues to be very active in its outreach, through its website, its GAFS members e-mail group, Genderaquafish e-mail group and social media outlets (Twitter and Facebook). GAFS members are receiving a monthly premium news service on GAF news items.

Here are the latest stories from our website https://www.genderaquafish.org/stories/

- "GeNA: Developing gender-responsive monitoring in NbCS aquaculture projects in Southeast Asia", posted on October 5, 2023 Link
- "GeNA Call for Proposals: Gender and NbCS aquaculture systems", posted on November 2, 2023 Link
- "A Review of the Multi-dimensional Perspectives of Taboos on Gender Roles of Fisherfolk in the Global South" By Ayodele Oloko, Sarah Harper, Kafayat Fakoya and U. Rashid Sumaila, posted on November 3, 2023 Link
- "Economic outcomes in small-scale fish trade: The role of gender norms" By Emma Rice, Abigail Bennett & Patrick Kawaye, posted on November 5, 2023 Link

Keep in touch with GAF Website: https://www.genderaquafish.org/;

https://www.genderequality.genderaquafish.org/

Facebook Page: https://www.facebook.com/AFS-Gender-in-Aquaculture-and-

Fisheries181176555231544/

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

Contributed by: Nikita Gopal, Kyoko Kusakabe and Kafayat Fakoya

AFS SECTIONS

Fish Health Section (FHS)

Fish Health Section Conference 2023: "*From the Pillars to the Next*" took place successfully from September 6-8, 2023, in Bangkok, Thailand. Originally envisioned as a "handover conference" under the theme *"Learning from the past to inform the future,"* the event brought together 17 FHS pillars, comprising founding members and former officers/members of the Executive Committee. The conference drew 158 participants including students from 16 countries, namely Australia, Bangladesh, Canada, China, Ethiopia, Indonesia, Italy, Japan, Malaysia, Norway, the Philippines, Saudi Arabia, Taiwan, Thailand, the United Kingdom, and Vietnam.

FHS Conference 2023: The FHS Showcase highlighted the Section's history and journey, based on the insights of the pillars and FHS activities on Day 1. Day 2 featured plenary sessions with presentations and panel discussions by experts in finfish and shrimp health, while Day 3 showcased oral presentations from the young researchers and students.

The FHS Executive Committee 2022/25: The FHS Executive Committee for the term 2022-2025, along with senior advisors, convened a special general meeting during the FHS Conference 2023 on September 6, 2023, in Bangkok, Thailand. This marked the first in-person gathering following a series of regular virtual meetings. Various topics were discussed, encompassing ways to enhance FHS procedures to better serve society's interests.

The 12th Symposium on Diseases in Asian Aquaculture (DAA12): FHS-AFS has released the DAA12 teaser during the FHS Conference 2023. The venue of the event will be in Chennai, India, in collaboration with the ICAR-Central Institute of Brackishwater Aquaculture, Chennai, during August 26–29, 2025. Chennai is one of the most visited cities in India, with several beautiful beaches and centres of historical and cultural significance, including the UNESCO Heritage Site of Mahabalipuram. FHS-AFS extends a warm welcome to academia, industries, researchers and students worldwide, encouraging them to join us in engaging discussions and sharing expertise on the latest research developments, trends, and the future trajectory of the aquatic animal health research. We look forward to your kind participation!

Contributed by: Dr. Kua Beng Chu

Asian Fisheries Social Scientists Network (AFSSRN)

In the last quarter of 2023, the Asian Fisheries Social Science Research Network (AFSSRN) welcomed fourteen (14) new members from China, Malaysia, USA and the Philippines. This brings the AFSSRN membership to a total of 176 as of December 2023, where 39% are Permanent Active Members (PAM).

True to its objectives, the network continues to conduct activities that focus attention on fisheries social issues and management, as well as the dissemination of technical reports and new knowledge generated. AFSSRN hosted a panel on "*Wellbeing and Sustainable Fisheries Practices*" during the 7th International Conference in Fisheries and Aquaculture Sciences (ICFAS 7) on October 18-20, 2023 in Iloilo City, Philippines.

Seven (7) papers were presented:

1. Entangled Wellbeing: Fisheries Management and Governance in *Lampirong (Placuna Placenta)* Artisanal fishing in Oton, Iloilo, Panay, Philippines (**Ma. Arve B. Bañez** of the University of the Philippines Mindanao)
2. Cage Culture and Lakee Management Practices in Lake Danao, San Francisco, Central Philippines (**Serapion N. Tanduyan**, Berenice T. Andriano and Ricardo B. Gonzaga of Cebu Technological University)
3. Too Big to Ignore Philippines, the National Consortium on Small-Scale Fisheries and the Quest to Fully Understand the Relevance of Small-Scale Fisheries in the Philippines (**Harold M. Monteclaro**, Pearl Aljean Santacera, and Alice Joan Ferrer of the University of the Philippines Visayas)
4. Fish Aggregating Device (FAD) Operations in Eastern Visayas (**Quenstein D. Lauzon**, Shereen A. Merro, Ana Rose P. Cinco, Andro Villamor of the Visayas State University – Tolosa)
5. *Imbaw (Anodontia Edentula)* as a Resource, Food and Livelihood of Camotes Islands, Central Philippines (**Serapion N. Tanduyan**, Berenice T. Andriano, Genes M. Pasaje, Gabriel T. Muaña and Sherlyn M. Abellanosa of Cebu Technological University)
6. Advancing the Wellbeing of Fisheries Value Chain Players towards Sustainable Fisheries Management (**Marieta Bañez Sumagaysay** of University of the Philippines Tacloban College, and Rowena Paz Gelvezon, Harold M. Monteclaro, Rosario H. Asong of University of the Philippines Visayas)
7. Gender Champions Transform Fishers and Fisheries (**Marieta Bañez Sumagaysay** of University of the Philippines Tacloban College, and Rowena Paz Gelvezon, Harold M. Monteclaro, Rosario H. Asong of University of the Philippines Visayas).

SPECIAL SESSIONS

SPECIAL SESSION 1. WELL-BEING AND SUSTAINABLE FISHERIES PRACTICES

Thursday, 19 October 2023, 15:00 -17:15, Ruby 1

Host: Asian Fisheries Society Social Science Research Network

15:00 - 15:15	**Introduction**
15:15 - 15:30	Entangled Well-being: FisheriesManagement and Governance in Lampirong (*Placuna Placneta*) Artisanal Fishing in Oton, Iloilo, Panay, Philippines — ***Ma. Arve B. Bañez***
15:30 - 15:45	Cage Cultureand Lake Management Practices in Lake Danao, San Francisco, Central Philippines — ***Serapion N. Tanduyan***, *Bernice T. Andriano and Ricardo Gonzaga*
15:45 - 16:00	Too Big to Ignore Philippines, the National Consortium on Small-scale Fisheries and the Quest to Fully Understand the Relevance of Small-scale Fisheries in the Philippines — ***Harold Monteclaro***, *Pearl Santacera and Alice Joan Ferrer*
16:00 - 16:15	Fish Aggregating Device (FAD) Operations in Eastern Visayas — ***Quenstein D. Lauzon***, *ShereenMerro, Anna Rose Cinco and Andro Villamor*
16:15 - 16:30	*Imbaw* (*Anodontia Edentula*) as a Resource, Food and Livelihood of Camotes Islands, Central Philippines — ***Serapion Tanduyan***, *Bernice T. Andriano, Genes Pasaje, Gabriel Muaña and Sherlyn Abellanosa*
16:30 - 16:45	Advancing the Well-being of Fisheries Value Chain Players Towards Sustainable Fisheries Management — ***Marieta Bañez Sumagaysay***, *Rowena Paz L. Gelvezon, Harold M. Monteclaro and Rosario H. Asong*
16:45 - 17:00	Gender Champions Transform Fishers and Fisheries - ***Marieta Bañez Sumagaysay***, *Harold M. Monteclaro, Rowena Paz Gelvezon , Rosario H. Asong*
17:00 - 17:05	**Awarding of Certificates**
17:05 - 17:15	***Session Summary***

A team of AFSSRN members from India, Indonesia and the Philippines is currently conducting research on the "*Knowledge, Perception and Attitude of Stakeholders on Single-Use Plastic and its Effects on the Marine Environment: a Gendered Value Chain Analysis of Fisheries,*" with the specific objectives: (1) to describe gender differentials in the utilization of single-use plastics by players in the value chain; (2) to explore the willingness to reduce plastic use by fisheries value chain players; and (3) to identify policy implications towards reducing plastic use, hence, addressing the negative issues related to single-use plastics in the marine environment. Results are expected to be disseminated in a conference at the end of 2024.

Meanwhile, AFSSRN is pleased to share with its membership and the AFS (through the website) its AFSSRN Bulletin which is issued bi-annually. The two issues of 2023 featured six researches of the following AFSSRN members:

1. The Material Fishing Assets Ownership Status and Social Stratification of Artisanal Small-Scale Fishers in Oton, Iloilo, Panay, Philippines: On Regulating Municipal IUU Fishing Activities (**Ma. Arve B. Bañez,** University of the Philippines Mindanao)
2. Exploring Gender Inclusion in Small-scale Fisheries Management and Development in Melanesia (**Sangeeta Mangubhai,** Talanoa Consulting,Fiji) with co-authors Sarah Lawless, James Cook University, Australia)
3. Bioeconomic Modelling Sustainable Fisheries Management of Commercial Marine Fisheries in Kelantan, Malaysia (**Moe Shwe Sin,** Universiti Malaysia Terengganu)

4. Collective Actions to Support Sustainable Aquaculture: Evidence from Brackish water Farmers in Aceh Tamiang (Armen Zulham, National Research Innovation Agency Jakarta, Indonesia) with co-authors Shafitri, Budi Wardono, Radytio Pramoda, Cristina Yuliati, Agus Heri Purnomo)

5. Women Contribution in Small Scale Fisheries: Hidden Treasurer in Household Economy in Sri Lanka (Mohotttala G. Kularatne, University Kelaniya Sri Lanka) with co-authors Wicckramasinghe, Ocean University, Sri Lanka)

6. Gender and Political Economy of Fish Agri-Food Systems in Global South (Surendran Rajaratnam, University Kebangsaan Malaysia) with co-author Molly Ahern and Cynthia McDougall

AFSSRN BULLETIN

Bi-annual Newsletter of the Asian Fisheries Social Science Research Network
Asian Fisheries Society

Issue 3 June 2023

FROM THE DESK OF THE AFSSRN CHAIR

Dear Fellow AFSSRRN members,

Thank you for responding to my emails and for actively supporting AFSSRN events/projects such as the ICFAS 7 panel session, and the featured research in this AFSSRN Bulletin issue No. 3. We bring you to Melanesia, Malaysia and the Philippines.

We are updating our Directory. We sent emails to the 163 AFSSRN members and 65 bounced back, which means we will need to find ways to reach them (email addresses).

We are likewise encouraging you to update your AFS membership dues. The AFS Council, in its 64th meeting last June 26 in Bogor, Indonesia discussed this concern and will look for ways to make payments easier.

Keep safe everyone.
MARIETA BAÑEZ SUMAGAYSAY, PhD

AFSSRN to join the 7th ICFAS in October 2023

The University of the Philippines Visayas is organizing the 7th International Conference for Fisheries and Aquatic Sciences (ICFAS7) on October 18-20, 2023 in Iloilo City, Philippines. This in-person (onsite) event comes with the theme, "Fisheries for the Future."

The AFSSRN will host a panel session focusing on the social aspects of fisheries management. Six papers will be presented by AFSSRN members.

RESEARCH FEATURE: PHILIPPINES

The material fishing assets ownership status and social stratification of artisanal small- scale fishers in Oton, Iloilo, Panay, Philippines: On regulating municipal IUU fishing activities?

MA. ARVE B. BAÑEZ, PhD, Senior Lecturer, College of Humanities and Social Sciences, University of the Philippines Mindanao, Email: mbbanez@up.edu.ph

This paper presents the social stratification among artisanal small-scale fishers in Oton, Iloilo, Panay Philippines. I surveyed a total of 103 fishers, female and male, collecting data about their material fishing assets i.e., number of boats owned, fishing gears and other fishing materials owned, and the estimated cost of these material fishing assets. I examined and analyzed these data sets generating social descriptors of their material- fishing assets- ownership status. Those who do not own material fishing assets, but possess non-material fishing assets or local ecological knowledge, persist in artisanal fishery as precariat fishers. They enter into various forms of arrangement in dividing the fish catch (or the lampirong) with those who own the material fishing assets. The practice of shucking lampirong (Placuna placenta) exemplifies another form of labour among fishers who do not own the material fishing assets. Artisanal small- scale fishers are stratified by their material assets or lack thereof. Moreover, these empirical data challenges issues regulating "illegal, unreported and unregulated" (IUU) fishing activities among municipal artisanal fishers?

Panaka (shucking). Women, boys and girls from fishing households split open the shells to remove the kernel. They collected the kernel in exchange for unremunerated labour

AFSSRN Bulletin Issue 3 June 2023

RESEARCH FEATURE: MELANESIA

Exploring Gender Inclusion in Small-scale Fisheries Management and Development in Melanesia

SANGEETA MANGUBHAI, Principal Consultant and Research Scientist, Talanoa Consulting, Fiji. Email: sangeeta@talanoa-consulting-fiji.com
Co-author: Sarah Lawless, James Cook University, Queensland, Australia

Fisheries, like other economic sectors, is not immune to gender inequality, and women tend to experience the brunt of inequality as undervalued and under-represented fisheries actors within small-scale fisheries (SSF) management and development. Different approaches to address gender inequality, particularly women's marginalisation in the fisheries sector, are gaining momentum. We undertook a study to gain a more comprehensive understanding of these efforts, including the gender approaches employed and the barriers and opportunities for fisheries organisations in Fiji, Solomon Islands and Vanuatu. We found gender inclusive approaches were broadly applied in three ways: (a) through community-based projects and programs; (b) national level research and policy; and (c) internal organizational operations. Although fisheries organizations approached gender inclusion in diverse ways, 76.2% of approaches were designed to 'reach' women, and very few 'benefited', 'empowered', or 'transformed' women's lives. 'Gender' was conflated to 'women' indicating a poor understanding of what gender inclusion means in practice. Gender inclusive approaches were limited by the knowledge and capacities of fisheries managers and practitioners, and inhibitive institutional cultures. We argue that SSF organizations need to build explicit institutional gender commitment, strategies, and systematic efforts to implement gender approaches with effective accountability mechanisms in place.

RESEARCH FEATURE: MALAYSIA

Bioeconomic Modelling in Sustainable Fisheries Management of Commercial Marine Fisheries in Kelantan, Malaysia

MOE SHWE SIN, PhD, Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, Email: moe.sin@umt.edu.my

The presence of Commercial Marine Fisheries activities in East Coast Malaysia leads to many social and economic impacts not only for the community and state but also to the whole country economy. Kelantan has great contributions to the fisheries sector and trawl and purse seines as major fishing gears. Trawls nets are efficient, however, not selective, and very destructive. Although Malaysia has reached subsistence level in fish supplies since last decades, country still faces issue of increasing fish price and shows challenge to ensure enough supply. The study aims to investigate the way to sustain marine fish production and potential effect of climate changes and anthropogenic disturbances such as lack of accurate information, pollution (on fish stock) and lack of legal law or enforcement against illegal fish catch. The bioeconomic surplus production model by Gordon - Schafer (GS) are used to calculate the total biology and economic value. The result indicated that trawl nets, anchovy purse seine, climate changes and anthropogenic disturbances affect the sustainable management of commercial marine fisheries in Kelantan, Malaysia.

AFSSRN BULLETIN

Bi-annual Newsletter of the Asian Fisheries Social Science Research Network
Asian Fisheries Society

Issue 4 July to December 2023

AFSSRN warmly welcomes 14 new members

Shuang Ji *(China)*
Huan Han *(China)*
Wannapha Kitrattana *(China)*
Bin Wei *(China)*
Xueneng Luo *(China)*
Xiangbiao Zeng *(China)*
Junming Zhiang *(China)*
Nawal Asif *(China)*
Mekonen Hailu Tachbele *(China)*
Justice Amankwah *(China)*
Jingwei Liu *(China)*
Maria Christina Gumba *(Philippines)*
Margot Liang Stiles *(USA)*
Raja Yana Meleessa Binti Raja Haroon Arashid *(Malaysia)*

Wellbeing & Sustainable Fisheries Practices

Seven papers were presented by the following AFSSRN members during the 7th International Conference in Fisheries and Aquaculture (ICFAS 7) in Iloilo City, Philippines on October 18-20, 2023, along the theme: Wellbeing and Sustainable Fisheries Practices. Presenters: Dr. Ma. Arve Banez, Dr. Quenstein D. Lauzon, Dr. Marieta Banez Sumagaysay, Dr. Harold M. Monteclaro, Dr. Serapion T. Tanduyan.

RESEARCH FEATURE: INDONESIA

Collective actions to support sustainable aquaculture: evidence from brackish water farmers in Aceh Tamiang

ARMEN ZULHAM, National Research Innovation Agency Jakarta- Indonesia (Co-authors: Shafiri, Budi Wardono, Radytia Prameda, Cristina Yuliati, and Agus Heri Purnomo) armanzulham@gmail.com

To empower sustainable aquaculture in Aceh Tamiang, this research builds and strengthens fish farmer organizations in brackish water regions. We advocate for collective action among fish farmers in brackish water ponds across Aceh Tamiang, fostering sustainable aquaculture enterprises. Collective action is crucial in Aceh Tamiang's 3,624.5 hectares of Vanamei ponds, currently suffering from mismanagement. In brackish water ponds, vanamei shrimp production averages a meager 1.6 tonnes per hectare per year. This research, driven by concerns about the abysmal vanamei shrimp production, identified a key barrier: a). pond ownership systems. Notably, only 13.0% of ponds are privately owned, while 67.7% are rental/lease, and a precarious 19.4% are simply occupied unmanaged ponds. b) No local entity takes responsibility for managing the water and surrounding environment of these ponds, leaving them vulnerable to neglect and pollution. c) Lacking proper training, fish farmers struggle to manage pond waste and sediment, leading to poor water quality and decreased shrimp health. d) Limited understanding of optimal seasonal planting practices hinders fish farmers' ability to maximize pond productivity. The data was collected in 2 villages for each of the four sub-districts in Aceh Tamiang. An in-depth study on the brackish water business was conducted in Sungai Kuruk III village Seruway sub-district from April to May 2021. This research recommended that in each village of brackish water ponds in Aceh Tamiang groups of brackish water fish farmers merge to become a larger group, namely Gapokkan. As a result, the Gapokkan has become a leading fish farmer organizationin managing various problems of the brackish water pond areas to achieve sustainable aquaculture business in Aceh Tamiang.

FROM THE AFSSRN EXECOM

SEASON'S GREETINGS AND HAPPY HOLIDAYS TO ONE AND ALL

https://www.facebook.com/afssrn afssrn.section@gmail.com

RESEARCH FEATURE: SRI LANKA

Women contribution in small scale fisheries: Hidden treasurer in Household Economy in Sri Lanka

MOHOTTALA G. KULARATNE, Professor in Economics, University of Kelaniya Sri Lanka (Co-author: WICCKRAMASINGHE., W.A.A.D.I. Senior Lecturer, Ocean University of Sri Lanka, Aquaculture Scientist) kularecon@gmail.com

Female participation in small-scale fisheries of less developed countries is poorly estimated. Women contribute to fisheries activities, household nutrition and economy, financial, institutional and community development as well as environmental conservation and protection. The following information is collected from "Miridiya"/Freshwater Fishery Society (MFS) in Kalahagala fishing village located nearby Prakrama Samudraya in Polonnaruwa District in Sri Lanka. Female involvement in fishing is higher than other fishing villages due to easy accessibility to the reservoir and an established organizational set up supported by the National Fisheries Solidarity (NAFSO) in Sri Lanka. There are 30 fishing groups spread in 10 villages under the "Miridiya" organization where 20% of membership are women. The women of Kalahagala MFS are engaged in activities like self-employment, environmental protection and conservation with the training provided by NAFSO. Livestock, horticulture and food stalls increase their households' income and nutrition level. Tree planting for medicinal use and organic fertilizer productions provides organic food and supports environmental enhancement. Children's Bursaries, Savings Funds and Revolving Funds assist them in sustaining economic utility. Women play leading roles in building Lime Plant- Elephant Fences to safeguard their assets and promote wildlife coexistence. Overall impacts are enhanced women's self-reliance, promoting gender equality while strengthening community ties and empowering women to speak on the elephant-human conflict, creating fisheries policies and decision-making processes. Inland fisheries drives the improvement of the unity, religious harmony and mutual understanding of women. Irrespective of social labels, women members of the fisheries association are involved in fishing due to the prevailing economic problems in Sri Lanka.

RESEARCH FEATURE: MALAYSIA

Gender and the political economy of Fish Agri-Food Systems in the Global South

SURENDRAN RAJARATNAM, Senior Lecturer, University Kebangsaan Malaysia (Co-authors: Molly Ahern and Cynthia McDougall) surendran@ukm.edu.my

The book chapter examines the role of gender dynamics in fisheries and aquaculture systems in the Global South. Gender dynamics are not only a key element of the systems, but also a critical determinant of their outcomes, including a range of inequalities. A comprehensive set of socio-economic, environmental, health and well-being dimensions were considered and the political (state), economic (markets), and local (household) environments were examined from a gender perspective to respond to key issues. These include trends in the political economy in relation to feminization, migration, and labour, gender dynamics, livelihood opportunities and barriers for women and men in commercial and small-scale fisheries and aquaculture. The review highlighted that both commercial and small-scale fisheries and aquaculture are permeated by macro- and micro- patterns of social and gender inequalities and injustices. The study adopts a perspective that makes explicit links between gender and political economy, which helps to identify interconnected drivers, patterns, challenges and opportunities in fisheries and aquaculture for different groups of women and men that go beyond a single sector or scale. It suggests that future research on women's and men's engagement and benefits from the sector should be intersectional.

FEATURED LEAD RESEARCHERS/AUTHORS

ARMEN ZULHAM, PhD | MOHOTTALA KULARATNE, PhD | SURENDRAN RAJARATNAM, PhD

CALL FOR CONTRIBUTIONS

Details will be sent in a separate email

BOOK OF ABSTRACTS IN FISHERIES SOCIAL SCIENCE RESEARCH

2024 AFSSRN webinars

https://www.facebook.com/afssrn afssrn.section@gmail.com

In 2024, AFSSRN is looking forward to its regular General Membership Assembly. A webinar series and the publication of a Book of Abstracts on Fisheries Social Science Research are in the pipeline.

Contributed by: Marieta Banez Sumagaysay, AFSSRN Chair

AFS BRANCHES

Asian Fisheries Society Indian Branch (AFSIB)

National Fish Farmers Day-2023

The College of Fisheries, Mangalore, in collaboration with the Asian Fisheries Society, Indian Branch (AFSIB), celebrated National Fish Farmers Day-2023 at the Research and Instructional Fish Farm on 10th July 2023. Dr. Mridula Rajesh, Executive Committee Member of AFSIB inaugurated the event by releasing fish into the pond and delivered the inaugural speech, highlighting the importance of fish farming and its impact on the fisheries industry. The program witnessed the participation of esteemed fish farmers, faculty members and students. Dr. Ganapathi Naik, Head of the Department of Aquaculture at the College of Fisheries, Mangalore, addressed the audience, emphasizing the significance of National Fish Farmers Day. He shed light on the crucial role played by fish farmers in meeting the growing demand for fish and contributing to the sustainable development of the fisheries sector. The program was presided over by the Dean Dr H. N. Anjanayappa.

As part of the celebration, fish seeds were distributed to the fish farmers present during the occasion. These gestures aimed to support and encourage the farmers in their endeavours and further enhance the productivity and growth of the fisheries sector.

XVI Agricultural Science Congress 2023 and ASC Expo

AFSIB was among the organisers of the event XVI Agricultural Science Congress 2023 and ASC Expo held at Kochi, Kerala during May 10-13, October, 2023 with the theme "Transforming of Agri-Food Systems for Achieving Sustainable Development Goals". It was organised by National Academy of Agricultural Sciences (NAAS), New Delhi and ICAR-Central Marine Fisheries Research Institute, Kochi. More than 1500 scientists, researchers and agricultural professionals from different parts of the country and abroad participated in the Forum.

The presentations were made under the following sections

1. Ensuring food & nutritional security: Production, consumption and value addition

2. Climate action for sustainable agri-food systems

3. Frontier science and emerging genetic technologies: Genomics and gene editing

4. Livestock sector transformation for food security

5. Horticulture based transformations of food tystems

6. Aquaculture & Fisheries-based Transformation of Food Systems

7. Nature-based Solutions for Sustainable Agri-food Systems

8. Next Generation Technologies: Digital Agriculture, Precision Farming and AI-based Systems

9. Role of Policies and Institutions in Transforming Agri-food System

10. International Partnership for Research, Education and Development

In addition, special session on: *Role of PPV&FRA in transformation of agri-food systems for achieving sustainable development goals* and a Workshop on: *Advancements in research for marine mammal conservation in India* were also held during the Congress.

Sri. Parshottam Rupala, Union Minister for Fisheries, Animal Husbandry & Dairying inaugurated the Agricultural Science Congress Dr. Himanshu Pathak, President, NAAS; Secretary, DARE & DG, ICAR Indian delivered presidential address.

65th Council meeting at Hainan University

Dr. Rajesh K. M., Secretary, Asian Fisheries Society, Indian Branch (AFSIB) attended the 65th Council meeting of Asian Fisheries Societry (AFS) held at Hainan University, China on 29. 12.2023. He has presented the activities of AFSIB in the meeting. Dr. J. K. Jena, Deputy Director General (Fisheries) Indian Council of Agricultural Research and Immediate Past Chairman virtually presented the details of the 14th Asian Fisheries & Aquaculture Forum (14AFAF) to be held during 12-15 February 2025 at Convention Centre, Indian Council of Agricultural Research (ICAR), New Delhi, India. Dr. C. N. Ravishankar, Director/Vice Chancellor, ICAR-Central Institute of Fisheries Education (ICAR-CIFE) and Vice Chairman of AFSIB and Dr. Kuldeep K Lal, Director, ICAR- Central Institute of Brackishwater Aquaculture (ICAR-CIBA) and Council member of Asian Fisheries Society attended the meeting virtually.

65th Council meeting of AFS at Hainan University, China on 29. 12.2023.

Plans /Future Activities

13th Indian Fisheries and Aquaculture Forum (13th IFAF)

Indian Fisheries and Aquaculture Forum (IFAF) is an illustrious event in the Fisheries Sector of India to realize and relook into recent developments and redefine the goals that would pave the way for realistic achievements in the country. The ICAR - Central Inland Fisheries Research Institute, Barrackpore, the Inland Fisheries Society of India, the Asian Fisheries Society, Indian branch and the Department of Fisheries, Government of West Bengal are jointly hosting the 13th Indian Fisheries and Aquaculture Forum (IFAF) during 23-25, 2024 in Kolkota with the theme *"Fostering Indian Fisheries and Aquaculture for attaining sustainable development goals"*.

The first announcement has already been released (www.13ifaf.cifri@gmail.com). It is expected that more than 1000 scientists, researchers and fisheries professionals from different parts of the country and abroad will be will be participating in the Forum. Facilities for the exhibition will be arranged in the venue of the forum in which the Premier Research Institutes, NGOs, Government Departments/Organizations and Entrepreneurs will participate and exhibit their technologies and other research outputs. The forum is designed for the fisheries professionals and companies, innovative farmers, entrepreneurs, youth with ideas, academicians, scientists, researchers, students, research institutions, government officials, policy makers and others engaged in activities related to education, research, business and entrepreneurship in fisheries and aquaculture.

Satellite Symposia on: (i)"Fish genetic resources and conservation", (ii) Riverine fisheries: Habitat mapping and environmental health, (iii) Innovations in shell-fish culture and value chain and, (iv)sustainable fisheries and aquaculture in Northeast India and Natural farming" will be organized during the forum. In addition, Industry conclaves on: (i) innovations in fisheries and aquaculture technologies, (ii) Department of Fisheries conclave on Developmental needs for enhancing farmer's income, (iii) Farmers conclave and (iv) Women empowerment in fisheries will be organized.

The abstracts are invited in the following themes technical sessions

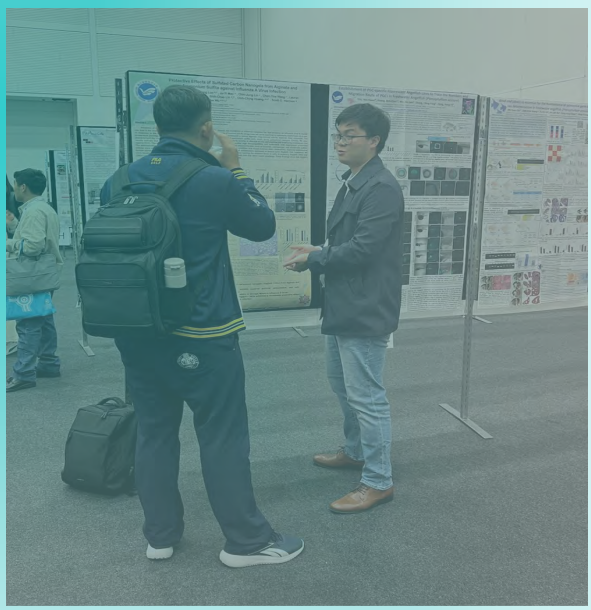
- Open water fisheries resources management
- Innovations in aquaculture production towards inclusive growth
- Small-scale fisheries addressing SDGs
- OMICs approach in fisheries and aquaculture
- Advances in fish nutrition research, nutraceuticals, and nutrigenomics
- Frontiers in fish health management
- Climate research in fish health and management
- Innovations in fish harvest and post-harvest technology
- Aquatic ecosystem health and emerging contaminants
- Precision farming, ICT, sensors, GIS, robotics in fisheries
- Social science research in fisheries and aquaculture
- Mariculture and seaweed farming
- Frontiers in shrimp farming

For more information, please visit: www.13ifaf.cifri@gmail.com

Contributed by : Dr Mridula Rajesh, Member, Executive Committee

New book in Mullet Aquaculture

5th book of aquaculture edited by Dr. I Chiu Liao. NEXT book of "Tilapia Aquaculture" will be published in 2024-2025.



Members Activity

Asian Pacific Marine Biotechnology Conference
Adelaide, Australia, Oct 2-5, 2023.

Annual activities

- Marine Aquaculture International Forum
- Taiwan International Fisheries and Sea Food Show
- Taiwan Marine Biotechnology Society

The Control of Aquatic Animal Diseases

At National Cheng Kung University

Hosted by Prof. Han-Ching Wang

New Facility

Aquaculture Research Center in National Chiayi University

Prof. Dr. Hong-Thih Lai, Dean, College of Life Sciences

The 7th International Symposium on Cage Aquaculture in Asia (CAA7)

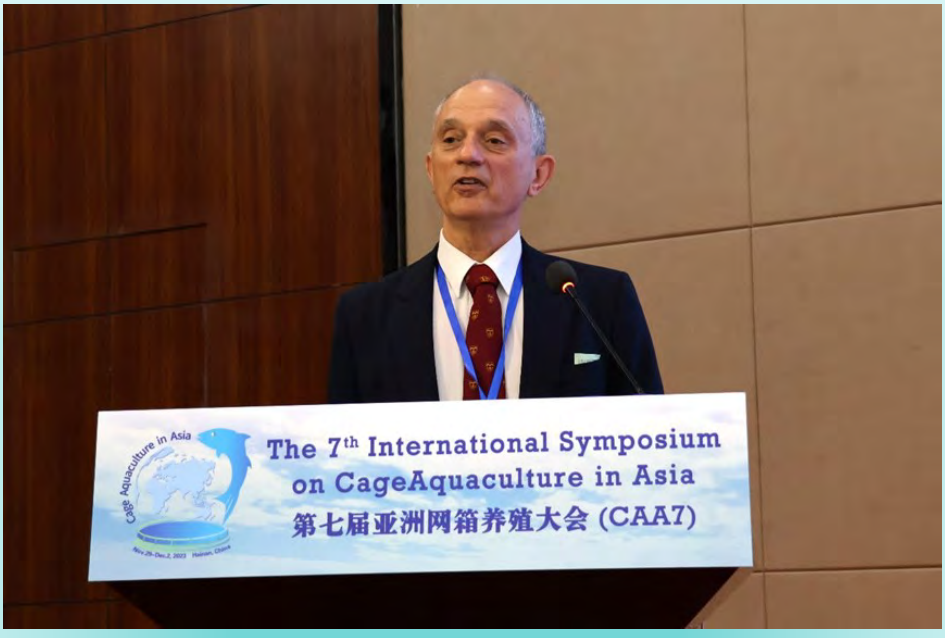
The 7th International Symposium on Cage Aquaculture in Asia (CAA7) was hosted by the Asian Fisheries Society (AFS), and jointly organized by Hainan University (HNU), Shanghai Ocean University (SHOU), China-ASEAN 'The Belt and Road' Joint Laboratory of Mariculture Technology, and the Center for Ecological Aquaculture (CEA). The CAA7 with the theme "Sustainable Development of Cage Aquaculture in Asia" was held in the city of Haikou, Hainan University of China, from November 29th to December 2nd, 2023.

The President of the Asian Fisheries Society, Neil Loneragan, and the Director of the Fisheries and Aquaculture Division of the Food and Agriculture Organization of the United Nations, Matthias Halwart, joined by four Chinese academicians—Zhu Zuoyan, Gui Jianfang, Mai Kangsen, and Liu Shaojun, along with other prominent figures in the aquaculture industry, convened for a significant conference. The primary aim of this gathering is to assess the current status and experiences in cage aquaculture, address industry challenges, environmental pressures, and ecological needs. Together, they seek to explore the future development directions of aquaculture, with a particular focus on cage aquaculture, contributing valuable insights to the sustainable growth of the global aquaculture industry.

This conference attracted approximately 200 participants, including 150 experts and scholars, along with over 60 graduate students. Among the participants were more than 80 professionals from 26 countries and regions, including Malaysia, the Philippines, India, Cambodia, Vietnam, Thailand, Nepal, Bangladesh, Australia, Italy, the United States, Norway, New Zealand, Indonesia, Myanmar, and Hong Kong, China. The event featured pioneering plenary talks followed by six sessions including: Production Systems; Breeding and Seed Production; Nutrition and Feed; Carbon Sink and Fouling Organisms; Health and Environment Management; Economics, Gender, Livelihood and Policies. These are relevant to aquaculture as a whole i.e., extending beyond and more than cage and offshore aquaculture alone. The diverse themes provided a platform for domestic and international researchers, producers, and managers engaged in aquaculture, especially cage aquaculture, to exchange ideas and foster collaboration. This conference aims to support the healthy and rapid development of Asian aquaculture industry.

Below is a summary of speeches and presentations from several leading experts, including key highlights from plenary reports:

Xie Songguang, as the President of Hainan University, chaired the opening ceremony of the conference.



Neil Loneragan, the President of the Asian Fisheries Society (AFS), delivered the conference's opening speech.

Prof. Neil Loneragan, highlighted that Asia plays a pivotal role in global fisheries and aquaculture production, contributing over 92% of the world's capture fisheries output and 86% of aquaculture products. He underscored China's significant role, constituting 19% of global capture fisheries and 60% of aquaculture production, making it the largest consumer and trader of seafood products worldwide.

Matthias Halwart of Fisheries and Aquaculture Division at the Food and Agriculture Organization (FAO) of the United Nations, addressed the conference.

Dr Matthias Halwart highlighted that global per capita fish consumption has doubled since 1960. He underscored the crucial role of aquaculture in providing more food and employment opportunities for the continuously growing global population, projecting its ongoing significance in sustainable development.

Li Yun, a member of the Hainan Provincial Department of Agriculture and Rural Affairs, delivered the conference address.

Jiang Min, Shanghai Ocean University Vice President, delivered the conference address.

Cao Bing, Hainan University Vice President, delivered the conference address.

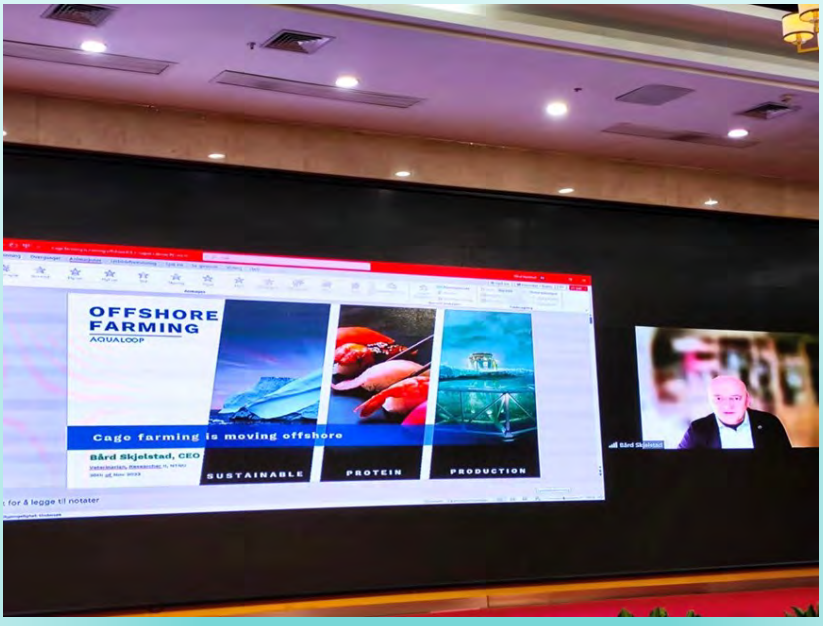
During the conference, Academician Ma Kangsen emphasized that the future of aquaculture in China lies in offshore deep-sea areas. With limited increments in inland and nearshore water and land resources, and the need for compression due to environmental requirements, the new frontier for aquaculture is anticipated to be in deep-sea zones—ushering in the era of blue pastures, also known as the "21st Century Blue Granary Quality Plan." Despite a decade of research and practice leading to overcoming key technological hurdles and achieving initial success, Academician Ma Kangsen highlighted four primary challenges that persist in deep-sea aquaculture: 1) The current exploration and practices have yet to transition genuinely into deep-sea regions and remain confined to offshore nearshore areas. Moving towards deep-sea aquaculture poses unresolved technical and industrial chain issues. 2) The establishment of a life support system for aquaculture personnel, covering aspects such as renewable energy supply, freshwater provision, and the supply of fresh vegetables and fruits, is still pending. 3) A seamless connection system for cold chain logistics from deep-sea to land to the dining table has not been realized, posing a logistical challenge. 4) The construction of a complete industrial chain for deep-sea aquaculture and the resolution of issues related to sustainable development, including scale, profit models, and environmentally sustainable practices, remain imperative tasks.

During his keynote speech, Professor Gui elaborated on three aspects: 1) the evolution of China's traditional aquaculture industry from fishing to modern technology cultivation; 2) the scientific and technological advancements in modern aquaculture; and 3) the role of aquaculture in contributing to global food security. He explained that the silver carp is a hexaploid subspecies within the polyploid carp complex. This complex includes the sexually reproducing tetraploid goldfish and the unisexual hexaploid silver carp. These species are not only significant in aquaculture but also represent a unique polyploid group among vertebrates, offering valuable insights into the mechanisms underlying the generation of unisexual polyploids. Furthermore, Professor Gui and the research team discovered an effective strategy for generating diverse clone lineages in the polyploid carp complex. This discovery has the potential to enable female nucleus-developing carp to evade genomic decay, thereby enhancing their evolutionary adaptability. The findings contribute to a broader understanding of the origin of unisexual species and genetic diversity.

During her keynote address, Prof. Alice provided a comprehensive overview of the regulatory aspects of cage aquaculture, addressing two key dimensions. She highlighted the substantial potential of cage fish farming to enhance fish production. Acknowledging the benefits it can bring, she underscored the necessity of finding solutions to overcome the constraints hindering its development, emphasizing the importance of a sound regulatory environment. Alice explained that the Philippines currently has five laws and regulations in place to govern cage aquaculture. However, the aquaculture sector in the Philippines is grappling with challenges such as unfavourable cage locations and insufficient service facilities. Consequently, legal support is crucial to improving the environmental conditions at fish cage farming sites and resolving these issues.

Professor Dong Shuanglin, in his keynote presentation, discussed the challenges confronting the development of the aquaculture industry within the framework of the dual-carbon strategy. He delved into three main aspects: the dilemmas faced by aquaculture under the dual-carbon strategy, the development and issues of deep-sea aquaculture in China, and innovations in China's deep-sea aquaculture system.

Professor Dong highlighted that China's previous rapid advancements in aquaculture were primarily achieved by intensifying production systems. However, as production intensity increased, so did the energy consumption and nutrient discharge per unit weight of products. It is noteworthy that China ranks among the world's 13 most water-scarce countries, restricting the growth of inland freshwater aquaculture. Additionally, the per capita arable land is only 40% of the world average, and nearshore marine aquaculture has nearly saturated the areas within 10 meters of depth. Prof. Dong emphasized that the development potential in deep-sea aquaculture is extensive, benefiting from robust self-purification capabilities and abundant renewable energy sources such as waves, wind, and solar energy. Effectively harnessing the environmental self-purification capacity and renewable energy sources in the sea can help overcome the three challenges facing aquaculture. This approach facilitates the sustainable development of deep-sea aquaculture, utilizing the vast available space and leveraging the rich renewable energy resources within the marine environment.



Mr. Bard Skjelstad, the Chief Executive Officer (CEO) of Norway's Aqualoop company, in his keynote address delved into the historical development of salmon farming. He underscored that addressing one of the most pressing sustainability challenges in salmon production—the salmon louse—can be achieved through deep-sea cultivation. Given the distinctive behaviours of salmon compared to other fish species, thorough research into salmon habits is essential for sustainable development. Building on their extensive understanding of salmon behaviours, they have successfully engineered deep-sea cage equipment tailored for salmon farming.

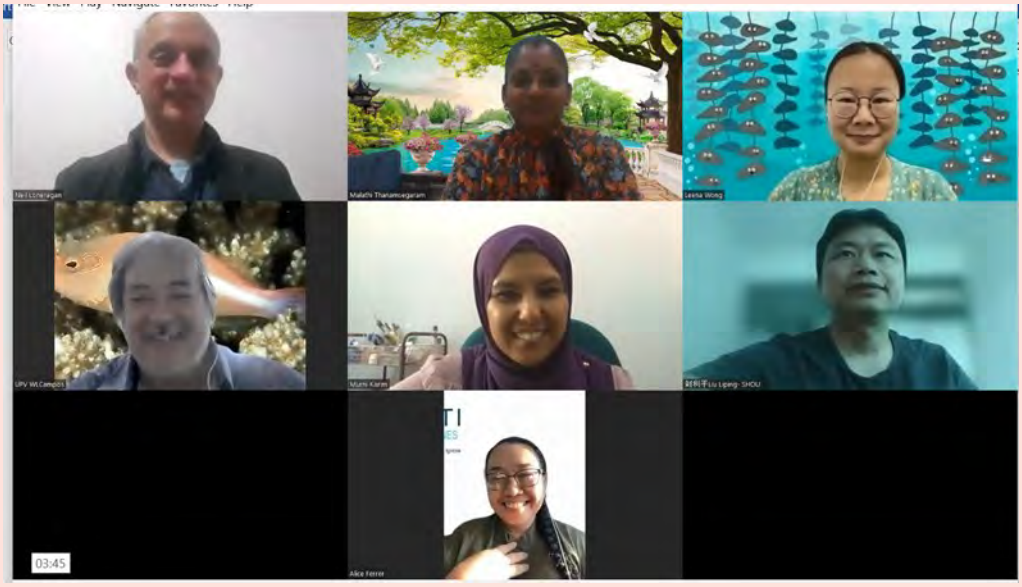
The esteemed guests seated in the front row.

Modern Fisheries Industrial Park in Fengjiawan, Wenchang City, Hainan Province, China, highlights China's remarkable progress in addressing the challenges posed by the conflicting goals of aquaculture and the development of marine ecological civilization.

AFS SECRETARIAT NEWS

1.0 AFS EXECOMM Meeting (7th August 2023)

1.1 The Asian Fisheries Society 62nd Council Meeting was held on Monday, 7th August 2023 via an online platform.



1.2 AFS new website progress meeting

The AFS new website progress meeting was held on Friday, 18th August 2023 via an online platform. There were 6 attendees, Prof. Wilfredo Campos, Dr. Nur Leena Wong Wai Sin, Dr. David, Mrs. Malathi Thanamsegaram, Mr. Arun, and Mr. Swatish joined this meeting.

1.3 AFS 65th Council Meeting

Asian Fisheries Society (AFS) held its 65th Council Meeting on 29 November 2023 in Haikou, Hainan, China. There is presence of 6 Councillors, 1 Secretary of AFSIB, an Executive Officer onsite, and 7 Councillors online out of 14 Councillors. The AFS President, Prof. Neil Loneragan presided over the meeting. Councillors, heads of Branches (India and Taiwan), Sections (Fish Health, Gender and Fisheries) and the Social Science Research Network discussed the current state of AFS (membership, finances, etc.), plans for Symposia (Asian Fisheries and Aquaculture Forum, Cage Aquaculture in Asia, Diseases in Aquatic Animals and International Symposia on Aquaculture and Fisheries Education), progress on journal and revamping our web site and other matters. During the meeting, we had the pleasure of being joined by Dr. Joykrushna Jena, a co-opted Council member. Dr. Jena shared insights about the 14th Asian Fisheries and Aquaculture Forum, which is scheduled to take place in New Delhi from February 12-15, 2025. We extend our heartfelt gratitude to the co-convenors for CAA7, Dr. Dongdong Zhang from Hainan University and Prof. Dr. Liping Liu from Shanghai Ocean University. Special thanks go to Dr. Zhang for overseeing the logistics of the event. We had the presence of seven participants, and in addition, nine individuals joined us online.

2.0 The Cage Aquaculture in Asia (CAA7)

Participants on Day 1 of the 7th International Symposium of Cage Aquaculture in Asia (C A A 7) co-convened by AFS, Hainan University and Shanghai Ocean University. Four past president and future Presidents were present at CAA7: Prof. Shuolin Huang (11 Council, Prof. Alice Ferrer (13 Council), Prof. Neil Loneragan (14 Council); Prof. Liping Lui (incoming President). A fifth former President, Dr. Joykrushna Jena (12 Council) participated in the online Council meeting.

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 update 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

3.0 AFS Publication

AFS Journal Management

⇒ Prof. Neil Loneragan was appointed as interim of Editor in Chief of Asian Fisheries Science Journal

⇒ Potential members for the Editorial Board for the AFS Journal, Asian Fisheries Science;

- Prof. Alice Joan Ferrer – Socio-economic dimensions of fisheries
- Assoc. Prof. Dr. Murni Marlina Abdul Karim– Fish Health
- Prof. Wilfredo Campos – Fish ecology, biology and fisheries assessment
- Assistant Editor: Dr. Sanjoy Banerjee (since 2018-present)

4.0 Membership

As of December 31, 2023, the AFS list comprises 667 members. Among these, 368 are active members, while the remaining 299 have not renewed their membership fees. AFS urges its members to renew their subscriptions and become Permanent Active Members (PAM).

⇒ **Membership Account**

The username and password remained as below:

Username: ID Number password: afs@123

4.1 The Asian Fisheries Society is now extending an invitation to institutions to become members of the Society. We actively encourage and invite academic and research institutions to join AFS, aiming to enhance research and education through connections with the Society. Institutional members play a crucial role in sustaining AFS programs and activities by contributing an annual fee. In return, they enjoy a variety of benefits, including:

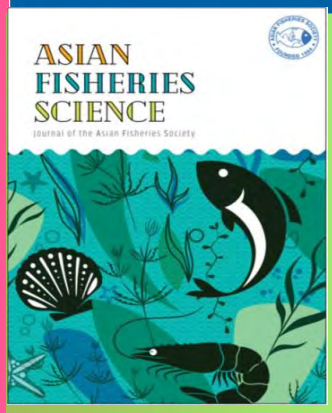
- Booth discount for AFS conferences and preference for the position of the booth
- Discount for up to 5 members of the Institution in conferences
- Recognized institutional partner in the AFS website
- Link of Institutional website on AFS webpage
- Institution Profile and statement on conference program and webpage

5.0 Extension of the MOA between UPM and AFS

The Memorandum of Agreement extending the partnership between UPM and AFS for an additional five years has been officially signed by Prof. Neil Loneragan. Associate Prof. Dr. Murni Marlina served as a witness to this signing.

SYNOPSIS OF PAPERS VOLUME 36 (ISSUE 3) : ASIAN FISHERIES SCIENCE JOURNAL

Asian Fisheries Science



Latest Articles

Asian Fisheries Science 36 (3) 2023

E-ISSN: 2073-3720

Impact of COVID-19 Pandemic on Aquaculture Production and Profitability in Bangladesh: A Comprehensive Analysis

REZAUL HOQUE, MD. INJA-MAMUN HAQUE, MAHMUD HASAN, RANAJIT KUMAR, TAPAN MAZUMDER, A.F.M. NAZMUS SALEHIN, RIPON KUMAR GHOSH, MD. ZAKIUL ALAM, SHANKAR CHANDRA MANDAL

https://doi.org/10.33997/j.afs.2023.36.3.001

The COVID-19 pandemic spread across Bangladesh, affecting various sectors, including aquaculture. However, there is a lack of evidence regarding the effects on aquaculture production and profitability in the country. The present study addresses this gap and investigates the impact of the COVID-19 pandemic from five prominent fish-culture regions in Bangladesh. The results show aquaculture production losses averaging 29.1 % during the pandemic compared to the pre-pandemic period. Before the COVID-19 pandemic outbreak, the farmers reported a profit of USD3813 per hectare, which turned into a loss of USD2565.4 per hectare during the pandemic period. Large farms experienced a more significant impact on aquaculture production loss and economic loss during the pandemic period compared to small farms. The causes for the production loss were increased fish transportation costs and prices of seed and feed during the lockdown. The lockdown and movement restrictions also reduced selling prices because of fewer buyers. The government provided financial support to the fish farmers, but only 36 % of the respondents received financial aid. The study suggests strengthening communication networks, digital marketing strategies and developing strategic planning initiatives to improve disaster management and resilience to mitigate the effects of the pandemic.

A Review of Suckermouth Armoured Catfish (Siluriformes: Loricariidae) Invasion, Impacts and Management: Is Its Invasion a Threat to Bangladesh's Fisheries Sector?

ANTAR SARKAR, SAIFUDDIN RANA, PRANTA BHOWMIK, MD. NAZMUL HASAN, SHAHIDA ARFINE SHIMUL, SK. AHMAD AL NAHID

https://doi.org/10.33997/j.afs.2023.36.3.002

Suckermouth armoured catfish are significant threats to aquatic biodiversity, ecosystems, habitats, and fishery production in different countries. Their unique characteristics and adaptive features help their successful invasion. Elimination, control, and intrusion prevention are possible management strategies. Utilising them as food and preparing value-added products and byproducts are viable ways to reduce their number. Management is challenging, owing to their tolerance and excellent adaptability.

With severe dangers to Bangladesh's fisheries industry and aquatic environment, suckermouth armoured catfish have invaded natural waterbodies and aquaculture ponds. There is a lack of accurate information on invasion status, types of invading species, and potential dangers of invasion to create a management framework in Bangladesh. Therefore, this review introduces the key characteristics, habitats, invasion impacts, and management and utilisation aspects of suckermouth armoured catfish in different countries. The review may help in understanding how they affect native fish, aquatic organisms, habitats, and the aquatic environment globally. Finally, what kind of threats they may pose and how they can be managed sustainably in Bangladesh.

Quality Changes in Intermediate Flying Fish, Cheilopogon intermedius Parin, 1961, During Ambient and Ice Storage

RHODA MAE C. SIMORA, CINDY D. ARMADA, KARMELIE JANE M. MONAYA

https://doi.org/10.33997/j.afs.2023.36.3.003

Intermediate flying fish, Cheilopogon intermedius, is a popular source of inexpensive animal protein in the Philippines, but it remains susceptible to deterioration during processing. The study evaluated the sensory, microbiological, and physico-chemical characteristics of flying fish, C. intermedius stored at ambient conditions (27–29 °C) and on ice (1–2 °C) storage. The storage duration of flying fish was 8 h at ambient temperature and around 12 days in ice. A ten-member taste panel rejected raw fish due to strong fishy to sour odours and soft texture. Similarly, cooked samples were rejected based on sour and ammoniacal odours, mushy texture, and a bitter taste. Results of sensory evaluation correlated with those of microbial and chemical analyses. Bacteria multiplied rapidly at ambient temperature at the end of the 20-h storage. In comparison, bacterial counts remained below rejection limits until the end of the storage period for samples stored in ice. Total volatile base nitrogen (TVB-N) and trimethylamine nitrogen (TMA-N) accumulated rapidly at ambient temperature, at the end of the storage period. In ice, TVB-N, TMA-N, and histamine values were slowed down, reaching rejection limits only at the end of the storage period. Therefore, without the application of adequate icing, flying fish would undergo rapid decomposition at ambient temperature.

Nutritional Evaluation of Green Mussel Perna viridis (Linnaeus, 1758) and Brown Mussel Modiolus modulaides (Röding, 1798) From Panay Island, Philippines

SHARON N. NUÑAL, RAYMUND B. PARCON, SHEINA B. LOGRONIO, NIZZY HOPE N. CARTAGO, MAY FLOR S. MUEGUE

https://doi.org/10.33997/j.afs.2023.36.3.004

Mussels are considered a low-cost protein source in the Philippines. The green mussel Perna viridis is widely consumed, while the brown mussel Modiolus modulaides is not yet fully utilised as human food but used as animal food or fermented for human consumption. This study highlighted the nutritional value of these mussels in terms of their proximate composition, amino acid, fatty acid, and mineral components. Results revealed that the moisture content of M. modulaides was significantly higher than P. viridis. In comparison, the crude protein content of P. viridis was significantly higher than M. modulaides, but they have similar amounts of lipids. There were 18 amino acids detected in the two species with significantly higher total essential amino acids (EAA) and non-essential amino acids found in P. viridis. The most abundant EAA were leucine and lysine in P. viridis and M. modulaides. Results also revealed that the two mussel species are qualified for good quality protein claims with an essential amino acid index of >0.9 and digestible indispensable amino acid scores of >100 %. Palmitic and stearic acids were detected in both species, but eicosapentaenoic and docosahexaenoic acids were only detected in P. viridis. Sodium, potassium, iron, and calcium were also found in the two species. These results indicate that the two Philippine mussel species can be good sources of important amino acids, lipids and minerals for human and animal diets.

Impact of Fishing Pressure on Reproductive Biology of Mackerel Scad, Decapterus macarellus (Cuvier, 1833) in Sulawesi Sea and Maluku Sea, Indonesia

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The high fishing pressure may cause species evolutionary changes toward smaller maturation sizes. In this context, the fishing practices of mackerel scad, Decapterus macarellus, in tropical eastern Indonesia provide an excellent opportunity to examine this hypothesis. Two distinct fishing grounds, the Sulawesi Sea and Maluku Sea, were selected to explore this phenomenon. The results revealed that total mortality, used as an indicator of fishing pressure, was higher in the Maluku Sea than in the Sulawesi Sea and other areas. Additionally, the length at first maturity of D. macarellus in the Maluku Sea was remarkably lower than in the Sulawesi Sea, which can be attributed to the higher fishing pressure. These findings support the fisheries-induced evolution hypothesis, particularly within Indonesian tropical fish stocks and their respective regions, adding new growing evidence that fishing pressure affects fish reproductive biology. The length at first maturity may serve as a valuable proxy for assessing the intensity of fishing pressure on fish stocks.

Distinguishing Hybrids of Golden Thailand and Malaysian Strains of Climbing Perch, Anabas testudineus (Bloch, 1792), Using Multivariate Analyses of Morpho-Meristic Traits

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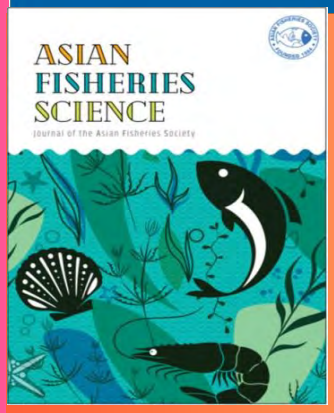
The climbing perch, Anabas testudineus, is a commercially important freshwater fish in Southeast Asia. To meet demand, establishing stock development breeding programmes is essential. However, there is a lack of scientific literature on parent-hybrids differences. This study used morphometric characteristics to identify important predictors and determined their heritability to address the knowledge gap. Two strains of A. testudineus and their corresponding hybrid groups, were used for the experiment. Twenty-five morphometric measurements were taken, and adjustments were made for body size effects. These measurements were then subjected to multivariate analysis with a 5 % selection intensity for genetic advancement, focusing on body depth and base of anal fin length. The study showed that body length heritability was greater than 60 %, indicating a significant additive genetic effect that surpasses the impact of the environmental effect and thus could be used as a potential characteristic for selective breeding to improve the desired trait.

Asian Fisheries Science



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Utilisation of Humic Substances as a Feed Additive in Aquaculture: A Meta-Analysis

RASIDI RASIDI, IDIL ARDI, DEWI PUSPANINGSIH, VITAS ATMADI PRAKOSO, DEDI JUSADI, ANURAGA JAYANEGARA

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Interest has recently grown in the research of humic substances (HS) as a potential aquaculture feed additive, resulting in a growing number of publications. However, previous studies have shown varying results. This study employed a meta-analysis approach to evaluate the effect of HS as a feed additive on the specific growth rate (SGR) and feed conversion ratio (FCR) of fish aquaculture. The Preferred Reporting Items for Systematic and Meta-Analysis (PRISMA) method was used to collect the data. The results revealed an effect size (comparing the control and the HS-supplemented groups) of 0.154 (95 % CI, $P < 0.001$) for SGR. Additionally, there was a notable improvement in FCR with an effect size of -0.220 (95 % CI, $P < 0.001$). However, it is important to note that the analysis showed high heterogenicity (I2 values of 98.87 % and 97.91 % for SGR and FCR, respectively). In conclusion, HS supplementation may significantly improve fish growth and reduce FCRs in aquaculture. This meta-analysis contributes valuable insight into the use of HS as a beneficial feed additive in aquaculture practices.

Prevalence and Intensity of Larvae of the Genus Anisakis sensu lato (Nematoda, Anisakidae) in Bigeye Scad, Selar crumenophthalmus (Bloch 1793), from the Indian Ocean off Java, Indonesia

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This research investigates the prevalence and mean intensity of Anisakis larvae on the bigeye scad, Selar crumenophthalmus (Bloch, 1793), along the Indian Ocean off Java. Each fish sample was examined for Anisakis larvae in the abdominal cavity, liver, gonads, digestive tract, and muscle. Morphological characterisation was done using scanning electron microscope (SEM). The ITS rDNA region was amplified using PCR, then used to perform RFLP for identification and sequenced to form a phylogenetic tree. The results demonstrated that the bigeye scad was vulnerable to infection by Anisakis nematodes with varying prevalence and mean intensity at each location. Most larvae were found in the abdominal cavity, whereas a relatively low prevalence was found in other organs. The direct sequencing in the ITS rDNA region showed that Anisakis larvae found in the bigeye scad were A. typica. Anisakis infection can be utilised as a biological indicator for movement patterns and fish stock differentiation.

Synergistic Combination of Plants and Microbial-Rich Substrates Improves Water Quality in an Integrated Plant-Substrate System

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Nutrient enrichment is one of the main reasons causing water quality deterioration and eutrophication in aquaculture systems, such as tanks, ponds, and natural water bodies where cage aquaculture is located. The integration of aquatic plants and substrates synergistically utilises nutrients for the development of biofilm and plant growth, thus improving the water quality in tanks. The experiment was performed to assess the use of commercial plants integrated with substrates in enhancing nutrient removal in nutrient-enriched mesocosms. Among the plants, the combination of water spinach and lemon basil exhibited significantly higher nutrient removal without causing adverse effects on plant growth when compared to the other treatments. For the substrates, the lava rock and bamboo showed the highest periphyton development and productivity. The integration of water spinach and lava rock resulted in the highest nutrient removal and plant relative growth rates indicating the positive effects of synergistic interaction between plants and microbial-periphyton colonised substrates. A total of 27 bacterial phyla (mainly non-pathogenic) were identified in the integrated water spinach and lava rock substrate treatment. Microbial community structure analysis showed that Proteobacteria, Planctomycetota, Verrucomicrobiota and Bacteroidota were the main groups found in water, roots of water spinach, and substrates. The highest bacterial diversity was observed in the substrates, followed by plant roots and water. This study illustrated that the water quality could be significantly improved by integrating suitable plants and microbial-periphyton colonised substrates in tanks.

Research and Innovation in Malaysian Mahseer, Tor sp., Broodstock Development Programme

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Malaysian Mahseer (Tor spp.) is a highly priced native freshwater fish in Malaysia and much sought after as food, ornamental and recreational fish. However, the production of mahseer is still insignificant. This paper presents the R&D carried out by the Fisheries Research Institute, Department of Fisheries Malaysia particularly on the broodstock development, breeding, disease, seed management, formulation and validation of maturation diet. In this programme, broodstocks obtained from five different states were used as a base population and mated using full diallel method to produce a total of 75 families. The maturation diet enhanced the breeding capacity and shortened the maturation period of mahseer from 3.0 years to only 1.8–2.0 years. Three innovations, hatching system, nursing system and maturation diet were produced from this programme were also registered innovations. This paper also deliberates the challenges faced in broodstock development programme and the way forward.

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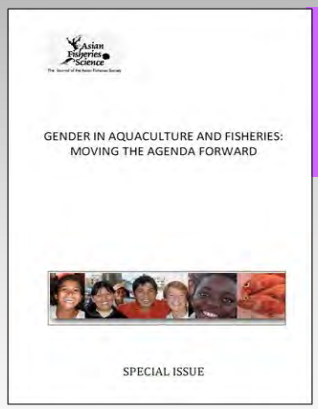

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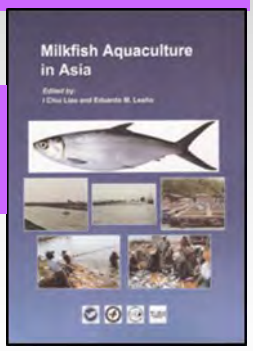

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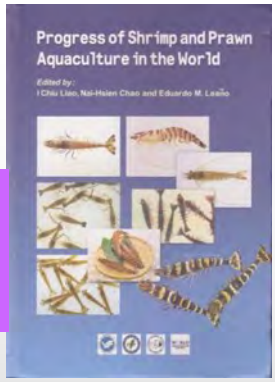

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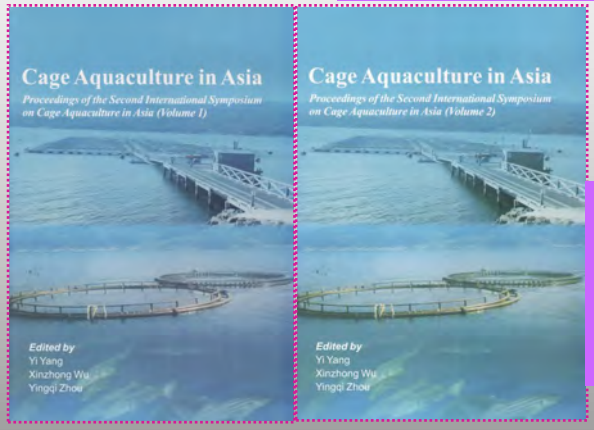

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