



CHALLENGER

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2019

NEWSLETTER OF
KERALA UNIVERSITY OF FISHERIES & OCEAN STUDIES (KUFOS)

Vo-K19 No.07



09

Fish molecular
immunology
national workshop



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NEW APPOINTMENTS

Dr. Phiros Shah

Assistant Professor (Physical Oceanography)
School of Ocean Science and Technology



Dr. Phiros Shah has obtained his M.Sc in Oceanography and Ph.D in Physical Oceanography under the Faculty of Marine Sciences, Cochin University of Science and Technology (CUSAT). Before joining KUFOS he had worked with National Institute of Ocean Technology (NIOT), Indian Institute of Science (IISc) and Central Marine Fisheries Research Institute (CMFRI). For the last ten years, he has been involved in areas of research pertaining to the Ocean, Atmospheric and

Fishery Sciences. His area of expertise is in Upwelling and Downwelling phenomena over the Eastern Arabian Sea. During his tenure at National Institute of Ocean Technology, he has participated in open ocean cruises being the part of Bay of Bengal Tsunami Buoy deployment program. He has published articles in national and international peer reviewed journals.

Dr. V. P. Limna Mol

Assistant Professor (Marine Ecology)
School of Ocean Science & Technology



Dr. V. P. Limna Mol obtained her masters in Marine Biology in 2003 from Cusat and Ph.D in 2010 from National Institute of Oceanography (NIO), Regional Centre, Kochi. Post Ph.D, she continued research on synthesis and extended bioactivity of Calamenene molecules in the capacity of CSIR-Research Associate at NIO, Kochi. Thereafter, she took up the position of Project Scientist at NIOT, Chennai and focussed on ballast water management, marine environmental impact assessment, marine siderophores and development of advanced methods for biofouling control.

After six years stint with NIOT, she joined the United Nations Development Programme as the National Project Officer for Biodiversity at Delhi. Dr. Limna has published her research findings in national and international journals of repute and is also a reviewer for various international journals. Her current research focus includes marine ecological studies and biotechnological interventions towards conservation of the marine environment and sustainable utilisation of marine resources.



Dr. B. Manojkumar, Asso Professor and Special Officer of Kannur Regional Centre has been given charge of Registrar of Kerala University of Fisheries and Ocean Studies. He has assumed office on April 30, 2019

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Vice Chancellor Dr. A. Ramachandran hoisting national flag on the 73rd Independence day on August 15, 2019 at the Main Campus of the Kerala University of Fisheries and Ocean Studies.



Vice Chancellor Dr. A. Ramachandran inaugurating Onam Celebrations 2019 at KUFOS Main Campus on 5th Sept, 2019. Onam was celebrated in the University in a grand scale with participations of both students and staff.

FROM THE DESK OF THE VICE CHANCELLOR



Prof (Dr) A. Ramachandran
Vice Chancellor

I am happy to share that the preparations of the three days international conference on Aquatic Resources and Blue Economy, organized by KUFOS is in final stage. The venue of the Kerala's first International Conference on Aquatic Resources and Blue Economy is Le Meriden, Kochi and the date of event is Nov 28-30, 2019. Registration for the International conference is already started and we are receiving research papers for the conference from different parts of the world. An exclusive website (www.aquabe.in) for the conference has been launched. Now delegates from across the world could able to register for the conference through on line by logging conference website and , submitting details. A separate online payment gateway has been enabled on the website for the easy payment of registration fees. Early bird registration is ongoing now (till October 15, 2019) with fee of Rs 8,000/- for delegates from India (Rs 4,000/- for students) and US \$ 300 for overseas participants (US \$ 200 for overseas students)

The concept of Blue Economy integrates an innovative approach to development and economic exploitation of the resources of the earth's 'blue realm' - inland, coastal and marine waters. Oceans cover 72 percent of the surface of our blue planet and provide a substantial portion of the global population with food and livelihood. Enhancing more than 80 percent of global trade, marine and coastal environments constitute a key resource for economic development. The

objective of the Blue Economy is to promote smart, sustainable and inclusive growth and employment opportunities within the Indian Ocean region's maritime economic activities. The Blue Economy is determined to initiate appropriate programs for: the sustainable harnessing of ocean resources; research and development; developing relevant sectors of oceanography; stock assessment of marine resources; introducing marine aquaculture, deep sea/long line fishing and biotechnology; and human resource development; among others.

Sustainable Blue Economy aims to consider economic development and aquatic ecosystem health as compatible proposition. The main themes of the International conference are Aquatic Resource Management, Aquatic Production Systems, Climate Change Impact on Blue Economy, Ocean Health and Global Warming, Ocean Processes and Environment Assessment, Aquatic Products and Technologies and Education and Capacity building. I hope , the conference will provide platform for researchers, academicians, scientists, industrialists and policy makers to take the concept of blue economy to newer and wider dimensions

KUFOS has joined hands with Kerala State Planning Board and State Fisheries Dept to formulate a protocol for the yearly assessment of Inland Fisheries in Kerala. A one day workshop for this purpose has been held in the University. A detailed report about the workshop is also included in this issue of Challenger.

This issue of Challenger has also carried a report on Visual Problem Appraisal (VPA) project on Kerala Coast , jointly conducted by three Universities from The Netherlands i.e Wageningen University and Research, Van Hall Larensten University of Applied Sciences and the Delft University of Technology with cooperation of Kerala University of Fisheries and Ocean Studies (KUFOS). Visual Problem Appraisal (VPA) is a film based learning strategy, which aims to enhance the problem analysis of complex issues and to facilitate the development of actions. It is used in workshop settings focusing on learning and change, or dealing with problem analysis and policy design The context of the study is the impact of 2018 and 2019 of monsoons in Kerala in the form of floods and landslides. A similar visual documentation of Kerala coast was held in 2004 by the same of researchers, in which Cochin University of Science and Technology (Cusat) was the strategical partner from Kerala The Nederland research team had carried out similar VPA projects in different continents to analyse environmental and social issues and many European Universities were using it as strong tool in education sector. But in India, very seldom educationalists use Visual Problem Appraisal as a tool in education, though it is considered as the smartest methodology in learning process. I hope more educationalist and institutions will utilize this powerful learning tool soon in education sector in India.



Joint project on Visual Problem Appraisal of Kerala Coast begins

Since 2018 and 2019 monsoons were blooded heavily with flood and landslides in Kerala, with a goal to contribute in problem analyzing, policy designing and open social dialogue in a context of participatory governance, a Visual Problem Appraisal (VPA) project of Kerala Coast has begun under Holland-Kerala joint initiative. The partners of the VPA project from The Netherlands are the Wageningen University and Research, Van Hall Larensten University of Applied Sciences and the Delft University of Technology. The Kerala University of Fisheries and Ocean Studies (KUFOS) is the partner university participating in VPA project from Kerala. A research team comprising Dr. Loes Witteveen from Wageningen University and Dr. Jeroen Rijke representing Van Hall Larensten University of Applied Sciences has made a visit to KUFOS on Sept 23, 2019 and discussed plan of action with Vice Chancellor Dr. A. Ramachandran who is one of the Investigator of the project.

Visual Problem Appraisal (VPA) is a film based learning strategy, which aims to enhance the problem analysis of complex issues and to facilitate the development of actions. The VPA is used in workshop settings focusing on learning and change, or dealing with problem analysis and policy design.

The core of a VPA is based on 'mediated stakeholder consultations'. Workshop participants consult stakeholders through watching them on film

Dr. Loes Witteveen and Dr. Jeroen Rijke explained in the meeting that the Integrated management of coastal zones is crucial for the sustainable use of scarce and vulnerable natural resources and the economic survival of local and indigenous people. Conflicts of interest in coastal zones are manifold, especially in regions with high population pressure, such as Kerala. The VPA project is designed for a classroom situation but it can also be applied in settings with local stakeholders as a tool for social learning. Filmed interviews with real stakeholders contributed largely to the realism of the simulation and stimulated learning: Students aligned with local stakeholders and acquired professional skills as future analysts; local people learned about their own situation and the frames of other stakeholders.

Post the discussion, the VPA team spend one week in Kerala for filming target persons and places. Earlier, in 2004 the same team had produced a VPA material on Kerala Coast and the present study in the continuation of earlier project.

Protocol for the Inland Fisheries Survey mooted

It has been decided to formulate a protocol comprising scientific guidelines and methods for the yearly assessment of Inland Fisheries in Kerala. This was decided at a discussion forum headed by the State Planning Board Member and Dean of Tata Institute of Social Sciences Dr. R. Ramkumar and scientists comprising from the Kerala University for Fisheries and Ocean Studies (KUFOS), the Central Marine Fisheries Research Centre (CMFRI-Kochi), the Central Inland Fisheries Research Centre (CIFR), Kochi and the Central Aurora Fisheries Research Centre (CIBA - Chennai). The KUFOS Vice Chancellor Dr. A. Ramachandran presided over the meeting held at the KUFOS campus on August 22, 2019.

Presently, the Department of Fisheries in association with the Central Marine Fisheries Research Institute (CMFRI) is conducting a survey every year to assess the fish catch from the sea by Kerala Fishermen. But there is no scientific mechanism and fool-proof system in place to collect the quantity or type of fishes that are being caught from various inland water bodies of Kerala, which include 44 rivers, 47 dam reservoirs and many inland water bodies including backwaters. The fish and shrimp produced by the fish farmers in the State are also not accounted or assessed properly.



State Planning Board Member Dr R Ramkumar addressing the scientists at a consultative meeting held at KUFOS to formulate a protocol for the assessment of Inland Fisheries in Kerala. The KUFOS Vice Chancellor, Dr A Ramachandran is seen aside

Hence there is a shortcoming in the calculation in the State's gross domestic fisheries production, Dr Ramkumar pointed out. A comprehensive survey which would encompass all the fisheries from all the inland water bodies including backwaters is necessary to form the social security schemes for the inland fisheries workers, he observed.

Neither any research study or submission of a project proposal for a sustained fisheries development was possible without arriving at the actual and relevant data as to who all, what kind and how much fishes are caught from the in land water bodies of Kerala, said the KUFOS Vice Chancellor Dr A Ramachandran. Conservation of native fish resources of the State can be achieved only by studying the classification of fish ecosystems in the inland water bodies including lakes in forests, Dr Ramachandran pointed out.

Director of Research Dr T V Sankar, Registrar Dr B Manoj Kumar, Dean of Fisheries Dr K.Riji John, Dr Feroz Khan (CIFRI) and Joint Director of State Fisheries Dr Ignatius Monroe B spoke on various aspects on the topic. The suggestions would be compiled and a comprehensive report on the modalities and protocol for fisheries survey would be submitted to the Government in one month's time, Dr Ramkumar has informed the gathering.

Website opened for AQUABE 2019



Vice Chancellor Dr.A.Ramachandran launches AQUABA website at a meeting of conference officials at KUFOS headquarters

Website for Kerala's first International Conference on Aquatic Resources and Blue Economy (AQUABE 2019) has been opened. The website (www.aquabe.in) was opened by KUFOS Vice Chancellor and Chairman of the Conference Dr.A.Ramachandran at meeting of conference officials at KUFOS headquarters on Sept 19, 2019. Now delegates from across the world could be able to register for the conference through on line by logging www.aquabe.in and submitting details. A separate online payment gateway has been enabled on the website for the easy payment of registration fees. Early bird registration is ongoing now (till October 15, 2019) with fee of Rs 8,000/- for delegates from India (Rs 4,000/- for students) and US \$300 for overseas participants (US \$200 for overseas students)

The Venue of the AQUABE 2019 to be held during November 29-30, 2019 and organized by Kerala University of Fisheries and Ocean Studies (KUFOS) is Kochi, which is historically known as the 'Queen of Arabian Sea'. The international conference and allied activities including international expo will take place Le Meridian in Kochi, which is an international five star upclass hotel on the banks of beautiful backwaters of Kochi. The hotel is on a sprawling 18 acres, surrounded on each side by the calming backwaters with 60,000 square feet of exquisite banquet space which can accommodate up to 5,000 guests.

KUFOS is organizing the three days international conference on Aquatic Resources and Blue Economy in order to understand and highlight the contributions of aquatic resources, both living and non living, to blue economy. The concept of

Blue Economy integrates an innovative approach to development and economic exploitation of the resources of the earth's 'blue realm' - inland, coastal and marine waters. Alongside the "green economy", it represents a basis for balanced, responsible and sustainable use of both renewable and non-renewable resources on earth. Sustainable Blue Economy aims to consider economic development and aquatic ecosystem health as compatible propositions. As healthy oceans, seas and inland water bodies can greatly contribute to inclusiveness and poverty reduction, they are highly essential to ensure a sustainable future for developing and emerging economies around the world. However, several challenges hinder the development of a Blue Economy including the need to overcome the current economic and developmental trends that are rapidly degrading and depleting aquatic resources through unsustainable exploitation, habitat loss and destruction of coastal, near-shore and oceanic habitats through pollution, shipping and tourism. The notion of Blue Economy is founded on the principles of sustainable use and conservation of aquatic ecosystems, and based on the United Nations Sustainable Development Goal to "Ensure availability and sustainable management of water and sanitation for all" and the Goal to "Conserve and sustainably use the oceans, seas and marine resources for sustainable development" respectively.

The conference will provide platform for researchers, academicians, scientists, industrialists and policy makers to take the concept of blue economy to newer and wider dimensions. For more details on International Conference AQUABE 2019, please see the back cover of this newsletter.

KUFOS PAVALION IN AQUA AQUARIA- 2019



The KUFOS pavilion at AQUA AQUARIA 2019.

Kerala University of Fisheries and Ocean Studies (KUFOS) pavilion in international exhibition organized as part of AQUA AQUARIA 2019 attracted many delegates including fisheries scientists from across the world who were participants of the mega event. AQUA AQUARIA 2019 was an international conference held at HITEX exhibition center Hyderabad during 30th August to 1st September 2019.

The event was organized by MPEDA. Aquaculture famers conclave, Aquaculture startup meeting, Paper \ Poster Presentations were organised as part of the conference along with an international expo on Aqua culture. Technical Sessions on Sustainable production and diversification, Significance of Aquaculture in seafood export from India, Sustainable aquaculture in an era of diversification: Successful examples from Asia, Production of Tilapia as a sustainable

and diversified crop to India's Aquaculture community, Using conventional and novel methods to enhance Mangrove crab (*Scylla spp*) production, etc were also carried out during these days.

The KUFOS Vice Chancellor Dr.A.Ramachandran, who chaired the Certification and Traceability session in the conference, which was inaugurated by Shri. M Venkaiah Naidu, Hon'ble Vice President of India. Shri T Srinivasayadav, Hon'ble Minister for Animal Husbandry and Fisheries, Govt of Telungana and Shri Mopidevi Venkata Ramana, Hon'ble Minister for Animal Husbandry and Fisheries Marketing, Govt of Andhra Pradesh were the chief guest of honour of the day.

In the international expo, a stall of size 3m x 3m were allotted to KUFOS. A video film showing the activities and achievements of the University in teaching, research and extension were displayed in the stall. In addition to brochures and leaflets of the same were also distributed to the delegates. The exhibition was scheduled from 10am to 6pm. The total participation of the programme was about 4,000 participants including 3000 aqua farmers representing all the coastal states.



KUFOS Disaster Response Team visits Eriyad village

Field visits were conducted by three department under the School of Fishery Environment, KUFOS viz., Disaster Management, Remote Sensing and GIS & Environmental Science during June -July 2019 at Eriyad Village in Thrissur district to study the severe coastal erosion and flooding due to incessant rains.

The sea erosion in the coastal areas of Eriyad village has become severe and started to swallow the houses of many families. Sea water has reached the land by nearly 1.5 km in the coastal belt and many houses have been ruined by sea erosion as sand has been deposited in them. The Eriyad-Edavilangu coastal road has become non-motorable because of flooding. Absence of proper sea wall is the major threat to the coastal families. Impact of sea fury was acute in the areas where there are no sea walls or they are damaged. The students team visually recorded flood situation and documented for further reference.

DP World Go Green Programme at Puduveypu Campus

The officials of Dubai Port World, Kochi has made a visit on August 16, 2019 at School of Fishery Environment Campus of Kerala University of Fisheries Ocean Studies (KUFOS) located at Fisheries Station, Puduveypu and attended one day Environmental Awareness Study program to understand the importance of the backwater ecosystem and

mangroves. The program includes lecture classes, viewing of virgin Mangrove forests, observation of migratory birds, various aquatic animals and fishing. Dr. Linoy Libini C, Head of the Fisheries Station and Dr. K.P. Subash Chandan, Director of School of Fishery Environment have led the environment awareness programme, while K.K. Raghuraj, Farm Superintendent explained them about the importance of mangroves in coastal eco system.





The students of LLM-Maritime Law at KUFOS campus with the Director of School of Management Dr. M.S. Raju and the University Registrar Dr. B. Manoj Kumar.

▶ Helping hand of KUFOS to students of the flood-landslide hit Nilambur

The students of the LLM (Maritime Law) of Kerala University of Fisheries Ocean Studies (KUFOS) has extended its helping hand to the students of the recent flood-landslide hit Nilambur in Malappuram district. The help was in the form of 200 school kits. Each kit included a bag for students with all study materials including note books.

Registrar Dr B Manoj Kumar flagged off the vehicle that carried the school kits from the North East campus of KUFOS. Director of School of Management and Entrepreneurship (SME) Dr M.S Raju, PR and Publication Director Raju E Raphael, student representatives Arun Krishnan KR, Sarath MK and B Jayachandran were present at the flag off. A group of six students were accompanied the vehicle to Nilambur. The students were provided direct assistance for distributing the school kits to children in the flood affected areas in and around Kavalapara .

The LLM students had also extended their help as volunteers in various flood places wherever help was needed. LLM - Maritime Law course is conducted at the KUFOS North East campus at Madavana as an evening course and majority of the students of this particular course are practicing lawyers judges working in different courts in and around Kochi.

▶ Flood relief Collection centres operated in KUFOS campuses



The Vice Chancellor Dr.A.Ramachandran hands over the materials collected at KUFOS Flood Collection Centres to District Administration Representative. Dr.T.V.Sankar, Director of Research and Mr.Job George, Finance Officer are also seen in the picture.

In tune with the need of the hour, the Kerala University of Fisheries and Ocean Studies (KUFOS) had also actively participated in the flood relief and assistance programmes of the Government by opening collection counters at various campuses of the University. The counters were located at the Panangad Main Campus, the Amity Centre at Madavana Junction and the Fisheries Station Campus at Puthuvypu.. The collection centres were opened and operated during 13-15, August 2019 under the leadership of the NSS unit of the University after registering with keralarescue.in as Regn no. 151. The people from in and around deposited essentials such as rice, biscuits, baby food, sanitary napkins, diapers, bottled water, bed sheets, Nighties and Lungies. No cash or used materials were accepted at the counters

Major items collected were 510 bottles of Drinking water(510 litres), 430 Bathing soap, 5 cartons of Medicine (cough syrup, antibiotics, paracetamol etc), 142 bottles of cleaning Lotion, 70 packs of Bleaching powder, 100 packs of Washing powder and Soap. 33 Dettol bottles, 100 Bed sheets, 130 Bath towels, 50 Buckets and 70 Mugs, 35 Poothpaste packets, 50 tooth brushes, 200 Kg of Rice, 10 packets of Mask and Gloves, 50 Lungi and Nighty, 30 Toilet Brush, scrub, 2 Napkins, 50kg of Atta and Dal, 20 big pack Biscuits etc.

The materials collected were handed over to District administration at civil station, Kakkannad on 15th evening. These items were despatched to Nilambur-Malappuram on the same day. Around 40 NSS and NCC volunteers were involved in the programme as most were out of station due to holidays



Vice Chancellor Dr.A.Ramachandran is handing over a memento to Dr.Shijo Joseph, Asst Professor (Remote Sensing and GIS), School of Fishery Environment, KUFOS who has been awarded the Best Environmental Researcher Award for the year 2018 by the Government of Kerala. Dr.Shijo Joseph has received the award at a function held in Thiruvananthapuram on World Environment Day- June 05,2019.



➤ Fish molecular immunology national workshop

A three-day national workshop on 'Recent Advancement in Molecular Immunology Research for Sustainable Aquaculture', organised with an aim to enhance molecular biology-related laboratory technical skills among fishery researchers was held at Kerala University of Fisheries and Ocean Studies (KUFOS) during 25-27 Sept 2019.

46 researchers from different fisheries research institutions across the country have participated in the workshop, which provided hands-on training on important molecular techniques like DNA and RNA isolation, PCR, electrophoresis and ELISA. The workshop was also provided training in Bioinformatic tools and immunological assays to the participating researchers under a team of experienced scientists lead by Dr. E.P. Preetham of KUFOS.

Prior to the technical session start, KUFOS vice-chancellor Dr.A.Ramachandran has inaugurated the national workshop in a function, in which Prof.Dr.Devaraj H, Advisor to the PMO on Fisheries and former Vice-Chairman of the UGC was the chief guest. Dr Ramachandran said the lack of professionally trained fisheries laboratory technicians and researchers is major bottleneck of the aquaculture industry in the country. Farmers face more than 80 per cent of crop loss many times due to unexpected outbreak of viral infections in aqua farms, he added. To prevent this, fundamental knowledge of molecular biology techniques among fishery professionals has to be enhanced and more modern fish animal health laboratories have to be set up across the country. Dr.B.Manojkumar, Registrar of KUFOS has presided over the inaugural session. Eminent Professors Dr.K.Gopakumar ,Dr.SreenivasaGopal, Director of Research Dr.T.V.Sankar, Prof.RadhikaRajasree and Dr.E.P. Preetham were among those who spoke in the inaugural session.

The National workshop is organised by the Department of Fish Processing Technology of KUFOS ,which is jointly sponsored by the Department of Science and Technology of Science and Engineering Research Board (DST-SERB) and Kerala State Council for Science Technology and Environment (KSCSTE).

➤ CASRED Skill Development Programme

The two day Skill Development Programme on value added fish products jointly organized by Centre of Advanced Studies and Entrepreneurship Development (CASRED) and the Department of Fish Processing Technology (FPT) was conducted on 30th and 31st August 2019 in the FPT labs. There were 9 participants including 8 women entrepreneurs. Basically, the workshop was meant for imparting hands-on experience on making fish related products.

Dr. T.V. Sankar, Director of Research inaugurated the workshop. In his address, he highlighted the role played by KUFOS for the community development and the scope of entrepreneurship development through CASRED. Dr.Sankar explained the different activities CASRED is involved in at present for developing entrepreneurs among the community members and wished them success in their participation in this workshop.

On the first day of the workshop, the participants were taught how to make fish pickles with tuna and prawn. They were given training how to standardize the production process so that the quality and flavour is maintained irrespective of the cook. On the second day, the participants were taught to make different battered and breaded fish products such as fritters, butterfly shrimp, shrimp tailon, fish cutlet etc.

In their feedback about the workshop, all the participants expressed satisfaction and many of them showed interest in attending the Workshop on Entrepreneurship Development (WED), which CASRED is planning to conduct in September 2019. Some of them evinced confidence that they will start their own business and our workshops and guidance will help them to set up their units.

In his address to the participants, Dr.Suresh Mallya, Professor Chair, CASRED, thanked the participants for having actively participated in the workshop and complemented for the skill they acquired to make value added fish products. Also, he informed them that CASRED is setting up production lines in three different areas such as bread and biscuit, fruit syrup and squash, and kheema and will be inviting all community members for skill development, shortly. The production line for bread and other bakery items will be ready by the end of 2019.

Dr. Riji John, Dean of Fisheries Faculty assured the partici-



participants that similar workshops for skill development will be organised regularly. Dr. Riji John distributed certificates of participation to participants along with recipe booklet and wished them success in their ventures. Dr. Radhika Rajasree, Head, Department of Fish Processing Technology briefed the participants about the activities the Department is involved in and appreciated the efforts taken by their research scholars as demonstrators for the workshop. Dr. Abhilash Sasidharan, Asst. Professor proposed vote of thanks.



► B.Tech 2019 Batch

Classes of B.Tech Food Technology 2019 Batch was started on August 19, with a one week orientation programme. Vice Chancellor Dr. A. Ramachandran inaugurated the Batch in the presence of Achal Industries Managing Director Giridhar Prabhu, Registrar B Manojkumar, Finance Officer Joby George, Director of Research Dr. T.V. Sankar, Eminent Professor Dr. K. Gopakumar, SOST Director Dr. S. Sureshkumar and SOEUT Director Dr. Suriyakala C.D. The orientation programme was focused on subjects like Industrial expert talks for mentoring the students, Developing life skills, Youth Identity, Human values and ethical Human Conduct, The role of Food Technologists in the Food Industry and Entrepreneurial Awareness and Motivation”.



The KUFOS Vice Chancellor Dr A Ramachandran presenting the Gurupur Sadananda Prabhu Award to Anjana Basant who secured first rank in M Sc in Food Science & Technology. Prof. PT Mathew, Finance Officer Joby George, Eminent Professor Dr K Gopakumar, Registrar Dr B Manojkumar, Achal Industries MD Giridhar Prabhu, Food Quality Laboratory Research Centre CEO Dr Babi Jacob, Prof. D.D Namboothiri and Director of School of Ocean Science and Technology Dr Sureshkumar are seen.

► Gurupur Sadananda Prabhu award presented

The Gurupur Sadananda Prabhu Award, for the best food science student of KUFOS, has been presented to Anjana Basant. The award was presented by the KUFOS Vice Chancellor Dr A Ramachandran at a function held at the University headquarters at Panangad.

Anjana Basant had secured first rank in MSc Food Science and Technology course (2017-19 batch) conducted by KUFOS. The award has been instituted by Achal Industries, Mangalore, in memory of Gurupur Sadananda Prabhu, a prominent industrialist in the cashew processing sector. Achal Industries

Managing Director Giridhar Prabhu was present at the award presentation function. Speaking at the occasion, Giridhar Prabhu promised extension of financial assistance to the research in KUFOS in technology of making herbal remedies including cashew syrup.

Registrar Dr B Manoj Kumar was presided over the function. Professor of Eminence Dr K Gopakumar, Finance Officer Joby George, Director of Research Dr. TV Sankar, Director of School of Ocean Science and Technology Dr. S. Sureshkumar, Prof PT Mathew, Prof. DD Namboothiri and CEO of Kochi based Food Quality Laboratory and Research Centre Dr Babi Jacob were present at the function.

The MKK Nair Fellowships, constituted for recognising the best students of present M.Sc Food Science Batch were awarded to Hrithya Narayanan, Alfie J Katherine at the function. Dr K Gopakumar Fellowship for the best performing first year student was presented to Akhila P James. K. Krishna, who secured first place in the MSc Food Science Entrance Examination, was presented with a cash award. The Gurupur Sadananda Prabhu award winner Anjana Basant delivered acknowledgement speech.



► Delegates visit from Plymouth, UK

Dr. Georgy Shapiro, Professor of Physical Oceanography and Dr. Sanjay Sharma, Associate Professor of Artificial Intelligence Systems of University of Plymouth, UK have visited KUFOS on 20th July 2019 and attended a discussion with Vice Chancellor Dr. A. Ramachandran to find scope of collaboration in the field of Ocean State Modelling and Forecast for Lakshadweep Sea. Registrar Dr. B. Manojkumar, Director of Research Dr. T. V. Sankar, Director of School of Ocean Science and Technology, Dr. S. Sureshkumar and Professors Dr. Basil Mathew, Dr. V. N. Sanjeevan, Dr. T. Pankajakshan have also participated in the discussion. The meeting has decided to convene a stakeholder meeting in India during November 2019 for further proceedings.



► National Workshop on 'KOHA' held in KUFOS

KUFOS in association with Kerala Library Association (KLA) has organized a two day national workshop during 04-05, Sept 2019 on scientific library management and quality improvement of Library Information System (LIS). 40 Librarians from various educational institutions from across the State have participated in the national workshop, in which the participants were familiarized with the open source integrated library management software- 'koha'. Koha is a fully featured, scalable library management system developed under the auspicious of library management professional across the world. Now 'koha' has been introduced and made mandatory for all educational institution libraries in the country. The main objective of the

national seminar held in KUFOS was to equip the librarians working in education institutions in the State to install and customize 'koha' along with improving management skills in various house keeping operations related to libraries. Cusat Deputy Librarian Dr. C. Veerankutti was the main resource person of the national work.

Earlier, Dr. A. Ramachandran, Vice Chancellor of KUFOS inaugurated the national workshop at a function, which was presided over by KUFOS Librarian Mr. Kunju Muhammed V. S. Director of Research Dr. T. V. Sankar, Fisheries Dean Dr. K. Riji John, Finance Officer Mr. Joby George, University Engineer Mr. P. S. Jayakrishnan were spoke on the occasion.



► Eye Camp

KUFOS NSS Unit and of Lotus Eye Hospital and Institute, Kochi have jointly organised a free one day eye check up camp on 24 September, 2019 at KUFOS main campus as part of the golden jubilee celebrations of National Service

Scheme. NSS Volunteers, students and teachers numbering around five hundred attended the one-day eye camp. Dr. Vishnu K P, Eye Surgeon led the camp. An awareness talk on better eye care practises was also delivered by Dr. Vishnu.

➤ KUFOS to implement action plan to curb plastic menace



KUFOS Vice Chancellor Dr A Ramachandran inaugurating the golden jubilee celebrations of the National Savings Scheme at the University campus. NSS Programme Co-Ordinator Dr Vinu Varghese, Registrar Dr B Manoj Kumar, Dr Vishnu K P (Lotus Eye Hospital & Institutions), NSS Programme Officer Dr Rajeeshkumar V J also seen.

The accumulation of plastic wastes in the lakes and backwaters is the most hazardous challenge experienced by the State of Kerala, the Kerala University of Fisheries and Ocean Studies (KUFOS) Vice Chancellor Dr

A Ramachandran has observed while inaugurating the golden jubilee celebrations of the National Savings Scheme (NSS) of KUFOS ON 24 Sept, 2019 at the University main campus

The plastic wastes that has amassed in the bottom has been pausing a serious threat to the ecosystem of the water bodies. Many habitats in the backwaters are unable to complete the natural life cycle due to excessive exposure to plastic waste, Dr Ramachandran pointed out. He said, in association with the volunteers of NSS, the University will launch a campaign on making the lakes plastic free. The first step in this direction is to create awareness among the public to avoid more plastic waste in the backwaters. Removal of plastic wastes from the water bodies with the support of the people will follow as the next step in freeing lakes and canals from plastics, Dr Ramachandran detailed.

University Registrar Dr B Manoj Kumar presided over the function. KUFOS NSS Programme Co-Ordinators Dr Binu Varghese and Dr Rajeesh Kumar V. J spoke.



KUFOS Vice Chancellor Dr A Ramachandran honouring the veterans for their outstanding contributions to the fisheries sector by presenting mementos to A A Satheeshan (photo 1) of Kumbalam Panchayat for Outstanding Fishery Award and former Deputy Director General of the National Agricultural Research Council Dr K Gopakumar (photo 2) for Outstanding Contributor in Fisheries. Head of Extension Dr Daisy C. Kappen, Head of Research Dr T V Sankar, Dean of Fisheries Dr Reji John and Registrar Dr B Manoj Kumar are also seen.

➤ KUFOS honours veterans of fisheries sector

As part of the National Fisheries Day celebrations held at KUFOS on July 10, 2019, the Kerala University of Fisheries and Ocean Studies (KUFOS) had honoured veterans who had contributed to the fisheries sector.

A.A Sathithan of Kumbalam Panchayath was conferred with the award of Outstanding Fishery Award and Dr K Gopakumar, former Deputy Director

General of the Indian Council of Agriculture Research (ICAR), was conferred with the award for Outstanding Contributor in Fisheries Science

The KUFOS Vice Chancellor Dr A Ramachandran presented the awards at a function presided over by the University Registrar Dr B Manoj Kumar. Director of Research Dr T V Sankar, Dean of Fisheries Dr K. Riji John and Head of

Extension Dr Daisy C. Kappen were spoke at the function.

A one-day seminar on aqua culture popularisation and new thinking was also held at the campus as part of the observance of the national fisheries day. Dr Dinesh, Head of Aqua culture Dept and Dr. Mithun Sukumaran (Kerala University) led the seminar in which 75 farmers were attended.

► KUFOS Rotaract club office bearers installed



Kufos Rotaract club president Bincy M Raj and secretary Kitty Francis C.

Bincy M Raj and Kitty Francis C were elected as the President and Secretary respectively of the Rotaract Club in the Kerala University for Fisheries and Ocean Studies. Both are Ph D students at the University. The Rotaract club, the youth wing of the Rotary International, has started its unit at the University last year.

The other officer bearers are: Krishnendu T S (Vice President), HarshaBabu (Joint Secretary), Eldo P S (Treasurer), Ajay Sagar (Sargent) Sarath K R, Shaheer S, Shahanas A L, Amalkumar M P, Ananya K (Service Directors), Sarath C (Editor) and Athira Chandran (Project Charge)

The new office bearers took charge at a simple ceremony held at the University campus. Club Co-Ordinator Dr M K Sajeevan, President of the sponsoring Rotary Club of Cochin Lands End Mr.Sunil Joseph and Secretary Mr Deepak Kalasananwere attended the installation ceremony. The outgoing president of the Rotaract club M Arjun presided over the function.



KUFOS Vice Chancellor Dr A Ramachandran distributing the scholarships, sponsored by Manappuram Foundation, to the best management students of the KUFOS School of Management. K K Faisal, Dr M S Raju, Dr T V Sankar, Paval Podar and Haridas Mani seen.

‘KUFOS Management School will made a centre of excellence’

The School of Management and Entrepreneurship (SME) of Kerala University of Fisheries and Ocean Studies (KUFOS) would be made as one of the best MBA study center in India, said the Vice Chancellor Dr A Ramachandran. He was speaking at Merit evening organised to distribute the Manappuram Foundation sponsored scholarships to the best MBA students of SME.

The University has earmarked an amount of three crores rupees and three acres of land to construct a building for the management school. The work of the new premises would be ready in three years, the vice chancellor said.

The scholarships were distributed by the Vice Chancellor Dr A Ramachandran to Rexi T V, Nithya M S, Devi Trideep, Afsiya K S , Little Tresa M P (2016 batch students) and Dini Ross James, Amrutha T, Surya Mol S, Namitha P.P and Aneesha Mol K.S (2017 batch students). The SME Director Dr M S Raju presided over the function. Director of Research Dr T V Sankar, Prof. V Malika, Manappuram Foundation CEO PavalPodar and its Director Haridas Mani T S were spoke at the function

► Project initiated:



A collaborative project titled “Study of Glycemic Index of different rice varieties in Kerala” is initiated between Department of Food Science and Technology and Dr. Tom Babu, Director, Silverline Hospital, Cochin. In this context, Dr. Tom Babu and his staff Ms. Neetha Pradeep visited the University on 06 August 2019 and had a discussion with the Vice Chancellor Prof. Dr. A

Ramachandran and the faculty members of the Department. The team discussed on the need to understand the glycemic index of various rice varieties in Kerala and its role in minimizing the risk of Type-2 diabetes. They also visited the Labs. Ms. Febina M, under the guidance of Dr. Maya Raman and Dr. K. Gopakumar, will undertake the study. After the initial analysis, the samples will be clinically studied in the hospital by Silverline staff.



Vice Chancellor Dr A Ramachandran inaugurating of the State Education Workshop held under the auspices of the Confederation of University Employees Organizations Kerala at KUFOS campus. Organising committee general convenor Anu S, Association of KUFOS Teaching Staff President Dr S Suresh Kumar, KUFOS Employees Association general secretary K K Reghuraj, SCERT Director Dr J Prasad and KUFOS Teachers Association secretary Dr K Dinesh are seen.

State Education Workshop

As the new national education policy of the Central Government has not become a policy document yet, there is opportunity still for debate and amendment, said the Kerala University of Fisheries and Ocean Studies (KUFOS) Vice Chancellor Dr. A Ramachandran.

Dr. Ramachandran was speaking at the inauguration of the State Education Workshop under the auspices of the Confederation of University Employees Organizations Kerala at Panangad KUFOS campus. More than 100 representatives from 11

universities in Kerala participated in the workshop.

Speaking at the workshop, SCERT Director Dr J Prasad said that the Central Government's new education policy is aimed at undermining the democratic set up of education sector in the country. The new policy can only help further commercialise education, he added.

Seemingly blameless though, the draft of the new policy is poised to have far reaching consequences, observed Dr K M Seethi of M G University. Former president of the Kerala Sasthra Sahithya Parishad, Dr P K Raveendran said that

the minority communities were not responding properly despite knowing the fact that the long-term effects of the BJP government's new education policy will have widespread social consequences. This they are doing for temporary benefits, he alleged.

KUFOS Employees Association general secretary K K Reghuraj presided. Association of KUFOS Teaching Staff President Dr S Suresh Kumar, KUFOS Teachers Association Secretary Dr K Dinesh, Organising committee general convenor Anu S and Student representative Akshay were spoke at the workshop



Internet of Things Workshop

The School of Ocean Engineering and Underwater Technology (SOEUT), of KUFOS has Organized a five days workshop on Internet of Things (IoT) during September 23rd to 27th 2019 at the School. It was an AICTE sponsored Faculty Development Programme (FDP) by the AICTE Training and Learning (ATAL) Academy. The workshop was intended mainly for faculty members and research scholars to empower technologists with Industrial knowledge in IoT domain through hands-on training experiences. There were sessions on various expert talks, practical knowledge of components of IoT and skills required to build real time IoT based projects



Fish Diseases Awareness Programme

The Department of Aquatic Animal Health Management and the KUFOS Regional Centre, Payyannur jointly organized an awareness programme on “Freshwater Fish Culture and Emerging Diseases” on 7th February at Payyannur in Kannur district as part of the “National Surveillance Programme on Aquatic Animal Diseases”. The programme was inaugurated by Shri. T. Purushothaman, Chairman, ADCOS and presided by Dr.B. Manojkumar, Special Officer, KUFOS Regional Centre, Payyannur. Shri. Rijul Raj representing the Department of Fisheries, Government of Kerala offered felicitations. After a brief inaugural function, Dr. Devika Pillai, Principal Investigator delivered the lead talk on 'Freshwater fish culture and emerging diseases', highlighting the need for adopting best management practices right from the initial steps of culture to prevent diseases. With increasing transboundary movement of live animals and consignments being brought to the state without any disease screening, the threat of emerging pathogens is very high. Awareness about these diseases including the clinical signs to identify the problem was disseminated to the farmers so that they could inform the NSPAAD team about the occurrence of the problem. This was followed by a class by Mr. Nithin, Senior Research Fellow in the NSPAAD project, on tilapia culture that is now growing in popularity among farmers of Kerala. The farmers were made aware of the potential and economics of culturing tilapia in different culture systems. Shri. Rijul Raj gave a talk on the schemes of Department of Fisheries, Kerala available for taking up aquaculture.

Smart Aquaponics model at KUFOS

Aquaponics that combines aquaculture with hydroponics is a system that has generated a lot of interest and is being adopted by people of Kerala, considering the advantages of obtaining home grown fish and vegetables. However, one of the main problems faced is the clogging of the grow bed and difficulty of maintaining the water quality. Another drawback is the electricity consumption. To overcome these disadvantages and to promote innovation, the Dept. of Aquatic Animal Health Management took the initiative to set up a 'smart aquaponics' unit in the University campus. The unit was designed and installed by Shri. Sudhir, an alumnus of the College of Fisheries, Panangad.

This aquaponics unit is IOT (Internet of Things) connected. Automatic pump controls have been provided for the grow bed, fresh water and for sludge removal. Since it is a smart system, no switches are provided and the entire system is remote controlled through internet. Sensors provided



give real time data of water quality. Underwater camera has been provided for monitoring the fish behavior and health. Clay balls (LECA) have been provided in the grow bed for plants. This can serve as a biological filter also. The sludge generated is pumped outside periodically and is utilized to fertilize plants outside the system. Mechanical filters are not used.

Twin siphons are provided. External siphon- The pipe through which water is pumped to bed functions as siphon when pump is switched off. Internal siphon- A modified U siphon in the centre of the bed acts as an overflow or automatic siphon if the bed pump timer fails. To prevent accidental leakage, no holes are provided in the fish tank except for the central siphon. Message alerts are given to connected mobile phones. The system works entirely by the power generated from solar cells. The smart aquaponics system is ideal for households as it is hassle free.



➤ KUFOS opens PCR lab at Payyanur

In an effort to develop/accelerate aquaculture activities in the Malabar region, a disease diagnosis lab with the facilities for PCR based screening of pathogens started functioning in the KUFOS Regional Centre at Payyanur. The farmers of the region will be immensely benefitted by the establishment, as at present they are depending on the laboratories at Cochin and Mangalore for testing shrimp seed for the presence of viral pathogens.

The PCR laboratory was inaugurated by C Krishnan MLA on August 3 2019. Dr B Manoj Kumar Registrar, KUFOS and the special officer of the centre welcomed the audience. The function was presided over by Dr A Ramachandran, Vice Chancellor; KUFOS. He said that the regional center will act as a platform for motivating and training people of the, Kasargod and Kannur districts. Sasi Vattakovval, Chairman Payyannur Municipality while offering felicitation spoke about the proposed live fish marketing unit planned at Payyannur by the municipality with the technical assistance of KUFOS. Others who spoke on the occasion include Dr. Riji John, Dean (Fisheries), Dr Dinesh Cheruvatt, Joint Director, Dept of Fisheries, and T Purushothaman, Chairman Aquaculture Development Cooperative Society, Payyannur. This was followed by an awareness programme about sustainable Aquaculture by Dr. Devika Pillai, Professor and Head Department of Aquatic Animal Health Management, KUFOS. Dr Sudha, Associate Professor, Central University of Kerala also attended the function.



➤ Pictorial Chart of commercial fishes of Kavvayi Backwaters

The KUFOS Regional Centre, Payyannur is monitoring regularly the fish catch of Kavvayi backwaters, the third largest backwater system of Kerala. Based on the observations during the period 2018 -19, a chart showing 57 species of fin f and shell fishes together was prepared. The chart was released by Dr.A.Ramachandran, Vice .Chancellor, of KUFOS by handing over a copy TO C.Krishnan, MLA at the KUFOS Regional Centre, Payyannur on 3rd August 2019. Sasi Vattavakkovval, Chairman of Payyannur Municipality, T.Purushothaman Chairman Aquaculture Development Cooperative Society, Payyannur and Dr. B Manoj Kumar, Special officer and Registrar of KUFOS were also present on the occasion.

➤ Activities of NCC unit, KUFOS

NCC unit of KUFOS celebrated Swachhta Pakhwada on 28th September, 2019 which is part of the 24 month long celebration of 150th birth anniversary of Mahatma Gandhi from 2nd October, 2018. Vice Chancellor Prof. (Dr) A. Ramachandran inaugurated the Swachhta rally by waving the flag. 30 NCC cadets participated in the activity.



Soorya Gopan, NC1, KUFOS, Panangad, Kochi has attended the combined pre IGC-RDC-II camp on 15th Sept. 2019 held at MES College, Marampally



Devika Suresh, NC1, KUFOS, Panangad, Kochi has attended the Nau Sainik Camp (NSC) on 8 to 16th September held at Kollam

Industrial visits



B Tech, Food Technology students of KUFOS have visited Modern Bread, Ernakulum on 6th August 2019 as part of Industrial visit for the ongoing semester. In Modern Bread Production Unit they were introduced to sections like Dough making, Bread Baking and Bread Packaging.

The visit gave the students to know more on process of bread making and the different machineries used for the production lane.



B.Tech Food Technology students also made a study visit to PDDP plant, Angamaly on August 01, 2019. The PDDP Central Society is playing a major role milk sector of Kerala, which is committed to achieve continual improvement in the procurement, processing and marketing of quality milk and milk products. In the visit the students familiarized online pasteurization unit, Animal feed manufacturing, Waste water treatment and different products of milk



Department of Marine Chemistry of KUFOS has organised an institutional visit for the MSc Marine Chemistry batch (2018-2020) on 29th august 2019 to ICAR Central Institute of Fisheries Technology (CIFT), Cochin. The objective was to gain knowledge on the functioning of sophisticated analytical instruments that are used in the area of marine chemistry and to get an idea about the history and organisational structure of the institute. ICAR-CIFT has been conferred with a status of "National Reference Laboratory (NRL) for Fish and Fish Products" by Food Safety and Standards Authority of India (FSSAI), Ministry of Health and Family Welfare, Govt. of India on 19th March 2019. The institute had well-equipped laboratories and the students had a great experience with the faculty members of Marine Chemistry Department, Dr. P T Mathew (HoD) and Dr. Sruthi R S.



M.Sc Food Science and Technology Students visited CIFT (Kochi) Labs on 4th July, 2019. Dr. P.T. Mathew and Dr. Renjith accompanied them on the visit. The students were introduced to various laboratories dealing with biochemical, microbiological and quality assurance of fishery/ food products. They also had an opportunity to understand the use of sophisticated equipment such as HPLC, GC, etc for the analyses. They also visited the packaging labs.

They were also visited Plant Lipids Pvt. Ltd., Kolenchery, Cochin on 20th July, 2019. Dr. Renjith K.R, CEO briefed about the company and its products. The students had an opportunity understand the large-scale production of oleoresins from various sources. The factory is equipped with modern machineries. They also had an opportunity to understand principle and procedure for the extraction of oleoresins using Supercritical carbon-dioxide. The students also visited the quality and R & D labs; and had an opportunity to comprehend various analytical instruments such as HPLC, GC-MS, ICP-MS, etc



B.Tech Food Technology students made a visit to Unibiosys Biotech Reserch Lab, Cusat on 17 August 2019 and attended a full day training on various aspects of Biotechnology. The lab is a ISO 9001: 2008 certified contract research laboratory engaged in research and training of Biotechnology and Microbiology. Unibiosys provide complete research services in Biosciences and allied fields.



M.Sc Food Science and Technology students made a industry visit to CAMPCO's (a multi-state co-operative-ajoint venture of the states of Karnataka and Kerala) Chocolate manufacturing unit located at Kemminje Village near Puttur in Dakshina Kannada District, Karnataka On 17, Sept 2019. It is largest chocolate manufacturing unit in South East Asia and is equipped with modern machineries. The factory manufactures cocoa mass, cocoa butter and cocoa powder, which is the raw material for both internal and export market. The finished products for internal market of export potential are moulded chocolates, enrobed chocolates, eclairs, chocolate buttons etc. Students had an opportunity to learn the processing of these products and to appreciate the importance of raw materials in making cocoa based products.

On Job training (OJT) programme in aquaculture to school students



On Job training (OJT) programme in aquaculture is offered at Fisheries Station to the students of Govt. Fisheries VHSS, Kaippamagalum from 30.9.2019 to 5.10.2019. A group of 25 students were participated in training programme and given the theory as well as the practical classes on various topics such as Importance, types of culture systems, etc. they were also given hands on training on brackishwater fish farming,

water quality monitoring and management, harvesting and pond preparation so on. In addition, the students were also given an awareness programme on mangrove ecosystems and its role in aquatic environment and important species and their conservation methods. The classes have been led by Dr.LinoyLibini, Assistant Professor &Head and Mr. K.K. Reghuraj, Farm Superintendent, assisted by the project staff of centre of excellence in aquaculture and the labours of Fisheries Station.



Training programme on wetland mapping by CMFRI

Field visit was conducted at Fisheries Station for the 28 participants of training programme on 30.09.2019 afternoon has jointly organised by Central Marine Fisheries Research Institute (CMFRI) with the Indian Space Research Organisation (ISRO) to map, validate and protect smaller wetlands in coastal region aimed at restoring them through coastal livelihood programmes.

Aquafarm, Fisheries Station

A total of 377 kg of various fishes were harvested and sold out for Rs. 85,673/- was generated through fish sale from the aquafarm in the month of September,2019. The catch comprises of mullets -152 Kg, Milkfish – 17 kg, Tilapia – 200 kg, miscellaneous – 8 kg.

ACHIEVEMENTS.....



Scotland MASTS Fellowship for KUFOS Researcher

Dr. Sreeja Lakshmi, Research Scientist, School of Ocean Science and Technology of Kerala University of Fisheries and Ocean Studies (KUFOS) has been awarded for the Marine Alliance Science Technology Scotland (MASTS) Fellowship- 2019. She has been selected in the category of Post Doctoral and Early Career Researcher Exchange (PECRE) grant. The main purpose of the funding was to provide research training and development opportunities for the ablest post-doctoral as well as early career researchers to build experience of international collaborations with academia or industry.

Dr Sreeja Lakshmi was hosted for six weeks by Prof. Chris Secombes, Regius Chair of Natural History, International Centre for Aquaculture Research & Development, University of Aberdeen, Scotland. She had the opportunity to initiate a collaborative work with Prof. Bettina Platt, Chair in Transitional Neuroscience, School of Medicine, the University of Aberdeen to carry forward with immunohistochemistry analysis with the marine bioactive compounds and specific antibodies against the target antigen on which she is currently working on. The analysis will bring out the effect of the compounds in reducing the concentration of Tau in brain tissues. Dr. Sreeja Lakshmi was actively involved in scientific approaches that Prof. Chris lab put forward for the identification of pathogenic agents as well as diagnostic strategies in diseased fishes, like amoebic gill disease in Atlantic salmon which is a major current problem faced by Atlantic salmon farming in Scotland.

During the tenure, Dr Sreeja Lakshmi worked at the Centre for Genome-Enabled Biology and Medicine (CGEBM), Edinburgh and got introduced to next-generation sequencing (NGS). Apart from the method training acquired, it was also very informative to understand the regulations related to animal work research in the UK and essential biosecurity safety requirements needed for pathogen work with aquatic animals.



KUFOS Faculty received UK-MASTS Visiting Fellowship

Dr. E.P. Preetham, Assistant Professor (Biochemistry) at the Kerala University of Fisheries and Ocean Studies has also been selected for the Marine Alliance for Science and Technology Scotland (MASTS) MASTS Visiting Fellowship. Availing the fellowship, Dr. Preetham has worked with the collaboration of Scottish Fish Immunology Research Centre at the International Centre for Aquaculture Research & Development, University of Aberdeen, Scotland, and carried out a six weeks long research project entitled "How to improve gill health in aquaculture". The study aimed to undertake gill health issues and impacts on the performance of fish and the need for therapeutic treatments.

Dr. E.P. Preetham has also won the best Oral presentation and poster award at the 3rd International Congress on Fisheries and Aquatic Research (2019) held at Istinye University, Istanbul, Turkey during 28-30 August 2019.



Book published

Dr Anu Gopinath, Asst Prof, Dept of Aquatic Environment Management, KUFOS has published her seventh book entitled **Ecology, Environment and Human Rights** (2019) for the CBCSS programme of Mahatma Gandhi University, Kottayam.



KUFOS Student wins Best Dissertation Award

Ms. Haritha Y S, student of MSc Marine Chemistry (2017-2019 batch) of KUFOS has been selected for the Meritorious PG Dissertation award in Marine Sciences for the year 2018-2019 constituted by Ocean Society of India (OSI). She will be conferred with a cash award and citation during the Ocean Society of India Conference (OSICON) to be held at the Centre for Marine Living Resources & Ecology (CMLRE) during 12-14 December 2019 in Kochi.



KUFOS Scholar wins poster presentation prize

Amitha Kurian, PhD scholar, School of Ocean Science and Technology, working under the guidance of Dr. E.P. Preetham (Department of Processing Technology), has won the second prize in poster presentation at the Biennial conference "NanoIndia 2019" supported by the Department of Science and Technology held at Mahatma Gandhi University, Kottayam, Kerala during 26th and 27th April, 2019. She presented her work on Immunonanotoxicological effects of biological and chemical synthesized zinc oxide nanoparticle on Nile tilapia in the category Nanotechnology for sustainable life. The conference was hosted by the International and Inter University Centre for Nanoscience and Nanotechnology at M.G. University. The conference was an ideal platform to develop new interfaces and to widen the scope and range of application of nanotechnology.



KUFOS Faculty wins gold medal for best NCC Officer Cadet

Dr. Chiranjiv Pradhan, Assistant Professor of Kerala University of Fisheries and Ocean Studies (KUFOS) has won the gold medal and prestigious DG's Baton for best NCC Officer Cadet in the Naval Pre-commissioning training held at NCC Officers Training Academy, Kamptee, Nagpur. He received the gold medal from Maj Gen Ajay Seth, VSM, ADG, NCC Directorate, Delhi. In the piping ceremony, Lieutenant Commander Ajay Raj Purohit put the sub-lieutenant strip on his shoulders. Dr. Chiranjiv Pradhan is serving as an Associate NCC officer in KUFOS Naval NCC Unit, falling under the Kerala Naval NCC Unit, Kerala and Lakshadweep directorate



M Sc Student published research paper in Applied Nanoscience

A research paper entitled *Carbon nanodots synthesized from chitosan and its application as a corrosion inhibitor in boat-building carbon steel BIS2062* was published in Applied Nanoscience on 27th September 2019 by Ms. A K Keerthana, student of MSc Marine Chemistry batch 2017-2019. The work was a part of her MSc dissertation under the guidance of Dr. P. Muhammed Ashraf at ICAR Central Institute of Fisheries Technology, Cochin.



KUFOS Faculty invited for Plenary Talk at the European Congress of Ichthyology

Dr. Rajeev Raghavan, Assistant Professor, Department of Fisheries Resource Management delivered a plenary talk on the conservation of freshwater fishes of the Western Ghats at the 16th European Congress of Ichthyology held at Lausanne, Switzerland, from 2nd to 6th September 2019. He is the first Asian scientist to have been invited to give a plenary talk at this meeting which was started in 1976.



KUFOS Researchers at Student Conference on Conservation Science, University of Queensland

PhD students V.K. Anoop working under the supervision of Dr. Rajeev Raghavan and Shalu Kannan working under the supervision of Dr. K. Ranjeet at the School of Ocean Science and Technology, participated and delivered talks at the Student Conference on Conservation Science (SCCS) held at the University of Queensland, Brisbane, Australia from 26th to 28th March 2019. Anoop gave a talk on 'cryptic speciation and its impacts on conservation of endemic and threatened hillstream loaches of the Western Ghats' and Shalu Kannan gave a talk on 'conservation issues of seahorse fisheries in India'

KUFOS B.FSc. Students Ms. Anju Vijayan, Ms. Aswathi P and Ms. Anju P.B have won the Kerala State Council for Science, Technology and Environment (KSCSTE) grant for student project - titled "The effect of teak leaf extract as a feed additive on growth and hematological parameters of tilapia"

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Participation of KUFOS Officers and Students in various programmes.....

KUFOS Vice Chancellor Prof. Dr.A.Ramachandran has attended in the AQUA AQUARIA 2019 International Conference organized by Marine Products Export Development Authority at Hyderabad during 30 August-01 September 2019 and chaired the session ' Certification and Traceability' in the conference. He was also served as a Member of Judging panel, which assessed the pavilions of the International Expo organized as part of the International conference.

KUFOS Vice Chancellor Prof. Dr.A.Ramachandran has attended by invitation and presented lead paper in the 3rd ASEAN-India Workshop on Blue Economy at Bangkok on 12th September 2019 organised by the Ministry of External Affairs, Thailand in association with Ministry of External Affairs of Government of India.

Dr. T.V.Sankar ,Director of Research participated by invitation in the Thirteenth meeting of FAD 12 in Bureau of Indian Standards held in New Delhi on Thursday August 1st 2019.

Dr. T.V.Sankar ,Director of Research participated by invitation in the XXVI meeting of ICAR Regional Committee held at IIHR, Bangalore during 6-7th September 2019

Dr. P.T Mathew Head of the Department of Marine Chemistry attended a training programme on Food Safety Management System on 26th September 2019 in Food Quality Laboratory and Research Centre, GCDA, Marine Drive, Cochin as faculty for the trainers in food safety management system. He presented the different technologies used in fish processing technology for the production of safe food.

Dr. K. Dinesh, Associate Professor and Head, Department of Aquaculture has participated in the 37th Fish Feed and Nutrition Workshop organized by School of Fisheries, Aquaculture and Aquatic Sciences, Auburn University, Auburn, Alabama State, United States of America during September 18 to 20, 2019 and presented a paper entitled "Significance of Guar (Cyamopsis tetragonoloba) in aqua feed industry towards replacing fish meal: merits and demerits through practical lessons.

Dr. K. Dinesh has given an invited talk to the students of Auburn University, USA on the 'Status of Aquaculture in India' on 21st September 2019 in the Laboratory of Prof. Tao YaXiong, a world authority in fish endocrinology

Dr. K. Gopakumar, Professor of Eminence, School of Ocean Science and Technology, KUFOS served as a member of Committee for two ICAR awards during the period 01 July-Sept 30, 2019

Dr. K. Gopakumar, Professor of Eminence, School of Ocean Science and Technology, KUFOS served as the Chairman of Committee for selecting National Academy of Agricultural Sciences Fellows during the period 01 July-Sept 30, 2019

Dr. K. Gopakumar, Professor of Eminence, School of Ocean Science and Technology, KUFOS served as the Chairman for the assessment of Scientists at CIFT (approved by Agricultural Scientists Recruitment Board, New Delhi) during the period 01 July-Sept 30, 2019

Aswathy Shaji and Anu Gopinath of Dept of Aquatic Environment Management participated in National Conference on Polar Sciences 2019 held in Goa , Organized by the National Centre for Polar and Ocean Research and presented a poster on Spectroscopic characterization of the Humic Acids Isolated from Arctic Kongsfjorden-Krossfjorden System, Svalbard - using Ultraviolet and Infrared spectroscopy

Dr. D. D. Nambudiri, Adjunct Professor, School of Ocean Science and Technology, KUFOS served as Member, Departmental Selection Committee for the promotion of Scientist of CIFT, Cochin, during the period 01 July-Sept 30, 2019

Dr. D. D. Nambudiri, Adjunct Professor, School of Ocean Science and Technology, KUFOS served as Quality Assessor of FICSI Training Programme at Seafood Innovations, Alleppey and Eminent Sea Foods, Thoppumpady, during the period 01 July-Sept 30, 2019

Adjunct Professors Dr. P. T. Mathew, Dr. D. D. Nambudiri and Asso Prof Dr. Maya Raman attended SOFT (I) Annual General Body Meeting at CIFT on August 02, 2019,

Dr. Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS delivered an invited talk on "Application of Remote Sensing in Groundwater Studies" on 21st June 2019 in connection with Training Course on "Groundwater Development and Management" at Center for Water Resources Development and Management (CWRDM), Kozhikode, Kerala.

Dr. Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS delivered an Invited talk on " Coastal Hazards with a special emphasis on Climate Change" on 10th August 2019 in connection with workshop by AIPC, Kochi Chapter at Ramamverma Club, Kochi, Kerala

Dr. Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS served as Adjudicator for Ph.D Thesis of Cochin University of Science and Technology (Under the faculty of Environmental Studies)

Aswathy Shaji and Anu Gopinath of Dept of Aquatic Environment Management participated in the Indian Analytical Science Congress 2019 during 19-21 September, 2019 Organized by Indian Society of Analytical Scientists and presented a poster on The Nature and Characteristics of Humic Acids Isolated from Arctic Fjords and Lakes – An Approach with UV-Visible Spectroscopic Technique

Dr. Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS served as an Expert in syllabus revision and Board of Studies of Environmental studies, CUSAT and attended meeting on 12th July at CUSAT

Dr.Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS served as an External Member in the Selection Board for a Junior Research Fellow (JRF) in a SERB-DST funded project in the Department of Marine Geology and Geophysics, Cochin University of Science and Technology, Cochin, on 30th August 2019.

Dr.Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS serving as a Scientific Advisory committee member of Indian National Groundwater Conference (INGWC-2020) on 'Groundwater Resources Management for Sustainable Development with the Special Emphasis on Coastal and Urban Environment' at CWRDM, Kozhikode, Kerala, India during 18th to 20th February 2020.

Dr.Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS serving as a Member, Organizing committee of National Seminar on "Agrometeorological interventions for enhancing farmers' income (AGMET-2020)" during January 20-22, 2020 at College of Horticulture, KAU, Vellanikkara, Thrissur in Association of Agrometeorologists (AAM) in collaboration with Kerala Agricultural University (KAU)

Dr.Girish Gopinath, Asso Professor, School of Fishery Environment, KUFOS serving as International Technical Committee Member of Global Conference on Advanced Smart and Sustainable Technologies in Engineering (GCASSTE 2020), 30-31 January 2020, Moodabidri, Mangalore, Karnataka, India, Organized

Faculty Members of School of Ocean Engineering and Underwater Technology George Basil and Rahul Krishna H attended a Faculty Development Programme for student Induction Programme conducted by AICTE at MBITS, Kothamangalam during 13th-15th June 2019

Director of School of Ocean Engineering and Underwater Technology Dr.Suriyakala C D and Faculty Member Rahul Krishna H undergone a one day training programme at IIT Chennai in "SWAYAM-NPTEL ONLINE COURSES" on July 26th 2019.

M Tech student of School of Ocean Engineering and Underwater Technology Irshad Ali K C attended a workshop Training on "Coastal Vulnerability Mapping & Analysis using QuantumGIS" at INCOIS Hyderabad during August 25-30, 2019

KUFOS Research Scholar Mrs.AmithaKurian has attended 2019NextGen Genomics, Biology, Bioinformatics and Technologies (NGBT) conference organized by SciGenomic Research Foundation (SGRF) held in Mumbai. She has been awarded travel grant for attending the conference.

KUFOS Research Scholar Mrs.AmithaKurian has presented a poster on the "Comparative effects of chemical and biosynthesized (Leucasaspera and Oxy - Cyclodextrin complex) zinc oxide nanoparticles on Nile tilapia (Oreochromis niloticus)" at the International conference on Current Immunological tools held at Annamalai University during 21- 23 August, 2019.

KUFOS Research Scholar MsRubeenaAnish presented a poster on "Synthesis and antimicrobial characterization of lectin conjugated copper nanoparticles and its application in aquaculture" at the International conference on Current Immunological tools held at Annamalai University during 21- 23 August, 2019.

KUFOS Research Scholar MsDigi George presented a poster on "EFFECT OF ALKOXY GLYCEROL WITH NANOPARTICLE AS IMMUNOSTIMULANT IN NILE TILAPIA (Oreochromis niloticus)" at the International conference on Current Immunological tools held at Annamalai University during 21- 23 August, 2019.

Dr Anu Gopinath, Asst Prof, Dept of Aquatic Environment Management, delivered a talk at Department of Zoology, St Teresa's College, Ernakulam on 26.09.2019 in connection with International Ozone Day Celebrations. Topic: 32 years and Healing.

Dr Anu Gopinath, Asst Prof, Dept of Aquatic Environment Management delivered a talk in Akasavani Kochi on 19.09.2019 in the Kisanvani programme.

Vishnu Murali, Princy M John, Hrishikesh P, Prabhakaran M P, Kunal Chakraborty, Anu Gopinath and Aneesh A Lotlikar of Dept of Aquatic Environment Management have participated in Indian Analytical Science Congress 2019 held in Goa during 19-21. September, 2019, Organized by Indian Society of Analytical Scientists and presented a poster on Macro nutrients and dissolved oxygen from near shore to off shore waters off Kochi- an evaluation over a period of six months.

Jennees Mathew and Anu Gopinath of Dept of Aquatic Environment Management have participated in Indian Analytical Science Congress 2019 held in Thiruvananthapuram during 19-21. September, 2019, Organized by Indian Society of Analytical Scientists and presented a poster on Spectroscopic Evaluation of Humic acids from tropical Mangrove sediments

Dr.S.Sureshkumar, Director of School of Ocean Science and Technology has participated a five day training programme on Bioinformatics tools for genetic and genome analysis at National Academy of Agricultural Research and Management, Hyderabad during 16-20 Sept 2019.

Dr. Rajeev Raghavan, Assistant Professor at the Department of Fisheries Resource Management delivered an invited talk on 'Challenges for freshwater biodiversity conservation' at Christian College, Chengannur on 25th September 2019, as part of the DBT Star College Invited Lecture Series

AryaSidharthan, Ph D student working under the supervision of Dr. Rajeev Raghavan at the School of Ocean Science and Technology presented a poster on her work on the conservation genetics of endemic hillstream loaches of Western Ghats at the 29th International Congress on Conservation Biology (ICCB) held at Kuala Lumpur, Malaysia from 21st to 25th July 2019.

PhD students VK Anoop and AryaSidharthan working under the supervision of Dr. Rajeev Raghavan at the School of Ocean Science and Technology participated in the Practical Course on DNA Taxonomy and Phylogeny organized by the Sathyabama Institute of Science and Technology, Chennai on 6th and 7th September 2019.



REGISTRATION OPEN

INTERNATIONAL CONFERENCE ON AQUATIC RESOURCES & BLUE ECONOMY 2019

www.aquabe.in

ORGANIZED BY: KERALA UNIVERSITY OF FISHERIES & OCEAN STUDIES [KUFOS], IN ASSOCIATION WITH: Leading National Organisations

28th - 30th November 2019, Venue: Le Méridien, Kochi

Technical sessions will spread across three days. Sessions will comprise of keynote and invited talks from experts, contributed oral and poster presentations, expert group discussions and training modules by scientists, researchers, academicians, policy makers, aquafarmers and ecosystem managers from both India and abroad.

CONFERENCE THEMES

Aquatic Resource Management - Living

Aquatic Ecosystems & Biodiversity, Climate change impacts, Capture-ies, Stock Management, Aquatic Ecology

Aquatic Resource Management - Non-living

Minerals, Oil Exploration & Non-Conventional Energy Sources, Navigation & Maritime Resources.

Aquatic Production Systems

Aquaculture Feed Management, Biotechnology, Health Management, Environmental Impacts.

Climate Change Impacts on Blue Economy

Sea Level Rise, Changes in Coastal & Marine Ecosystems, Estuaries, Lakes & Rivers, Implication on Living & Non-Living Resources & Blue Economy.

Ocean Health & Global Warming

Ocean Health, Hypoxia, Global Warming, Carbon Sequestration, Oxygen Minimum Zone, Ocean Acidification, Harmful Algal Bloom.

Ocean Processes and Environmental Assessment

Chemical & Biological Processes, Biogeochemical Cycles, Carbon Budgeting, Aquatic Pollution, Application of Remote Sensing & GIS.

Aquatic Products and Technologies

Post Harvest Technologies, Value Addition, Seafood Value Chain, Waste Management.

Marketing and Trade

Trade Issues, Trade related International Regulations, Seafood Market

Legal regimes, Policies and Governance

CCRF, International Legal Frameworks, IUU Fishing & Sustainable Fisheries Management, Bio Diversity & IPR Issues, SDG's & Blue Economy, Trans-

Education & Capacity Building

Regional Cooperation, Fisheries & Maritime Education, Skill Development, Gender Issues.

Other events

SYDP II

An exclusive programme organized by the Ministry of External Affairs for the Indian Ocean Rim Countries (IORA) for the benefit of Somalia and Yemen will be held during AQUABE 2019. The two-day session will be dedicated to capacity building of fisheries professionals from these two countries. The Indian and IORA experts will share important topics.

AQUAFARMERS CONCLAVE 2019

Aquaculture farmers' conclave will be held during AQUABE 2019 and will focus on ground level issues and requirements, so as to establish a communication mechanism among policy makers, researchers and ecosystem managers for providing sustainable development of brackishwater aquaculture, coastal ecosystem and markets poster presentation under each theme.

Research/ Industry Expo

Along with the conference, a "Aquabe Exhibition 2019" is being organized as part of the Conference. The exhibition will provide a platform for the stakeholders from government as well as private sector to showcase their products.

Awards - AQUABE 2019

Awards for the best oral and poster presentations will be given a cash prize and a certificate. These will be awarded in two categories viz., Young Scientists (below 40 years) and Scientists (above 40 years) with a cash prize of Rs.10000. Besides this, an award for the best poster presentation (Cash + citation) will be given for commended poster presentation under each theme.