



CHALLENGER

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

October 2018
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02

KUFOS opens
first Regional Centre
in Payyannur



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in Payyannur



06 STUDENTS
SAIL ON BOARD
SAGAR KANYA



12 Bumper fish harvest
at KUFOS Pen Culture
Experimental
Farm



RETIREMENTS



Sri.P. R.Sreekumar

Assistant Registrar (Academic & Examinations) retired from the service of Kerala University of Fisheries and Ocean Studies (KUFOS) on 30th Sept 2018, after 20 years of service.



Mrs. Tessy Thomas

Higher Grade Programmer, retired from the service of Kerala University of Fisheries and Ocean Studies (KUFOS) on 31 May 2018, after 33 years of service.



Mrs.MeeraT.M

Office Superintendent (Higher Grade), retired from the service of Kerala University of Fisheries and Ocean Studies (KUFOS) on 31 July 2018, after 27 years of service.



Mr. K.Surendran

HDV Driver, retired from the service of Kerala University of Fisheries and Ocean Studies (KUFOS) on 31 May 2018, after 21 years of service.



Mr. K.M.Ummer

Permanent Labourer, retired from the service of Kerala University of Fisheries and Ocean Studies (KUFOS) on 31 May 2018, after 10 years of service.

Inside this issue

From the Desk of Vice Chancellor	01
KUFOS opens first Regional Centre in Payyannur	02
Training Programme on "Production of Value added fish products"	03
Floods – Drinking Water - Study By KUFOS	04
TASK FORCE	05
Israeli Environment Scientist Visits KUFO	05
Students Sail On Board Sagar Kanya	06
'Indo-Taiwan Vice Chancellor's/Presidents Conference'	07
Special training on Milk and milk products conducted at KUFOS	07
"ACHIEVEMENTS"	08
"Pandit Karuppan's insight into the development of Kochi is desirable"	11
Bumper fish harvest at KUFOS Pen Culture Experimental Farm	12
KUFOS conducts organic fish sale	13
KUFOS and Hawassa University entered MoU	14
Merit evening at KUFOS	15
Workshop on Water Conservation	15
KUFOS sign MoU with NCESS	16
Upland paddy harvesting at KUFOS	16
Participation of KUFOS Officers and Students in various programmes	17

FROM THE DESK OF THE VICE CHANCELLOR

Prof (Dr) A.Ramachandran, Vice Chancellor



Globally about 950 million people depend on fish as the principal source of animal protein. Fish is second only to rice in the diet of low income people in many developing nations. Fish is the most heavily traded food commodity from the primary sector in the international markets showing a higher growth rate than any other agricultural products. Fisheries in India have grown from subsistence fishing to the status of a multi billion industry during the last six and a half decades. Fisheries have made valuable contributions to economic development of coastal areas by generating employment opportunities in remote and marginal areas. However, the marine Fisheries sector is presently facing problems like excess fishing capacity, low catch per unit effort, wide income disparities among the sectors of the fishing community and resultant socio economic conflicts. Poor implementation of the various fishery management measures also add to the present crisis. Now the focus is given in the marine sector to improve the productivity by utilization of untapped resources in the Indian EEZ. The current total fish production in the country is 11.1 million metric tonnes (2016-17) of which 7.27 mmt is inland and 3.83 mmt is marine production. The Fishery sector contributes about 1.21 per cent of the total GDP and 5.37 per cent of the GDP from agriculture sector and provides employment to 14 million persons. According to FAO estimates, the human consumption of fish is about 80% of the world's fish production at per capita of 17.1 kilogram which is expected to rise considerably by the year 2030. However, meeting the

requirements of the growing population in the years to come is a big challenge. To meet this challenge, we have to look into the development of fisheries sector including aquaculture as it is the only available alternate food production system.

University cannot look fisheries in isolation from the vast developments in aquatic biology and environment, oceanography, geomorphology, satellite and remote sensing, coastal and marine engineering and the various international or regional instruments and management tools governing the coast and oceans. Ignorance on the applications of modern technologies in these areas will prevent the country from utilizing the wealth of the ocean at the optimum level for economic development. Kerala University of Fisheries and Ocean Studies (KUFOS), established in 2010 has mandated to fulfill the trained manpower requirements of Fisheries and Ocean Science sector with an international standards and courses and training programmes of the University are designed accordingly. I am much proud to mention that we have 35 PG programs in different disciplines of fisheries and ocean sciences along with two under graduate programmes. PhD programmes are offered in all disciplines of Fisheries and Ocean Studies. This year University has launched its prestigious Post-Doctoral Fellowship scheme to carry out high quality research in emerging areas.

Ocean science academic programmes and research is the most challenging responsibility of the University. The country is yet to tap the vast economic

potential of our ocean space and ocean resources. The Indian Ocean Rim (IOR) with half of the world population by 2050, in geopolitical terms is moving away from identified as the 'Ocean of the South' to the 'Ocean of the Centre' and the 'Ocean of the Future' (Doyle & Seal, 2015). University's responsibility, as the only Fisheries and Ocean Science University, is to grab the opportunity as the leading nation of the Indian Ocean to generate sufficient technically qualified man power and science and technology to utilize this untouched wealth for the betterment of mankind with special reference to people living in the coastal belt of the country. To explore the deep oceans to judiciously utilize the space entitled under our Exclusive Economic Zone and beyond we need to integrate the science and technology of oceanography, remote sensing, marine geology, space satellites, hydrology, marine environment, navigation, bioactive substances, marine drugs, and maritime engineering and structures. The marine travel and tourism opportunities including sport fishing are in fact underutilized and are an area of great economic potential. University is committed to integrate our strength on Fisheries and Ocean Sciences to sustainably utilize the entire space and resources for the economic development of the country.

This issue of Challenger is publishing ahead of fifth convocation of KUFOS. This issue contains special reports on our first Regional Centre, which started functioning recently at Payyannur. The report on water quality study conducted by KUFOS during post flood days and the accounting regarding 'Task Force' are self speaking acts of KUFOS social commitment.

➤ KUFOS opens first Regional Centre in Payyannur



The Minister for Fisheries and KUFOS Pro Chancellor Ms. J Mercykutty Amma inaugurating the Kannur Regional Centre of KUFOS. The KUFOS Vice Chancellor Dr A Ramachandran, Registrar Dr V.M.Victor George ,C Krishnan, MLA, Payyannur Municipal Chairman Sasi Vattukoval also seen.

02

In order to extend activities to other parts of the State, the Kerala University of Fisheries and Ocean Studies (KUFOS) has decided to establish two regional centres. The first Regional Centre is proposed in Kannur district and second one in Kollam. Considering the immense potential for fisheries and aquaculture development in the Malabar region KUFOS give priority in opening Kannur Regional Centre first. Hence the KUFOS Regional Centre-Kannur started functioning in a rented building in Payyanur from 1st March 2018. The Research and Extension activities of the Centre was inaugurated by the Minister for Fisheries, Harbour Engineering and Cashew Industry and Pro Chancellor of KUFOS J Mercykutty Amma on October 11, 2018 . While inauguration the activities the Minister said that this centre will become a full fledged unit with facility for various training

programmes and course once the necessary land is made available for the construction of building. The land offered at present can be utilized for taking up various research activities. The RAWF programme of the B.F.Sc students and research programmes of the M.Sc students can be taken up immediately.

The regional centre of KUFOS in Kannur will act like an umbrella for the fishing community and aquaculture farmers, paving way for the academic as well as technical guidance for the fishermen of the Malabar region. As part of the Government's commitment towards addressing the issues of muscle farmers, the regional centre has been given a mandate to give due priority for studying and resolving the issues and challenges faced by the muscle ("kallummakaya") cultivators of this region, she said.



About 80 % of the “Kallummakaya” grown in Kerala are cultivated by farmers from Kannur and Kasaragod districts, the Minister added.

Welcoming the gathering at the function, the KUFOS Vice Chancellor Dr A Ramachandran said that the regional centre will also act as a platform for motivating and training people of the northern districts of Kasaragod,

Kannur, Wayanad and Malappuram in fishing, aquaculture and allied activities

The function was presided over by Shri C.Krishnan, MLA.

Dr. V.M.Victor George, Registrar, KUFOS extended the vote of thanks. Dr.B. Manojkumar, Special Officer for the centre presented a report. Felicitations were offered by Shri Sasi

Vattakkoval, Chairman, Payyanur Municipality and Smt Nalini. N, councilor. Several dignitaries from the socio- political fields such as Shri T.Purushothaman, Chairman, Aquaculture Development Cooperative Society, Shri K.P.Madhu, Shri D.K.Gopinath, Shri M. Ramakrishnan Shri T.Ramakrishnan and many others attended the meeting.

Activities presently being taken up by the centre include

- 1) Providing technical support and advisory services to the small scale aqua farmers of the region.
- 2) Demonstration of technologies through participatory research/demonstration programmes in collaboration with individual farmers, self-help groups and farmers societies.
- 3) Study of Physico-chemical and biological characteristics of Kavvayi wet land system, the third largest backwater of the state with an area of 10.6 sq.km.
- 4) Establishment of a biotechnology laboratory with PCR facility for testing shrimp and fish seed for the benefit of aqua farmers of the region. At present they are depending on the laboratories at Mangalore and Cochin for testing seed.
- 5) Establishment of a Hydrobiological laboratory for regular monitoring of water quality parameters and to provide advice to the farmers of the region.
- 6) Organising various training programmes for students, unemployed youth, women self help groups, farmers etc. in the field of aquaculture and fisheries.
- 7) Conduct of the Rural Agriculture Work Experience (RAWE) programme of the BFSc students of the University.

Training Programme on Production of Value added fish products



03

The KUFOS Regional Centre Kannur, located at Payyanur organised a two day training programme on “Production and Marketing of Value added Products from Sea foods” on 10th and 11th of October 2018 at the Centre’s office in Payyanur. A total of 16 women participated in this programme organized in association with the Department of Fish Processing Technology of KUFOS. Dr. A. Ramachandran inaugurated the programme and distributed the certificates to the participants.

J.Mercykuttyamma, Minister for fisheries, Harbour Engineering and Cashew Industry and Pro Chancellor of KUFOS interacted with the participants of the programme. The participants were given hands on training in the production, quality maintenance and marketing of various types of pickles, battered and breaded products and hygienic handling of fish. The products prepared by the trainees were distributed among the audience of the inauguration of the activities of the centre.

FLOODS – DRINKING WATER - STUDY BY KUFOS



In a study conducted by Kerala University of Fisheries and Ocean Studies (KUFOS) in the aftermath of the floods in Kerala, it was found that drinking water in most regions of Kerala were unclean and not conducive for drinking. Samples collected between August 23 and September 14 from 4948 wells in the flood-affected areas were tested in the soil and water analysis lab of KUFOS. The study was conducted by a research team under the leadership of Dr. Anu Gopinath, Assistant Professor of chemical Oceanography Department of KUFOS. Dr. Anu Gopinath said that there was an increase in acidity content in the water samples tested which made it undrinkable. The effects are more severe in Nedumbassery and Aluva areas where there were floods due to overflowing of Periyar. The mud in the well of the water in flood-affected areas increased at an average rate of 30 percent and the oxygen content of the water was also much reduced which lead to the contamination of water. The oxygen content in most samples were much less than three microgram per liter needed. All the 4948 samples collected from wells were also subjected to micro-biological tests in the lab. It was found that in 90

per cent of the test samples there was the presence of e-coli bacteria in proportions much more than permissive levels. Studies conducted under the supervision of Dr. Safeena M P, Assistant Professor found that there was large presence of excretory waste. In, 30 per cent of the wells in flood-affected areas the presence of e-coli bacteria were found in quantities higher than permissive levels as per MPN index. The possibility of spreading of water borne diseases like diarrhea, cholera, jaundice, etc. from contaminated water cannot be ruled out and necessary precautions should be taken to prevent the outbreak of

diseases. Therefore, the researchers warned that the drinking water in flood-affected areas should be consumed only after refining and boiling. Water should be refined by chlorination and super chlorination. Scientists collected the drinking water samples from the flood-affected areas with large scale co-operation from the general public.

Shri Adarsh BM, Facult and, Miss Janis Mathew, Ms.Princy M. John, Mr.Sunil VA, Ms.Ashwathy Shaji, Mr.Adityasudhan, Ms Greeshma KS, Mr.Aflah T, Mr.Vishnesh KR, Mr.Mithun KT, Ms.Anu Ruby Benny, Ms.RinsilaKarim, Ms.Nehaomji, Ms. Prinanka, Research Students participated in the sample collection and water analysis.



TASK FORCE



A task force was constituted by the Kerala University of Fisheries and Ocean Studies, Kochi for making a study on the after effects of the flood dam inundation in Kerala and to suggest mitigation measures and furnishing report to the Government. The first meeting of the task force under the Chairmanship of Dr. A Ramachandran, Vice Chancellor of KUFOS was held at the conference hall of KUFOS Head Quarters, Panangad on 19th September 2018.

The committee members included faculties of the University, as well as distinguished experts from various fields including Irrigation, Electricity, Dam Management, Environment, Biodiversity, Geology, Hydrology etc.

The KUFOS Vice-Chancellor Dr.A. Ramachandran initiated the proceedings with formal introduction and responsibilities of the committee assessing the flood situation which the state of Kerala experienced during the month of August 2018. Dr. T.V. Sankar, Director of Research, KUFOS gave a detailed presentation on the background to the study and current knowledge.

After careful and detailed deliberations by the individual experts, the objectives of the Task Force were finalized keeping in mind the existing gaps. The task force would primarily concentrate on areas such as prediction and

mitigation of rain-based water inflow, siltage and discharge from the reservoirs, collection of hydrological inundation data along the river basins and lakes, impact of human interventions leading to floods, geological and biodiversity impacts due to floods etc. Working groups were formed in the above-mentioned areas for gathering detailed information and gaps, and a detailed report with practical remedial measures to be Government of Kerala in three months' time. The gaps identified would be taken up as study projects by the University to ward off such calamities in future and suggest precautions and remedial measures to be taken by the government. The committee also felt that enormous sediments and plastics reaching the downstream regions of rivers and backwaters need to be taken seriously as they are likely to make impact on biodiversity and livelihoods both in upstream and the plains.

'The Centre for Excellence in Aquatic Resource Management and Conservation (CARMC) at KUFOS would take up this study on priority basis in the coming financial year.' said Dr. A.Ramachandran, " Research on the impacts of alien species on the native aquatic biodiversity, which has been identified as a priority area has already been initiated at KUFOS.



ISRAELI ENVIRONMENT SCIENTIST VISITS KUFOS

Israeli environment scientist Yoram Avnimelech visited Kerala University of Fisheries & Ocean Studies, Panangad campus on March 09, 2018. He had a meeting with the higher officials of KUFOS comprising of Prof (Dr.) A.Ramachandran, Vice Chancellor, Dr.V.M. Victor George, Registrar and Dr. T.V. Sankar, Director of Research. He said that Israeli scientists will be happy to associate with KUFOS in Academic and Research activities in the field of climate science and environmental studies. Dr.A. Ramachandran, Vice Chancellor assured full support on behalf of KUFOS for the scientists in Israel for future co-operation in research activities in the field of environment.



STUDENTS SAIL ON BOARD SAGAR KANYA

06

Four M.Sc (Marine Chemistry) students belonging to School of Ocean Science and Technology of Kerala University of Fisheries and Ocean Studies (KUFOS), disembarked at Goa port after completing a five weeks long sailing in Arabian Sea to study "Marine Ecosystem Dynamics of Eastern Arabian Sea" (MEDAS). Praveen Kumar K.P. Sanyo Sunny, Haritha Yespal and Swapna Sanil, were onboard the national flag ship ORV SagarKanya along with a scientific team that consists 20. They returned from Arabian Sea with a rare experience of sailing.

The cruise was led by the Central Marine living Resources and Ecology (CMLRE), and guided by Dr. Anil Kumar Vijayan as the chief scientist along with

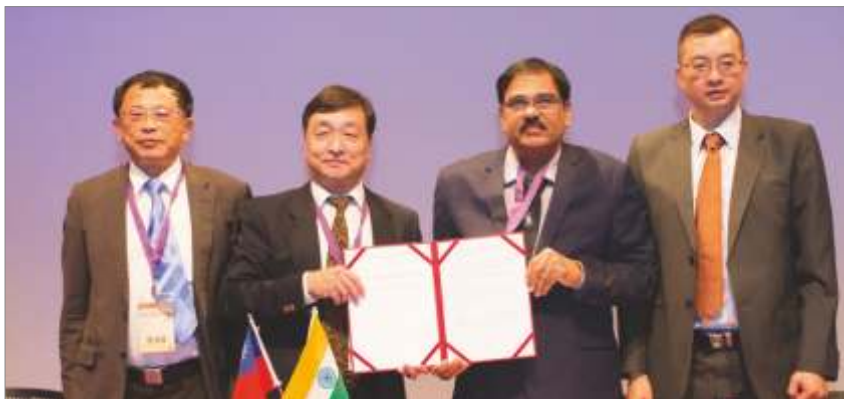
other participants from NIO, CMLRE and NCCR as project assistant and project scientist. The ship belongs to National Centre for Antarctic and Ocean Research (NCOAR). The students contributed to the water and sediment analysis of the bio-geo-chemical parameters. The water samples and sediments were collected from 7 transects with 10 stations each.

The students spent 36 days onboard the scientific vessel travelling from Cochin moving towards Cape and then to Okha (Gujarat). The crew finally signed off at Goa. Sampling were also done during the return sail from Okha at each 10 latitude. This helped to study the upwelling pattern of the eastern Arabian sea.

"We have received on board training on various oceanographic, chemical, biological and physical instruments and operations, data acquisition and processing software" said Praveen Kumar K.P. "In SagarKanya we were trained for sampling and learned to use various instruments like CTD (Conductivity Temperature Depth) fitted with Niskin bottles and sensors, Bongo, MPN, Grab, XBT etc." says Sanyo Sunny

The water samples collected for various chemical basic parameters include analysis of Dissolved Oxygen, Measurement of primary production, pH, Nutrients, Dissolved Inorganic Carbon (DIC), Coloured Dissolved Organic Matter (CDOM) and gases like Methane, Nitrous Oxide, DMS and Oxygen Isotope etc. Biological factors like Biomass, Diversity and Absorption capacity of different phytoplanktons and zooplanktons were also analysed from the samples collected by using Bongo, Multiple Plankton Net (MPN) and Niskin bottles. For sediment analysis SK used Van Veen Grab which helped to gain more knowledge about the Benthic Ecology. Instruments like Bongo, XBT/CTD were deployed while ship in motion. The students finally presented a seminar on various topics which they have come across.

It was an adventurous voyage for the budding scientists, where they got to experience the real life encounters of an oceanographic research cruise. The entire on board expenses of the students were borne by the Ministry of Earth Science, Government of India. They are the third batch of M.Sc Marine Chemistry from KUFOS going onboard a government-owned scientific research vessel. The fourth batch had already left for their training in SAGAR KANYA.



Indo-Taiwan Vice Chancellor's/Presidents Conference

Prof.(Dr.)A.Ramachandran, Vice Chancellor accompanied a delegation of Vice Chancellors from renowned Indian Universities, led by Hon. President, Prof. P.B Sharma and Secretary General, Prof. Furqan Qamar of Association of Indian Universities (AIU) for a visit to Taiwan during June 19th to 24th 2018 and attend the 'Indo-Taiwan Vice Chancellor's/Presidents Conference' held on 21st June, 2018 at Taiwan. Prof.Sandeep Sancheti, Vice President, AIU and VC, SRM University, Chennai , Prof Paramjit S Jaswal, Vice Chancellor, Rajiv Gandhi National University of Law, Punjab, Patiala, Dr R S Bawa, Vice Chancellor, Chandigarh University, Prof. Gurmeet Singh, Vice Chancellor, Pondicherry University, Puducherry, Prof Sabyasachi Basu Ray Chaudhary, Vice Chancellor, Rabindra Bharati University Kolkata, Prof Dr Devanand B Shinde VC, Shivaji University, Kolhapur, Professor Dr. S E Hasnain, Vice Chancellor, Jamia Hamdard, New Delhi, Dr.N.K.Ahuja Vice Chancellor, Swami Vivekanand Subharti University, Meerut, Prof. N V Ramana Rao, Director, NIT, Warangal, Telangana, Prof. K.P. Singh Vice Chancellor, CCS HAU, Hisar, Prof.Aditya Shastri, Vice Chancellor, Banasthali University, Rajasthan, Dr. Karisiddappa, Vice Chancellor , VTU Belgaum, Dr Amarendra N Mishra, VC Kallikote University, Odisha were the other members in the delegation.

The visit was organized by Association of Indian Universities in collaboration with Taipei Economic and Cultural Centre and Ministry of Education, Taiwan in order to promote educational exchange of Higher Educational Institutes between Taiwan and India. Prof (Dr.) A.Ramachandran, Vice Chancellor signed MoUs on behalf of KUFOS with three Universities namely National Chung Cheng University (CCU), National Taiwan Ocean University (NTOU), Taiwan and Shu Te University, Taiwan for collaboration in the field of Education and Research.



Special training on milk and milk products

Globally being one of the leading nations in cattle rearing and milk production, India still lacks the required level of good hygienic practices in this sector ' said Dr A Ramachandran, Vice Chancellor , Kerala University of Fisheries and Ocean Studies, Kochi. He was inaugurating two batches of two day FoSTaC Level 3 (Special) training on Milk and milk products organised by the Kerala University of Fisheries and Ocean Studies , (KUFOS) ,Panangad and AFST(I) Cochin Chapter at the University campus on 13th August 2018.

There was overwhelming response from the dairy industry.38 participants representing milk processing industries such as Milma, Malanadu dairy etc, dairy farmers and students of Food science and technology attended the program.Mr. Job Elias , FSSAI approved lead Trainer who is having 37 years experience in the milk processing industry providing the training.,

In the inaugural function Dr D D Nambudiri, President , AFST(I) Cochin Chapter presided. KUFOS Registrar, Dr V M Victor George, Director of Research Dr T V Sankar, Dr K Gopakumar, former Deputy Director General, ICAR ,Dr B Jacob, and Dr Jenny Ann John also spoke on the occasion.

" ACHIEVEMENTS"



▶ KUFOS Researcher in Arctic Expedition team

This year, for the Indian Arctic Expedition, 2018, a student from Kerala University of Fisheries and Ocean Studies (KUFOS) Aswathi.S, was also a participant. She was in the first batch of the 2018 expedition along with 6 other participants. Aswathi S is a research scholar pursuing her PhD in Marine Chemistry with the School of Ocean Science and Technology, KUFOS. She conducted studies in Arctic region concentrating more on the sediment chemistry of the Arctic Ocean. India is one among the leading countries in

the field of Polar Research. In this year the Indian Arctic Expedition started from 26th June, 2018 till 2nd August, 2018. The members of Arctic expedition were selected by the National Centre for Polar and Ocean Research, Goa under the Ministry of Earth Sciences, New Delhi. The participants were selected by analyzing their work proposal submitted during the period of application. The submitted proposals will be reviewed and then the selected ones will be further invited to give a presentation on the same in front of a scientific committee. It is the committee who decides the participants based on their quality of work.



KUFOS Scientist wins WAS Fellow Award

Dr. K. Dinesh, Head of the Department of Aquaculture of KUFOS won the prestigious World Aquaculture Society (WAS) Fellow Award in 2018. The Award is instituted by the Society in 2011. Dr. Dinesh is the second Indian to receive that award, after late Prof. M.C. Nandeesh (in 2012). The award was presented to Dr. Dinesh in August 2018 during a meeting held in Montpellier, France. Dr. K. Dinesh has also received a Certificate of Appreciation from WAS Asian Pacific Chapter, Bangkok, Thailand for serving the Chapter as the Director from 2016 to 2018.

08



▶ POGO Fellowship

Dr. Martin Gopurathingal, Post Doctoral Fellow of KUFOS has been selected to the POGO (Partnership for Observation of Global Oceans) Fellowship. As part of the fellowship, currently he is

working a four month schedule) September to December, 2018) at Plymouth Marine laboratory, UK on Isotopic studies of trace gases from Oceans



▶ KUFOS Faculty in TECO

Dr. Benny N. Peter, Academic Coordinator, Department of Physical Oceanography, had participated in Marine Technical Conference (TECO) "Toward an integrated Met-Ocean monitoring, Forecasting and Services

system" held at WMO Headquarters Geneva, Switzerland during 23-24 October 2017. He presented a research paper in the conference titled "Role of Indonesian Throughflow on Indian Ocean Dipole- A remote sensing perspective"

"ACHIEVEMENTS"

► KUFOS faculty attended INSA Bilateral Exchange Programme



Dr. E.P. Preetham, Assistant Professor (Biochemistry) at the Kerala University of fisheries and ocean studies (KUFOS) were among the thirty winners of the international exchange bilateral award (2018) of the Indian National Science Academy. Dr. Preetham had spent his 3 months in Ludwig-Maximilians University Munich, Germany to work in collaboration with his host Prof. Dusan Palic, Professor and Chair of Fish Diseases and Fisheries Biology. He worked on the proposed project on the "Toxicity Mechanisms of Metal-oxide Nanoparticles in Fish" which was fully supported by Deutsche Forschungsgemeinschaft (DFG, Germany).

► Visit to Wageningen University



Akashdeep Singh and Rubeena Anish, Research Scholars under the guidance of Dr. E.P. Preetham, Assistant Professor, Dept. of processing Technology (Biochemistry), KUFOS have participated in the 19th Fish Immunology Workshop, held in Wageningen University, The Netherlands from 29th April to 3rd May, 2018. The scholars were fully sponsored with a fellowship awarded by International Veterinary Vaccinology Network (IVVN). They had presented a poster on their current project works at the workshop and they got a chance to interact with the researchers in the area of fish immunology, from all over the globe. They had also undergone hands-on training on various biological assays and molecular techniques which could be applied in their projects. Presently they are working on the antimicrobial peptides and the genes involved in the disease resistance of fish.



► Exchange visit to Thailand

Miss Amitha Kurian, Miss Parvathy Prakash, and Miss Prasitha Bhat, Research scholars, Dept. of Processing Technology (Biochemistry), KUFOS have made exchange visit for three months at Chiang Mai University in Thailand. The University conducts research in various fields to support enhancing standards of teaching, learning, and technology transfer for the social and economic development..

The scholars, carried out their work under the supervision of Dr. Hien Van Doan, Assistant Professor - Department of Animal and Aquatic Sciences, Faculty of Agriculture, Chiang Mai University, Thailand. His area of interest is the development of cost-effective feed additive as immunostimulants in aquaculture. The final outcome of this collaborative research is expected to be highly beneficial to farmers in Aquaculture through replacing chemical therapeutics with the development of environment friendly natural immunostimulant feed which can combat aquatic pathogens.



► Fish Surveys in Bhutan

Anoop VK, PhD student at the School of Ocean Science and Technology, KUFOS was invited by the Royal University of Bhutan's, College of Natural Resources (CNR), Lobesa, Bhutan for a joint Indo-Bhutan field survey in the rivers of the Himalayas. Anoop spent two weeks in Bhutan in the month of May 2018, collecting fishes from the Himalayan streams and also providing training in molecular taxonomy to the students of CNR.

....." ACHIEVEMENTS"

Fellowship from University of Cambridge



Anoop VK, PhD student at the School of Ocean Science and Technology, KUFOS received a fellowship from the University of Cambridge to participate and present his research findings at the Student Conference on Conservation Science held at the Department of Zoology, University of Cambridge in April 2018. As part of the fellowship, Anoop also spent one month as a visiting researcher at the British Museum of Natural History in London, working with

Dr. Ralf Britz, a world-renowned fish taxonomist, and also spent two days at the Zoological Society of London (ZSL) working with their aquarium team. Based on the report of the internship, Anoop also received an award for the 'best intern' of 2019 Student Conference. Anoop's PhD thesis at KUFOS under the supervision of Dr. Rajeev Raghavan examines the systematics and evolutionary biogeography of hill stream loaches of the Western Ghats.



10

KUFOS researchers find blind freshwater shrimp

A team of international researchers comprising of Dr. Rajeev Raghavan, Assistant Professor, Department of Fisheries Resource Management, KUFOS; C.P Arjun, Researcher at the National Institute for Advanced Studies (NIAS), Bangalore, and Dr. Sammy De Grave, Curator of the Natural History Museum at Oxford University, UK jointly discovered a unique new genus and species of blind freshwater shrimp of the family Euryrhynchidae. This has been hailed as an exciting discovery by taxonomists as it is the first record of the family Euryrhynchidae from outside of South America or Africa, and the first blind shrimp to be discovered from the subterranean waters of peninsular India. The results of the study was published in the leading international taxonomy journal – Zootaxa.



Asia Pacific Coral Reef Symposium

Ramvilas Ghosh, PhD student at the School of Ocean Science and Technology, KUFOS received a travel grant from the organizers of the 4th Asia Pacific Coral Reef Symposium held at Cebu, Philippines in June 2018. At the symposium, Ramvilas delivered a talk on the status of gorgoniid research in India, a topic on which he is currently doing his PhD under the supervision of Dr. Ranjeet K at KUFOS. After the symposium, Ramvilas also spent a week at the Lee Kong Chian Museum of Natural History at Singapore working on the taxonomy of gorgonids of the Indian Ocean.



KUFOS Faculty appointed as Editorial Board Member of 'Nature Scientific Reports'

Dr. Rajeev Raghavan, Assistant Professor at the Department of Fisheries Resource Management has been appointed as an Editorial Board Member of the 'Nature Scientific Reports', the flagship open-access journal of the Nature Publishing Group. His tenure will be for two years (2018-2020).

IUCN Red List Symposium, Malaysia

Dr. Rajeev Raghavan, Assistant Professor, Department of Fisheries Resource Management, KUFOS delivered an invited talk at the IUCN Red List Symposium and Workshop organized by the University Malaysia Terengganu at Kuala Terengganu Malaysia from 24th to 28th September 2018.

➤ "Pandit Karuppan's insight into the development of Kochi is desirable"

KUFOS Vice Chancellor Dr.A.Ramachandran said that Pandit Karuppan, who was a poet and social reformer had given desirable insight into the development of Kochi. The present Subhash Park and Marine Drive in Kochi were the main places where fisher folk were residing heavily. Dr.Ramachandran recollected that Pandit Karuppan rehabilitated them properly which lead to the development of the city.He was inaugurating the seminar on 'Kavi Tilak Pandit Karuppan's Participation in Kerala Renaissance' organized by Pandit Karuppan Chair at KUFOS and Indian Society of Authors 'Kerala Chapter. The goal of Pandit Karuppan's life was the promotion of the fishermen community. KUFOS also is following the same goal and that is the reason behind the establishment of PanditKaruppan Chair in the university, said Vice Chancellor A Ramachandran.

Justice K. Sukumaran, who presided over the seminar, said that Kumaranashan had a strong support of the larger society to defend the negligence of upper hands of the society in the field of literature. But we should remember that Pandit Karuppan had no such social support. Justice Sukumaran further added that he always wish and dream about one day someone from the children of fishermen becoming India's Chief Justice. A Pandit Karuppanmemorial lecture was delivered by Dr.Gopinath Panangad in the seminar. The Environmentalist Dr.U.K. Gopalan, KUFOS former Dean Dr.K.S. Purushan, Indian Society of Authors' Secretary General Dr.T.P. Sankarankutty Nair, KUFOS Extension Director Dr.Daisy C.Kappen and TOCET Director Dr. Joseph P.J. were spoken in the seminar. KUFOS Registrar Dr.V.M.Victor George welcomed the gathering and Pandit Karuppan Chair Head Dr.M.K.Sajeevan delivered vote of thanks.



KUFOS Vice Chancellor Dr.A.Ramachandran inaugurating the seminar on 'KaviTilakPanditKaruppan's Participation in Kerala Renaissance'.PanditKaruppan Chair Head Dr.M.K.Sajeevan, KUFOS former Dean Dr.K.S.Purushan,TOCETDirector Dr. Joseph P.J., Environmentalist Dr.U.K.Gopalan, Justice K.Sukumaran, Indian Society of Authors' Secretary General Dr.T.P.Sankarankutty Nair, KUFOS Registrar Dr.V.M.Victor George and KUFOS Extension DirectorDr.DaisyC.Kappen are near.



➤ Fish Farmer's Day Celebration

The National Fish Farmers Day 2018 was celebrated by the KUFOS Regional Centre-Kannur, Payyanur on 10th July 2018 by organizing a one day training programme for new entrants to the field of Aquaculture. Shri C. Krishnan, Hon'ble MLA, Payyanur inaugurated the programme. A total of 100 prospective farmers from Kannur, Kasaragod, Wayanad and Kozhikode districts participated in this programme. Sessions on Fresh water fish culture, Brackish water fish farming, Ornamental fish farming and Various Assistance Schemes of Fisheries Department were handled by SmtShoba A.V, ShriRakesh C.G, ShriSanthosh Baby and Smt Mini Narayanan respectively. Dr.B.Manoj Kumar, Special Officer, KUFOS Regional Centre- Kannur coordinated the programme. The Aquaculture Development Cooperative Society (ADCOS) also collaborated with the programme.

Bumper fish harvest at KUFOS Pen Culture Experimental Farm



The KUFOS Vice Chancellor Dr. A Ramachandran inaugurating the harvest festival at in Thiruthur backwaters in Puthenvelikara in Ernakulam. KUFOS Fisheries Dean Dr M .S.Raju, Extension Director Dr. Daisy C Kappan, the Puthanvelikara Panchayat President P.V. Lalu and KUFOS Registrar Dr V.M. Victor George also seen.

The fish farmers of Puthenvelikara in Ernakulam district could not believe their eyes when their cultivation, conducted with the scientific and technical support of the Kerala University of Fisheries and Ocean Studies (KUFOS), witnessed an unprecedented massive crop. Thanks to the Village Adoption for Empowerment and Capacity building Ensuring Livelihood of fisherfolk in Central Kerala programme implemented by Extension Wing of KUFOS, the harvest was a bumper one with a catch of as much as 1700 kilograms of fish. Much of the crop comprised "karimeen (pearlspot)", "kaalanji (seabass)" Vatta (Giant Trevally) and "Chemapalli (Red Snapper)" varieties. The objectives of the project are increasing the fish production, creating employment opportunities to the fish farmers and fisher folk, thus ensuring livelihood security to them and KUFOS has been implementing the project since 2015.

It was the fish farming conducted by P. D Jenson of Thiruthurin Puthenvelikara,

under the KUFOS-supported Comprehensive Fish Village ("smagra mathsyagrama") programme, that the bumper crop was witnessed. While the Rajiv Gandhi Centre for Aquaculture distributed fish seeds for the farmers, the KUFOS extended all technical support and farming guidance for the fish farmers.

The objectives of the project are increasing fish production, creating employment opportunities to the fish farmers and fisher folk and thus ensuring livelihood and economic security to them. As part of the project, KUFOS had conducted a trial culture cum demonstration of pen culture of sea bass at 500 number of sea bass seeds purchased from Rajiv Gandhi Centre for Aquaculture (RGCA), Sirkal, were introduced in the pen constructed in back waters.

Under the project, seabass ("Kalanji") were cultivated in pens constructed in the Thiruthipuram backwaters. This is for the very first time that sea bass is cultivated in Kerala under this method and it had witnessed a survival rate of

as much as 96 per cent. Maximum size of the fish was 2.330 kgs and the fishes were sold at a selling price of Rs.450 per kilogram. The "chemballi (Red Snapper)" fish had grown upto two kilos while the weight of "karimeen" from this crop had shown a weight upto half-a-kilogram. The harvest that concluded by noon also witnessed the total sale of the whole harvest within half-an-hour of the harvest.

Earlier, the KUFOS Vice Chancellor Dr .A. Ramachandran inaugurated the harvest festival. The Puthanvelikara Panchayat President P.V. Lalu, KUFOS Registrar Dr .V.M. Victor George and Fisheries Dean Dr MS Raju were among those who were present at the function. The KUFOS Extension Director, Dr Daisy C Kappan, who were with the farmers giving guidelines and technical help for the cultivation led the harvest. Terming the bumper crop under the model as an achievement, Dr. Ramachandran said there is tremendous potential for pen culture in Kerala.

KUFOS conducts organic fish sale



The KUFOS Vice Chancellor Dr A Ramachandran inaugurating sale of organic fishes, at its Pudevypu campus, by selling "karimeen" (Pearlspot) to a customer.

The massive footfalls at the sale of organic fish varieties held at the Pudevypu campus of the Kerala University of Fisheries and Ocean Studies (KUFOS) recently has been a morale booster and great inspiration for the KUFOS crew and the public as well. Thanks to the desire of the people for poison-free fish, the exhibition witnessed long queues of men and women, craving to get quality fish varieties.

Fishes like "karimeen", "kalaanji", "poomeen", "pullimeen", "kanambbu" and "thilapiya", which were cultivated by KUFOS at its campuses, without using any types of chemicals or pesticides were made available at the venue for one-the-spot catch-and-sale exhibition.

The event was organized in such a way that the fish they wanted were caught right from the source and thus enabling sale of fresh fishes. And no wonder that people from far off places and outside Ernakulam also made it to KUFOS campus to get the all-fresh-organic fish of varieties. And, there were no middlemen or vendors at the sale, which was but limited to one kilo per person, as to make organic fish available for the maximum number of consumers.

The KUFOS Vice Chancellor Dr. A. Ramachandran inaugurated the event. It was to make available quality and poison-less fish to the people, at a time when most of the water around were polluted due to the recent floods, that the event was organised, Dr Ramachandran pointed out. The KUFOS Pudevypu campus Director Dr Linoy Libini and Farm Superintendent K Raghuraj led the proceedings. Around a thousand kilograms of fish, including as much as 280 kilos of "karimeen" were sold at the event.

▶ KUFOS and Hawassa University entered MoU



The HU Vice Chancellor and President of Ayano Baraso and the KUFOS Vice Chancellor Dr A Ramachandran pausing for a photo after signing the MoU for academic cooperation. The HU Dean Dr Syedu Gosho, KUFOS Registrar Dr V M Victor George and Dr. T.V. Sankar are also seen.

Aimed at academic cooperation internationally, the Kerala University of Fisheries and Ocean Studies (KUFOS) has signed a Memorandum of Understanding (MoU) with the Hawassa University (HU) in Ethiopia on May 30, 2018. Having a student strength of over 45,000, the Hawassa University is the largest University in Ethiopia.

The Hawassa University Vice Chancellor and President of Dr Ayano Baraso and the KUFOS Vice Chancellor Dr A Ramachandran signed and exchanged the MoU at a function held at the KUFOS campus. The KUFOS Registrar Dr VM Victor George, the HU Dean Dr Syedu Gosho and its Biology Department Head Dr Sufan Badevi were present at the occasion.

As per the MoU, KUFOS will help start new courses and revise the existing courses in Fisheries and Marine Science courses conducted at HU. KUFOS will also facilitate research study, leading to Ph.D, in Fisheries and Ocean Sciences, for those students who have passed postgraduate degree courses from HU. Students of KUFOS will get an opportunity to study one semester at HU, under the student exchange program, as agreed upon by the two Universities. Both universities will also cooperate for faculty training.

KUFOS Vice Chancellor Dr A. Ramachandran hoped that the MoU with HU would facilitate the students of KUFOS to utilize the huge employment potential prevailing in Ethiopian Universities.

14

HACCP certificates distributed



KUFOS Vice Chancellor Dr A Ramachandran distributing the certificates to the students who had completed HACCP training at KUFOS. Prof. Dr PT Mathew, Research Director Dr TV Sankar, the State chapter president of the Sea Food Exports Association of India Alexander Nainan, KUFOS Registrar Dr VM Victor George and Dr Suresh Kumar are also seen

Cochin: Certificates to the students who had completed training in Food Safety Management at the Kerala University of Fisheries and Ocean Studies (KUFOS) were distributed. Twenty postgraduate students of the Food Technology Division of KUFOS

have successfully completed their level-3 training in Hazard Analysis Critical Control Point (HACCP), which is one of the most modern training at par with international standards and as prescribed by the United Nations.

The objective of HACCP training is to equip the trainees ensure selection of best quality materials and to prevent possible mistakes in production of food products. KUFOS is the only scientific institution which is offering a course of this kind.

The KUFOS Vice Chancellor Dr A Ramachandran distributed certificates. Alexander Nainan, President of the Kerala Chapter of the Sea Food Export Association of India, was the Chief Guest at the function. Registrar Dr V M Victor George, Research Director Dr T V Sankar, Professors Dr PT Mathew and Dr Suresh Kumar spoke.



Workshop on Water Conservation



Merit evening at KUFOS

A Merit Evening was held to commemorate the excellence of the students of the Kerala University of Fisheries and Ocean Studies (KUFOS). The University Vice Chancellor Dr A Ramachandran inaugurated the function held at its main campus at Panangad.

The Vice Chancellor distributed merit scholarships to outstanding students in various streams. Six scholarships, instituted by the Manappuram Foundation, for the best MBA students of KUFOS and 39 Junior Fellowships in other subjects, instituted by the University, were distributed at the function.



The KUFOS Vice Chancellor Dr A Ramachandran distributing the Merit Scholarships at the Merit Evening held at the University campus. SME Director Dr MS Raju, Registrar Dr VM Victor George, Manappuram Foundation Chief Manager Shilpa Teresa and , Head of Aquatic Environment Management Dept Dr K. Ranjeethare also seen.

The Manappuram Foundation-instituted scholarships, awarded to MBA students, carry a sponsorship of Rs.20,000 per student, per semester. The KUFOS Junior Fellowship offers a monthly stipend of 2,000 to the recipients. The Registrar Dr VM Victor George, School of Management and Entrepreneurship Director Dr. MS Raju, Head of Aquatic Environment Management Dept Dr K. Ranjeeth and Chief Manager of Manappuram Foundation Shilpa Teresa spoke.



The Central Institute of Fisheries Technology (CIFT) Director Dr C N Ravishankar inaugurating the seminar on water conservation held at the KUFOS campus. KUFOS Director of Research Dr T V Sankar, the CWRDM Scientist Dr C M Sushant, KUFOS Eminence Professor & former Deputy Director of Indian Agriculture Research Council Dr K Gopakumar and KUFOS Registrar Dr VM Victor George also seen.

A State level workshop on water conservation was held in KUFOS on January 17, 2018.

The workshop was jointly organised by KUFOS and Kerala State Council for Science, Technology and Environment as a curtain raiser event of the 30th Kerala Science Congress held under the aegis of the Kerala State Council for Science Technology and Environment (KSCSTE), at Thalasserry Brennen college, Kannur.

The speakers of the workshop pointed out that Keralites use the most quantity of water in the entire country. The daily water usage of a Malayali (Keralite) is upto 3000 liters. Dr C M Sushant, Scientist, Centre for Water Resources Development & Management (CWRDM), Kozhikode, said the water usage by a Malayalee comprises the direct and indirect use of water. In fact, the indirect usage of water by the Malayalee is many-fold than that his/her direct use. This is much above the national average. And this enormous use

is because the Malayali society is primarily consumers, Dr.Sushant said.

The food habits of Malayalee are also contributed for the high level of water consumption. About ten thousand liters of water is consumed when one kilogram of rice reaches Kerala either from Andhra Pradesh or Telangana. The water required to produce one kilo of meat is as much as 1000 times of water which is required to produce one kilo of vegetable. As much as six glasses of water is utilised in the process of bringing one glass of water on your table in a hotel, he pointed out.

The Central Institute of Fisheries Technology (CIFT) Director Dr C N Ravishankar inaugurated the seminar. KSCSTE scientist Dr Sherin B M deliberated on the importance of the science congress. KUFOS Eminence Professor & former Deputy Director of Indian Agriculture Research Council Dr K Gopakumar, KUFOS Director of Research Dr T V Shanker and the University Registrar Dr V M Victor George spoke.

KUFOS sign MoU with NCESS

The Kerala University of Fisheries and Ocean Studies (KUFOS) has signed an MoU with the Thiruvanthapuram based National Centre for Earth Science Studies (NCESS) on collaborating in academic and research studies. The KUFOS Registrar Dr. M V Victor George and NCESS Director Dr T.N Prakash are the signatories to the MoU.



The KUFOS Registrar Dr.M V Victor George and NCESS Director Dr TN Prakash exchanging the MoU signed between the two institutions, on collaborating in academic and research studies. Dr K K Ramachandran, senior scientist, NCESS and KUFOS Vice Chancellor Dr A Ramachandran looks on.

According to the agreement signed and exchanged on July 17, 2018 at KUFOS, students of KUFOS can use the research facilities at NCESS in the fields of Ocean Engineering, Remote Sensing and Earth Sciences. Scientists of NCESS will also teach the KUFOS students as visiting faculties. In return, KUFOS will train science and technology experts that would be required for NCESS.

KUFOS Vice Chancellor Dr A Ramachandran said that both institutions will jointly pursue Post Graduate Courses and PhD programs in the field of Marine Study and Geology. For this, NCESS will be recognized as a research centre of KUFOS.

The NCESS will provide technical assistance to KUFOS for setting up of a modern ocean weather forecasting facility at KUFOS, as part of its efforts to improve the safety measures of the fishermen. NCESS will also provide technical assistance in preparing an atlas of the entire water resources in Kerala, including ponds, lakes and streams, an ambitious project of KUFOS.

The MoU was exchanged in the presence of the KUFOS Vice Chancellor Dr A Ramachandran, Director of Research, Dr TV Shankaran, Emmanuel Professor Dr K Gopakumar and senior scientist of NCESS Dr KK Ramachandran.

Upland paddy harvesting at KUFOS



KUFOS Vice Chancellor Dr.A.Ramachandran inaugurating the Paddy Harvest in KUFOS. Dean Dr.M.S.Raju, Registrar Dr.V.M.Victor George, Palluruthy Block Panchayath President Sri.T.P.Peethambaran and Kumbalam Krishibhavan Officer Sri.Raju P.N. are near.

Students and local people enthusiastically participated in the upland paddy harvesting done in the KUFOS Campus. KUFOS Vice Chancellor Dr.A. Ramachandran inaugurated the same. He said that upland paddy cultivation has been done in the campus as a part of efforts to bring back the old method of upland cultivation among the farmers. People used to follow inter cropping method of paddy among coconut trees, plains, midlands and up lands in Kerala. Seeds that are grown in the shade and are resistant to drought and medicinal properties are used for this purpose. Vice Chancellor Dr. A. Ramachandran said that despite the fact that this method of cultivation has highest



scope in Kerala where there are plenty of coconut groves, it disappeared in later times. With the depletion of upland cultivation, water availability decreased in ponds and streams. This has affected the survival of inland fishes badly.

KUFOS has been doing model farming in order to bring back the farmers to the olden method of upland cultivation. The cultivation was done in the 1 acre waste land lying in the staff quarters compound in Panangad. The seeds were sown in early June. Kumbalam Krishibhavan provided necessary assistance for the paddy harvest to the University in the leadership of Agricultural Officer Sri.P.N.Raju. Paddy harvest has been done in the leadership of KUFOS Registrar Dr.V.M.Victor George and Fisheries Dean Dr.M.S.Raju. Inspired students and natives also participated in the harvest along with the farm labourers with great enthusiasm. Palluruthy Block Panchayath President Sri.T.P.Peethambaran and Kumbalam Krishibhavan employees also participated in the same.

Participation of KUFOS Officers and Students in various programmes

- 1 Dr.A.Ramachandran, Vice Chancellor attended a brain storming session on, "Alternative Farming Systems Involving Horticulture to Increase Crop Productivity and Doubling Farmers' income" held at Dr.Y.S.Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh in collaboration with Indian Agricultural University Association, New Delhi on May 03-04, 2018
- 2 Prof(Dr.)A.Ramachandran, Hon.Vice Chancellor participated in the 3rd International Symposium on Aquaculture and Fisheries Education (ISAFE3) at ICAR-CIFE, Mumbai from 16th to 18th May 2018, and delivered key note address at the inaugural ceremony of the function.
- 3 Two students of Biological Oceanography, Miss Amalu A.M. and Miss Revathy S. participated and presented a paper on "Co Fixation by Sea weeds and their role in De-acidifying ocean – An experimental approach" in the National Seminar in Conservation and Sustainability of Aquatic Resources held at Fisheries College of Research Institute (TNIJU) Tuticorin (19th, 20th June, 2018).
- 4 Dr. V.K. Venkataramani, Adjunct Professor has given a key note lecture on Biodiversity and Conservation of turtles & Marine mammals and chaired a session in National Seminar in Conservation and Sustainability of Aquatic Resources held at Fisheries College of Research Institute (TNIJU) Tuticorin (19th, 20th June, 2018).
- 5 Two students of 2016-2018 batch of M.Sc. Biological Oceanography, ie. Miss P. Gopika & Miss Reshma Prasad were selected as Research Assistant in NIO & CMFRI respectively.
- 6 Twenty eight students of M.Sc. Marine Biology 2017-2019 batch completed the "Hands on training in DNA barcoding and application of Bioinformatics" organized by Department of Biotechnology & Research, KVM College of Engineering and Information Technology, Cherthala, Kerala from 28th to 30th June, 2018.

Ten volunteers of NSS participated in the Gandhi Smrithi Programme organised by Sacred Heart College, Thevara from 30.9.2018 to 2.10.2018. Of these two volunteers attended the special camping programme arranged by NSS MG University. Our volunteers won three first prizes and two second prizes in the state level competitions held as part of it.



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KUFOS research fellows to attend exchange programme

DC CORRESPONDENT
Kochi, April 16

KUFOS research fellows to attend exchange programme

സദാനന്ദപ്രഭു പുരസ്കാരം ആതിരയ്ക്കു സമ്മാനിച്ചു

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