

ANNUAL REPORT 2020-2021



KERALA UNIVERSITY OF FISHERIES AND OCEAN STUDIES

Panangad, Kochi- 682 506, Kerala, India

Phone: 0484 -2700964, 2700598, Fax: 0484-2703782

Website: www.kufos.ac.in

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KUFOS Annual Report 2020-2021

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KUFOS Annual report is an In-house publication.

This is a report of activities of KUFOS during 2019-2020 period

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UNIVERSITY LOGO

This emblem signifies the mission, goals and motto of Kerala University of Fisheries and Ocean Studies. It symbolizes the co-existence of all forms of aquatic life and our responsibility to preserve the ecology and conserve the bio-diversity by judicious exploitation of aquatic resources for sustainable development.

The deep and light blue colours respectively represent the ocean and sky. The waves in the sea represent the dynamic nature of the sea with all its mystery and music. “All deep things are music” (Carlyle). The ocean is our planet's life belt. The very survival of the human species depends upon the maintenance of an ocean, clean and alive.

“For the sea lies all about us.... The continents themselves dissolve and pass to the sea.... In its mysterious past, it encompasses all the dim origins of life.... And receives in the end... the dead husks of that same life. For all at last return.... To Oceanus, the ocean river, like the ever-flowing stream of time, the beginning and the end” (Rachel L. Carson- The Sea Around Us, 1951).

FIAT PISCIS: Let there be fish. This is the literal translation of the Latin words “FIAT PISCIS”. The idea is to grow more fish with a view to ensuring food and nutritional security. As Lao-tsu, the Chinese philosopher, rightly said centuries ago: “Give a man a fish and you feed him for a day. Teach him how to fish, and you feed him for a lifetime”.

CHINESE NET: It is a passive gear operated by a group and it represents team work and co-operation, symbolizing the aspirations of the traditional fisheries sector.

SHIP: Used for exploring and exploiting oceanic resources, this fully equipped vessel symbolizes the modern sector, with its sophisticated technology.

NANSEN BOTTLE: Operated through a pulley and attached to the ship, it represents the concern for maintaining water quality and the need to contain water pollution.

SHRIMP: As a foreign exchange earner, this crustacean has tremendous importance in the fishery economy of Kerala.

PEARL SPOT: 'Karimeen' (Etroplus suratensis), the State fish of Kerala, represents the dainty delicacy of the State.

CONCH: A mollusc, the shell with its mathematical patterns, used for carrying holy water during rituals, is a sublime symbol with spiritual, aesthetic, artistic, rejuvenating and medicinal values.

OPEN BOOK: It symbolizes knowledge and it signifies disinterested search for truth by research and learning.



FROM VICE CHANCELLOR'S DESK

Prof. (Dr.) K. Riji John
Vice Chancellor

KUFOS has completed a decade of existence in the year of 2020. Over this period, the University has seen developments in leaps and bounds with several new infrastructure being commissioned. A new Academic block of Rs. 59.5 crores, equipment worth around Rs. 12 crores in different research laboratories, a renovated fish farm of around Rs. 2 crores are a few examples worth mentioning. Several new initiatives are also planned for the further development of the University. These include new Academic buildings for Rs. 41 crores in the Western campus and in the Main campus for the Faculty of Fisheries Science and for the Faculty of Fisheries Management respectively and a Ladies Hostel in the North-eastern campus for accommodating about 100 girls. A new referral laboratory for the disease diagnosis of aquatic animals for Rs. 9.75 Crores and extension of the fish and shrimp farms for Rs.8.37 crores are also scheduled to come up in a years' time. A total renovated networking solution in the entire campus is also envisaged for a total budgetary provision of about Rs.3.8 crores.

It has to be admitted that the covid-19 has taken a huge toll on the academics of the University. Online classes have become a norm of the day. Our faculty has been trying very hard to arrange the required practical classes and examinations in a befitting manner of a professional University. Our undergraduate students have successfully completed the Rural Work Experiences and Experiential Learning Programmes amidst these testing

times with dedication and alacrity. Both the B.F.Sc and first batch of B.Tech Food Technology students have completed their degree programmes without any substantial delay. I congratulate all the students who have successfully graduated and thank all the staff members who made it possible during this period. The period also saw our students winning prestigious scholarships of Erasmus Mundus, ISEKI Food Competition etc.

Steps towards a long pending requirement of the University in getting the UGC 12 B status was successfully accomplished with the relentless work of the team of faculty members culminating in the visiting UGC team recommending 12 B status to KUFOS. This was one of the most cherished dreams of our former Vice Chancellor Late Dr A. Ramachandran. Apart from the UGC 12 B status, the University has been recognised by ICAR at 56th position during the year 2020. University plans to start new campuses, new degree programmes in the coming years to comply with the National Education Policy of our country. I place on record our sincere thanks to the Principal Secretary, Fisheries and the then Vice Chancellor in- charge Smt. Tinku Biswal for her guidance and support during the most part of the last year and especially for spearheading the activities for the UGC recognition.

The State Government has sanctioned a posse of 30 administrative staff during the last financial year and has agreed to consider the long pending need of the

university to augment the faculty strength by doubling the existing number. During the same period, ICAR for the first time identified KUFOS for uplifting the downtrodden section of the SC and ST community of the state by budgeting SC and ST subplans for the University. During the year that was passed, KUFOS had initiated several programmes in collaboration with the Department of Fisheries for creating awareness among the people in the sector and training the farmers, processors and entrepreneurs in various technologies.

At the behest of our Hon. Minister, Shri. Smt. Mercykutty Amma, , apart from the four Centres of Excellences that are functioning in the University at present, KUFOS is planning to establish at least three Centres of Excellences in the next plan period.

KUFOS is probably the one of its kind not only in the conglomeration of the disciplines that are forged in the faculties of the University, but also in the amalgamation of the three different streams of the education sectors viz. ICAR, UGC and AICTE playing active roles in shaping various activities of the University. This heterogeneity is expected to harness the best from all to create and emerge a strong force of academics, both in the faculty and in the student community in terms of research, extension and sector-oriented technology development for the benefit of the common man.



OUR HONOURABLE CHANCELLOR



SHRI. ARIF MOHAMMAD KHAN
HON'BLE GOVERNOR OF KERALA

OUR HONOURABLE PRO-CHANCELLOR



Smt J MERCYKUTTY AMMA

Hon'ble Minister for Fisheries, Harbour Engineering & Cashew Industry, Government of Kerala



INTRODUCTION

The Kerala University of Fisheries and Ocean studies (KUFOS) is an autonomous public funded institution established on 20th November 2010. The first Fisheries University in the country, KUFOS with its enchanting blue building stands in harmony with the greenery at Panangad, 12 km away from Kochi city, along the National Highway-66. It provides high quality instructional programmes in fisheries, ocean sciences and allied subjects. The University now has a sprawling campus of 75 acres in the headquarters at Panangad, brackish water and marine aquaculture area spanning 50 acres at Fisheries research station, Puduveypu and extensive 10 acres at Thiruvallom near Vizhinjam.

The College of Fisheries, Panangad under the Kerala Agricultural University was the only institution in the fisheries sector in the State imparting undergraduate professional degree programme. Kerala University

of Fisheries and Ocean Studies was established in November, 2010 by an Act of the Kerala State Legislative Assembly by delinking the College of Fisheries from the Kerala Agriculture University and started functioning on 01.04.2011. KUFOS was established for the development of manpower in fisheries and ocean studies and for ensuring proper and systematic instruction, teaching, training and research and extension exclusively in fisheries and ocean studies in the State of Kerala. This is the primary and principal institution of Kerala State for providing human resources with skills and technology required for sustainable developments as a Centre of Excellence for human resource development in Fisheries and Ocean Studies. It is the nodal agency to establish relationship with institutions at international level

KUFOS imparts quality education comparable with world class standards and giving significance to research oriented studies with effective meaningful and rewarding extension activities. With a view to producing technocrats of high calibre we provide highly qualified faculty, full fledged infrastructure facility and good linkages with reputed national and international institutes. The academic excellence is intended to be attained by undertaking graduate and post graduate teaching and research programmes in emerging disciplines of fisheries science. With a view to meeting the requirement of state and national priorities, we are introducing specialized courses in the needy areas thereby creating professionals and experts. Results of research emerging various disciplines leading to successful technologies need to be disseminated to the end users at the grass root level

UNIVERSITY STATUTORY OFFICERS



Ishita Roy IAS
(28.03.2020 to
27.05.2020)



Tinku Biswal IAS
(28.05.2020 to
24.01.2021)



Prof. (Dr.) K. Riji John
Vice Chancellor



REGISTRAR (In-charge)
Dr. B. manojkumar



FINANCE OFFICER
Shri. Joby George P.



UNIVERSITY ENGINEER
Mohammad Koya N.K.
(from 01.03.2021)



CONTROLLER
OF EXAMINATIONS
(In-charge)
Dr. K.P.Subhashchandran



DIRECTOR
OF RESEARCH
Dr.T.V.Sankar



DIRECTOR
OF EXTENSION (I/C)
Dr. Daisy C. Kappen

THE UNIVERSITY

Kerala University of Fisheries and Ocean Studies (KUFOS) is an autonomous public funded institution established on 20th November 2010, and governed by the Kerala University of Fisheries and Ocean Studies Act, 2010. As per the Notification No.19540/Leg.II/2010/Law Dated 28.01.2011, the Government of Kerala have promulgated Act 5 of 2011 forming Kerala University of Fisheries and Ocean Studies (KUFOS).

KUFOS is the first Fisheries University formed in India and it comes under the Ministry of Fisheries. As per G.O. (P) No. 510/F & PD dated 10.05.2011 the Government of Kerala disaffiliated College of Fisheries, Panangad and Fisheries Station, Puduveypu from Kerala Agricultural University and these institutions became the part and parcel of the newly formed Kerala University of Fisheries and Ocean Studies w.e.f. 01.04.2011. The territorial jurisdiction of the University extended to the whole of the State of Kerala and the Headquarters of the University is at Kochi in Ernakulam District.

The Panangad campus, which is the Headquarters of the University, is 12 km away from Kochi city, along the NH 47 and sprawls in area of 85 acres. Fisheries Station, Puduveypu having an area of 50 acres is situated in Vypeen Island (90 58 – 100 N lat. and 760 10-760 12' E long.) on the North-Western bank of Cochin bar mouth, Cochin taluk. It is at a distance of about 2 km from Vypeen-Pallippuram Road. The Arabian Sea on the West and the Cochin barmouth on the South. Besides these campuses, the Govt. have allotted 10 acres of land at Thiruvallam, near Thiruvananthapuram for setting up a Regional Station.

Kerala University of Fisheries and Ocean Studies is the primary and principal instrumentality of Kerala State in providing human resources, skills and technology required for the sustainable development of Fisheries and Ocean Studies. It acts as a centre of excellence for human resource development in Fisheries and Ocean Studies and the nodal agency to establish relationship with institutions and universities functioning at National and International level. The mission of the University is to serve as a flagship University of higher learning through demonstrated and growing excellence in teaching, research, extension, training, scholarship and creative work in Fisheries and Ocean Studies, comparable with global standards that will benefit the country and the world at large.

His Excellency, the Governor of Kerala, is the Chancellor and the Hon'ble Minister for Fisheries is the Pro-Chancellor of the University. The chief executive body of the University is the University Governing Council. The Vice Chancellor is the principal executive officer who is assisted by the Pro-Vice Chancellor, Registrar, Deans of Faculties, Controller of Examinations, Director of Research, Director of Extension, Directors of Schools, Heads of Departments, and Finance Officer.

MISSION, VISION AND GOALS

Mission

The mission of the university is to serve as a flagship university of higher learning through demonstrated and growing excellence in teaching, research, extension, scholarship and creative work in fisheries and ocean studies, comparable with global standards that will benefit the country and the world at large.

Vision

- To produce professionally and technically competent manpower in Fisheries and Ocean studies to cater the needs of the fast developing sector.
- Develop entrepreneurship among the fisheries graduates by imparting hands on training and give opportunities to develop management skills through Fisheries Work Experience Programme.
- Undertake research and extension activities in the field of Fisheries and Ocean studies by undertaking research in frontier areas and by promoting interdisciplinary/ inter-departmental/ inter-institutional co-operation.

- Provide employment opportunities for the people especially fisher folk by imparting trainings on modern techniques of fishing, primary handling, preservation, production of value added fishery products, ornamental fish culture, hatchery production of seeds of various cultivable fin and shell fishes and their farming.
- Provide consultancy services so as to put into practice the technologies developed among the entrepreneurs and generate income for the institution.
- Achieve the mission and goals laid down by the University.
- Develop infrastructure facilities and inter-institutional co-operative programmes in order to make the campus the nucleus of the Fisheries and Ocean studies in the world.

Goals

- To further the advancement in learning and conduct research in fisheries, ocean studies and allied subjects .
- Impart education in fisheries and ocean studies and allied subjects.
- Formulate new courses and curriculum in fisheries and ocean studies sector in accordance with the technical advances in the respective fields
- Act as a nodal agency to establish relationship with institutions and universities functioning at national and international levels
- Act as a centre of excellence having leading role for HRD in Fisheries and Ocean studies
- Foster and encourage entrepreneurship in Fisheries and Ocean studies.

Objectives of the University

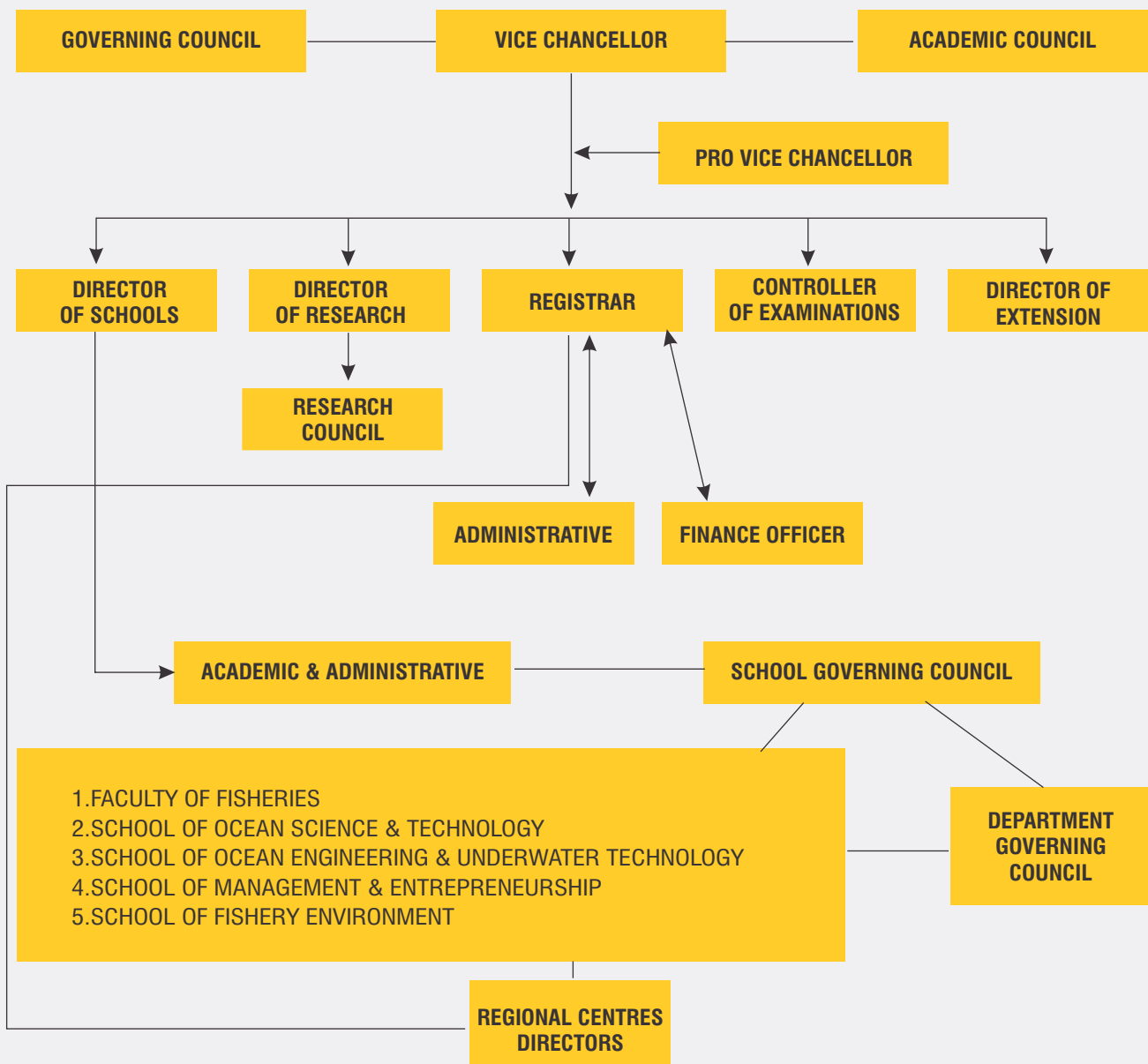
- (i) making provisions for imparting education in fisheries, ocean studies and other allied branches of learning and research scholarship;
 - (ii) furthering the advancement of learning and conduct of research in fisheries, ocean studies and allied subjects;
 - (iii) undertaking extension education programmes;
 - (iv) to formulate new courses and curriculum in Fisheries and Ocean Studies sector in accordance with the technical advances in the respective fields;
 - (v) to act as nodal agency to establish relationship with Institutions and Universities functioning in national and international level;
 - (vi) to act as a centre of excellence having leading role for Human Resources Development in Fisheries and Ocean Studies sectors;
 - (vii) to foster and encourage entrepreneurship in fisheries and ocean studies sector;
 - (viii) to develop breeds and hybrids of ornamental fishes, prawns and oysters having features like production capacity, resisting power and good quality suitable to the environment of Kerala;
 - (ix) to develop farming practices, fish feeds, fish disease control, resistant and vigilant steps suitable to the sustainable farming of ornamental fishes;
 - (x) to preserve the fish bio-diversity of Kerala, to establish their intellectual property right to develop and utilize the possibilities of new technology like bio-technology;
 - (xi) to conduct study and to record and preserve the study results relating to traditional fish technology, traditional knowledge, sustainable fish protection and to foster development;
- to strengthen research on fishing and related habitat and the relevant environmental factors; and (xiii) such other purposes as the University may deem necessary from time to time.

ORGANIZATION AND GOVERNANCE

Organizational Chart

The University is headed by the Vice Chancellor. The other officers of the University are the Pro Vice Chancellor, Registrar, Finance Officer, Controller of Examinations, Director of Research, Director of Extension, School Directors, University Engineer and University Librarian. The Governing Council is the supreme authority of the University, and the members of the Council are nominated by the Chancellor for a period of three years.

THE ORGANIZATIONAL CHART GIVEN BELOW GIVES AN OVERALL PICTURE OF THE SET UP



FUNCTIONING

The process involved in decision making starts at the level of the Department Governing Council. All permanent teachers of the concerned department are the members of the department governing council.

The Department Government Council shall design the syllabus and make proposal regarding the courses of study in the Department to the School Governing Council.

The Department Governing Council shall meet at least once in a month or as and when required to review the academic activities and to suggest need based curricular changes.

The School Governing Council functions above the Department Governing Council.

The Director shall carry out the decisions of the School Governing Council and co-ordinate the functions of the departments in the best interest of the School and the University.

The School Governing Council shall prescribe the qualifications of the examiners and approve the panel of examiners for external examinations.

The Director shall propose examiners for the conduct of external examinations.

The School Governing Council shall meet at least once in three months or as and when required to review the academic activities and to take decisions on need based curricular activities.

The School Governing Council shall have adequate financial powers for the functioning of the various departments under the School including power for strengthening the infrastructure, improving the teaching and research facilities and for maintaining and operating research vessel, if any.

Without prejudice to the provisions in sub-clauses mentioned above, the School Governing Council shall have the following additional powers, namely:-

- a) to propose the courses of studies in the institutions maintained by the University;
- b) to propose the qualifications of teachers in Schools and other institutions maintained by the University;
- c) to propose the qualifications of students for admission to the various courses of studies and to the examinations and the conditions under which exemptions may be granted;
- d) to make proposal for instruction and training in such branches of learning as it may think fit;
- e) to make proposal for the institution of Professorships, Readerships, Lectureships and other teaching and research posts required by the University;
- f) to propose schemes for the constitution or reconstitution of departments for teaching, research and extension education based on the proposals received from the Department Governing Council;
- g) to exercise such other powers and perform such other functions as may be conferred or imposed on it by the Act and Statutes, Ordinances and Regulations made thereunder.

The Research Council: Research Council shall consist of the following members, namely:

- (i) Director of Research who shall be the Chairman of the Council.
- (ii) Directors of all Schools;
- (iii) One senior faculty member who is a recognized guide from each School nominated by the Vice Chancellor;
- (iv) Director of each Regional Centre;

- (v) One representative of Indian Council of Agriculture Research;
- (vi) One representative of MOES;
- (vii) One representative of fishery industry nominated by the Vice Chancellor; and
- (viii) The Vice Chairman of the Planning Board, Government of Kerala or representative of the Board nominated by him.

(2) Research Council shall be responsible for formulating research policies, identifying thrust areas, advising possible funding agencies and monitoring and reporting the progress and quality of research to the Vice Chancellor from time to time.

The Academic Council

Subject to the provisions of this Act and Statutes, the Academic Council shall have the following powers, duties and functions.

- (a) To advise the University Governing Council on all academic matters;
- (b) Make regulations and to amend or repeal the same;
- (c) Approve the courses of studies in the institutions maintained by the University;
- (d) Approve the qualifications of teachers in schools and other institutions maintained by the University;
- (e) Approve the qualifications of students for admission to the various courses of studies and to formulate conditions under which exemptions may be granted;
- (f) Consider and approve proposals for the instruction and training in such branches of learning as it may think fit;
- (g) Consider and approve proposals for the institution of post of Professors, Associate Professors, Assistant Professors, Readers, Lectures and other teaching and research posts, required by the University;
- (h) Approve proposals for determining the degrees, diplomas and other academic distinctions that shall be granted by the University;
- (i) Decide which examinations of other Universities may be accepted as equivalent to those of the University and to negotiate with other Universities for the recognition of the examinations of the University;
- (j) Approve, modify or revise schemes for the constitution or reconstitution of departments for teaching, research and extension education based on the proposals received from the School Governing Council;
- (k) Maintain standards regarding post graduate teaching, research and extension education;
- (l) Give advice to the University in all academic matters and to submit feasibility report before the Governing Council regarding the academic programmes as recommended by the Senate in its annual meeting;
- (m) Exercise such other powers and perform such other functions as may be conferred or imposed on it by the Act and Statutes, Ordinances and Regulations made there under.

The GC and the Senate are the supreme decision making bodies in the University

4.1. Campuses of KUFOS



The campus at Panangad lies on the western side and eastern side of the National Highway. The total area of this campus is 87.73 acres. It includes the already developed area in which the administrative building, academic block, the quarters, hostels etc are located. Major portion of the campus is occupied by fish ponds and natural mangrove vegetation. The campus is bordered on the western side by the Vemband backwater system.



4.1.2. Fisheries Station, Puduveypu

The Fisheries Station is situated in Puthuveypu in the Vypeen island on the north-western bank of Cochin barmouth, It is at a distance of about 2 km from Vypeen-Pallippuram road and about 15 km away from the main campus. The Arabian sea on the west, the Cochin barmouth on the south and a canal emerging from the barmouth in the east form its main boundaries. On the northern side, the station joins the land proper of the main island. The Typical mangrove associations are characteristic of the area. This low lying area is subjected to the tidal influence of Cochin barmouth. The unique geographical position bestows on the station to embark on different aspects of fisheries research to open up new vistas. Major activities of this Station are teaching, research and extension. This Station also gives

practical training in brackish water fish farming to B.F.Sc. and M.F.Sc. students of the University. The farm area is marshy, being daily inundated by saline and brackish water intrusions. Approved research programmes on commercially important fishes, shrimps and ornamental fish are being implemented. In addition, many awareness programmes are also given to entrepreneurs. The Station is also a centre for various varieties of mangrove and associated vegetation. The campus is covered by natural mangrove vegetation comprising about 18 acres and ponds. Administrative block, laboratory, hatchery etc. are located near the entry point of the campus.

4.1.3 Kannur Regional Centre , Payyanur

The University decided to start two regional centres one at north Kerala and another in the south Kerala. Accordingly university submitted plan proposals for the establishment of Fisheries Training, Extension and Research Centre at Kollam and Establishment of Aquaculture Training, Extension and Research Centre at Kannur during the year 2017-18. An amount of Rs 100 lakhs was allotted for each centre by the Government. On the basis of the request from Shri C. Krishnan, respected Member of Legislative Assembly representing Payyanur in the Kerala Assembly and Shri T.Purushothaman, President, kerala Aquafarmers Federation the Univeristy constituted a high level committee consisting of Dr K.Padma kumar, Pro Vice Chancellor, KUFOS as Chariman, Dr Suresh Kumar, GC Member, Shri Joby George, Finance Officer and Shri Jayakrishnan, University Engineer as members to inspect various places at Payyanur for the establishment of the Centre. The committee visited various locations in and around Payyanur and recommended establishment of the centre at Kandankali near Payyanur, The Univeristy requested the government to acquire the necessary land for the purpose.. Dr K.Padmakumar, Pro VC who was appointed as the special officer for the regional centre was relived from duties on 30/12/2017. The 50th Governing Council meeting held on 22nd December 2017 decided to appoint Dr.B.Manoj kumar, Associate Professor as the special officer. The committee for the centre was reconstituted with Dr S,Suresh kumar, Director, SOST, Shri Joby George, Finance Officer, Shri Jayakrishnan P.S, University and Dr B.Manoj kumar, Special Officer. This committee was authorized to make visits to suitable sites and also to identify suitable buildings for functioning of the Centre. An individual offered 10 acres of land free of cost for the establishment of the Centre at Payyanur. A committee consisting of Shri A.M,Shamseer, MLA and GC, Member, Dr S.Suresh Kumar, Professor and GC member, Dr S.M..Raffy, Assistant Professor and GC member and Shri Jayakrishnan P.S. University Engineer as convenor was constituted by the Vice Chancellor for inspecting the land. The committee inspected the land and found it unsuitable as it is a wet land and full of mangroves and the University will not be able to take up construction activity in that area. The Centre started functioning from 01/03/2018 in a rented building at Payyanur.

4.1.4. Regional Station, Kollam

The proposal for establishment of KUFOS Regional center at Kollam to the fund of Rs.100Lakh was approved by the Governing Council of the University under annual plan 2017-18.The main aim of the center is to extent academic, research and extension activities of KUFOS to the Southern Districts of Kerala.

During the years 2018-19 & 2019-20 Survey was conducted for locating suitable land for the purpose and two sites were identified. The site now under the occupance of ALIND, Kundara and the site under the possession of KSITIL were found preliminarily suitable for establishing the Kollam regional center. Several meetings and discussions were conducted with the said authorities for transferring the land to the University. The Hon. Fisheries Minister and Industries Minister Convened meetings with the head officers of KSITIL, ALIND, Revenue department, Survey department etc and finally the Government issued orders for transferring 10 acres of land under the custody of KSITIL to KUFOS for setting up the regional center of the University. A team of experts from the University constituted by the Vice Chancellor has visited the said site and approved the proposed building plan.

The land was then surveyed jointly by the Revenue and Survey department and the sketch of the proposed land was forwarded by the L. R Thahasildar, Kollam. The procedure for transferring the ownership is under way at present.

The civil works of the regional center were entrusted with the KSCADC and they have already invited tender for construction of the building.

In addition, a project of cage culture under KUFOS in Ashtamudi Lake of Manroe Island is also being implemented this year. The beneficiary groups were selected with the participation of the local body and the project is successfully going on under the technical and financial support of KUFOS.

5. ADMINISTRATION

The Vice-Chancellor is the Chief Executive Officer and the Registrar is the administrative head of the university. The Governing Council is the supreme authority of the University and that is supported by the Senate, Academic Council, Research Council, School Governing Council and Department Governing Councils. The day-to-day administration is carried out by the office of the Registrar under whom the Finance Officer, responsible for the financial management of the University functions. On the research side, the Directorate of Research, and on the extension side the Directorate of Extension coordinate the respective activities. Conduct and evaluation of examination and allied activities are vested with the Controller of Examinations. Academic activities related to the different Schools are controlled by the School Directors under whom the various Departments with the Heads of Departments function.

KUFOS started functioning on 01.04.2011 with its Head Quarters at Panangad.

The logo of KUFOS was released by Sri. K. Babu, the then Minister of Fisheries, Port & Excise, Govt. of Kerala, in a function organised at KUFOS on 20.06.2011.

Two day National Consultative Workshop for Preparation of Vision Document and Strategic Plan of KUFOS was inaugurated by Sri. K. C. Venugopal, the then Union Minister of State for Power at International Hotel, Ernakulam on 28.07.2011. Dr. E. G. Silas, Former Vice Chancellor of Kerala Agricultural University launched the new website of the University during the function.

The first Governing Council meeting of KUFOS was held on 28.03. 2012 at Thycaud Guest House, Thiruvananthapuram.

The Certificate distribution function to distribute Provisional B F Sc Degree Certificates to the 2007 batch students, were held during the function. Sri. K. Babu, the then Hon'ble Minister of Fisheries & Ports had distributed the certificates.

5.3.1 Statutory Officers

Prof.(Dr.) K.Riji John	Vice Chancellor
Dr. B. Manojkumar	Registrar (In-charge)
Dr.K.P.Subhashchandran	Controller of Examinations (In-charge)
Dr. M.R.Boopendranath	Dean, Faculty of Fisheries
Dr. K Gopakumar	Faculty of Ocean Science and Technology Dean,
Dr.K.Vasudevan	Dean, Faculty of Ocean Engineering
Prof. (Dr.) KV.Thomas	Dean, Faculty of Climate Variability and Aquatic Ecosystem
Dr.S.Harikumar	Dean, Faculty of Management, Humanities and Social Sciences Dean, Faculty of Fisheries
Sri Joby George P	Finance Officer.
Dr.T.V.Sankar	Director of Research
Dr. Daisy C Kappen	Director of Extension (i/c)
Sri. P.S.Jayakrishnan	University Engineer

Authorities Of The University

The following are the authorities of the University

1. the Senate
2. the University Governing Council
3. the Academic Council

4. the Research Council
5. the School Governing Councils
6. the Department Governing Councils
7. the Faculties; and such other bodies as may specified by the Statutes.

Senate

The Kerala Government constituted the first Senate of the University as per Section 76 of KUFOS Act 5 of 2011. As per Section 10 of KUFOS Act, the Senate consists of Ex-officio Members (10 Nos.), Nominated Members (24 Nos.) and Elected Members (13 Nos.). The term of the Senate is five years from the date of its constitution by the Chancellor and the Chancellor shall reconstitute the Senate on expiry of its term. Senate shall meet at least twice a year on dates to be fixed by the Vice Chancellor and one of such meetings shall be called the annual meeting.

Members of Senate

- 1 The Vice Chancellor, Kerala University of Fisheries and Ocean Studies, Kochi
- 2 The Principal Secretary to the Governor of Kerala, Kerala Raj Bhavan Thiruvananthapuram
- 3 Private Secretary to the Minister Fisheries and Harbor Engineering Room No: 532, 3rd Floor, South Sandwich Block Secretariat, Thiruvananthapuram
- 4 Adv. M.Swaraj MLA Tripunithura Assembly Constituency Tripunithura
- 5 Secretary to Govt. Fisheries Department Govt. Secretariat Thiruvananthapuram
- 6 Secretary to Govt. Higher Education Department Govt. Secretariat Thiruvananthapuram
- 7 Secretary to Govt. Finance Department Govt. Secretariat Thiruvananthapuram
- 8 Law Secretary to Govt. of Kerala Govt. Secretariat Thiruvananthapuram
- 9 Director of Fisheries Government of Kerala Vikas Bhavan Govt. Secretariat Thiruvananthapuram
- 10 Dr. K Gopakumar Dean, Faculty of Ocean Science and Technology
- 11 Dr.K Vasudevan Dean, Faculty of Ocean Engineering B1015, Satellite Township Kakkanadu, Kochi 682030
- 12 Dr. M R Bhoopendranath Dean, Faculty of Fisheries 18/1990-B "Manjusha", No. 10, 2nd Lane, Pratheeksha Nagar, Thoppumpady, Cochin-682005, Kerala
- 13 Dr. Devika Pillai Dept. of Aquatic Animal Health Management
- 14 Dr. K Dinesh Dept. of Aquaculture
- 15 Dr. M K Sajeevan Dept. of Fisheries Resource Management
- 16 Dr.K Ranjeet Dept. of Aquatic Environment Management
- 17 Sri. Mathew Sebastian Dept. of Fisheries Extension and Statistics
- 18 Dr. C D Suriyakala, Director School of Ocean Engineering and Underwater Technology
- 19 Sri.Arun Kumar M S Mannathumpattu House, Kallinmel P O, Mavelikkara, Alappuzha
- 20 Sri. P Vasudevan Arupathunazhi House, Vakirim Sulthanbathery, W
- 21 Adv. P K Khaleemuddeen, Fathima Bhavan, Ponnani, Malappuram
- 22 Dr. V. Gabriel V M bhavan, Puthiyathura, Pulluvila PO Thiruvananthapuram- 695526
- 23 Smt. Vanaja KSreelekshmi, Elambichi, Thrikkariyapur, Kasargode 23* Sri. T Peter, Udayam, Valkiya Veli PO, Thiruvananthapuram
- 24 Sri. T Manoharan, Manappattu, Neendakara PO, Chavara, Kollam
- 25 Sri. Sudheer N.B. Nayarassery House, Edavanakkad PO, Ernakulam
- 26 Adv. M K Uthaman Manappurathu House, Manappuram PO, Cherthala
- 27 Sri. B Sathyan MLA, Boys Land, ANRA 21A, Mattada, Thiruvananthapuram
- 28 Sri. K Dasan MLA, Nikunjam, Muchukunnu PO, Kozhikode

Governing Council

As per letter No. GS 5-957/2011 dated 19.03.2012 of His Excellency the Governor of Kerala and Chancellor of KUFOS, the first University Governing Council was formed in accordance with the provisions contained in Section 76 of KUFOS Act 5 of 2011. The Governing Council is the supreme authority of the university and comprises of 23 members from among the category of Ex-officio Members (11 Nos.), Elected Members (4 Nos.) and Nominated Members (8 Nos.). At the outset, the Govt. have formed the KUFOS Governing Council by nominating 16 members. The University Governing Council shall be reconstituted every four years. The Governing Council shall meet at least once in a month on dates to be fixed by the Vice Chancellor after giving due notice to all members.

Members of the Governing Council (2016-2017)

The Vice Chancellor, KUFOS

Prof.(Dr.) K.Riji John

0484 2703781 (Direct),
2700598, 2700964 ,
Fax:-91 484 2700337
vc@kufos.ac.in

Secretary to Govt. of Kerala,
Fisheries Department, Govt. Secretariat,
Thiruvananthapuram

0471-2321129
0471-2333115 (Fax)
Prlsecy.port@kerala.gov.in

The Secretary to Govt. of Kerala Higher
Education Department,
Govt. Secretariat Thiruvananthapuram

(Mobile)
Fax – 0471-2332245
sec.higheredu.kerala@gmail.com

The Secretary to Govt. of Kerala Finance
Department
Govt. Secretariat Thiruvananthapuram

Tel.0471-2518292, 2327586
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The Law Secretary to Govt. of Kerala Govt.
Secretariat Thiruvananthapuram

Telephone – 0471-2518383 Fax-0471-2332955
secy@law.kerala.gov.in

The Vice President of
Kerala State Council for Science and
Technology and Environment

Sastra Bhavan, Pattom, Thiruvananthapuram.
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CMFRI, Kochi

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director@cmfri.org.in

Dr.N.R.Menon
Dean, Faculty of Climate

Vaiability and Aquatic Ecosystem, KUFOS
Tel No : 9847064322

Dr.M.R.Boopendranath
Dean, Faculty of Ocean Science and
Technology KUFOS

Tel No: 9447665875

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Director, MSE, KUFOS

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Dr.S.Sureshkumar
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Dr. Anu Gopinath
Asst Professor, School of Fisheries Resource
Management & Harvest Technology, KUFOS

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anugowri@hotmail.com

Dr.S.M.Raffi
Asst Professor, School of Fisheries Resource
Management & Harvest Technology, KUFOS

Tel No : 9497393516

C.D.Suriyakala
Director, School of Ocean Engineering and
Under Water Technology, KUFOS

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Sri Vidhu Rajan R
BFSC 2014 Batch Student, KUFOS

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Sri Manu C Pulikkal Vayalar
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Thankassery, Kollam

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Basillalhubert23@gmail.com

Sri Abraham John Tharakan
Shibumi, 11/814 Elphinistin
Road
Fort Kochi

ajt@amalgamfoods.in

07 meetings of the Governing Council were held during 2020-21 Financial Year**Academic Council**

The Academic Council shall have general control over the academic matters of the University and be responsible for the maintenance of standards of instruction, education and examinations within the University and shall exercise such other powers and perform such other functions as may be conferred or imposed upon it by the Statutes. The Academic Council consists of 24 members from various realms. The Govt. constituted the first Academic Council. The following are the academic council members. 11 meetings have been conducted so far.

Academic Council Members

The Vice Chancellor, Chairperson Fax:-91 484 2700337	Prof.(Dr.) K.Riji John	0484 2703781 (Direct),
Director of Fisheries 0471-2304355(Fax)	0471-2303160	
Director of CMFRI	0484-2394798	
Director of CIFT	0484-2666880	
Director of CMLRE	0484-2427790	
Director of NIO	0484-2390814	
Director of School of Fishery Environment & Head of Aquatic Animal Health Management	Dr. Devika Pillai	9446111033
Associate Professor and Head of Department of Processing Technology	Dr B.Manojkumar	9447525232
Director of School of Mgt. & Entrepreneurship	Dr. V.Ambilikumar	0484-2700598(Extn)30
Director of School of Ocean Engineering and Underwater Technology	Dr. C.D.Suriyakala	8281326577
Asst Professor, Department of Aquaculture	Dr.Binu Varghese	9447501644
Department of Aquaculture	Dr. K. Dinesh	9446032977
Associate Professor and Head, Resource Management	Dr.M.K.Sajeevan	9969651349
Asst Professor, Department of	Dr.Safeena M.P	9995203185
Associate Professor and Head, Department of Fisheries		
Aquatic Food Product and Technology		
Associate Professor, School of Management and Entrepreneurship	Smt.Alph Korath	9497793911
Associate Professor and Head, Department of Fisheries	Shri Mathew Sebastian	9495395305
Extension & Statistics	Akshaya Vijayan (FRM-2017)	9746429259
Asst Professor, Dept of Fisheries Resources Management	Dr.Anvar Ali P.H.	9048106657

Research Council

The Research Council is responsible formulating research policies, identifying thrust areas, advising possible funding agencies and monitoring and reporting the progress and quality of research to the Vice Chancellor from time to time. The Research Council shall meet at least once in six months. Research Council has not yet been constituted during the reporting period.

Officers Of The University

As per Section 30 of KUFOS Act 5 of 2011, the following shall be the Officers of the University.

- i) the Chancellor
- ii) the Pro-Chancellor
- iii) the Vice Chancellor
- iv) the Pro Vice Chancellor
- v) the Deans
- vi) the Registrar
- vii) the Finance Officer
- viii) the University Engineer
- ix) the Librarian
- x) the Director of Research
- xi) the Director of Extension
- xii) the Controller of Examinations
- xiii) the Directors of Schools
- xiv) Heads of Departments

And such officers in service of the University as may be prescribed in the Statutes.

Faculties

There are five Faculties established in the University. The Faculties shall be the principal academic co-ordination authorities of the University in respect of studies and research in the subjects included on the Faculty and also in respect of studies and research in multi-disciplinary faculties. KUFOS has five Faculties and each Faculty comprises of the Dean, the Chairpersons of all Boards of Studies comprised in the Faculty, one member of each Board of Studies to be elected by the members of Boards of studies from among themselves out of whom at least one shall be a Post Graduate teacher and two subject experts preferably from outside the State, nominated by the Vice-Chancellor. The Dean shall be the Chairman of the Faculty. Various faculties were constituted as per the university order No.GA6/2265/15 dated 01.12.2015



I Faculty of Fisheries

Dean – Dr.M.R.Boopendranath ,Principal Scientist (Rtd), CIFT ,

Chairperson of all Board of studies comprised in the Faculty

1. Chairperson of Board of Studies of Dept. of Aquaculture and Biotechnology — Member
2. Chairperson of Board of Studies in Aquaculture Nutrition and Feed Technology - - Member
3. Chairperson of Board of Studies in Aquatic Animal Health Management Member
4. Chairperson of Board of Studies in Fisheries Resource Management –Member
5. Chairperson of Board of Studies in Fishery Hydrography - Member
6. Chairperson of Board of Studies in Preservation & Packing Technology – Member
7. Dr.T.V.Sankar, Director of Research, KUFOS
8. Dr.Suresh Kumar, Professor, Fishery Hydrography, KUFOS (Board of Studies Nutrition and Feed Technology) - Member
9. Dr.Mohamed Hatha, Professor and Head, Dept. of Marine Biology, CUSAT (Board of Studies : Aquatic Animal Health Management) - Member
10. Dr.K.Madhu, Principal Scientist, CMFRI, Kochi (Board of Studies ; Aquaculture & Biotechnology) - Member
11. Dr.K.Mohankumar Prof. Dept.of Meterology, CUSAT, Kochi (Board of Studies: Fishery Hydrography) - Member
12. Dr.Shivananda Murthy, Professor and Head, Dept. of Aquaculture, College of Fisheries, Mangalore - Member



II Faculty of Ocean Science and Technology

Dean - Dr.K.Gopakumar, DDG (Fisheries) Rtd., ICAR, Professor of Eminence, KUFOS

Chairperson of all Board of studies comprised in the faculty

1. Chairperson of Board of Studies in Applied Geo Science Member
2. Chairperson of Board of Studies in Biological Oceanography Member
3. Chairperson of Board of Studies in Physical Oceanography and Ocean Modeling –Member
4. Chairperson of Board of Studies in Food Science & Technology Member
5. Chairperson of Board of Studies in Marine Microbiology - Member
6. Chairperson of Board of Studies in Biotechnology and Bioinformatics - Member
7. Dr.T.V.Sankar, Director of Research, KUFOS
8. Dr.Kamalakshan, Kokkal, Joint Director, KSCSTE, Sasthra Bhavan (Board of Studies Geoscience) - Member
9. Dr.L.Harenduprakash, Director (Board of Studies in Physical Oeanography and Ocean Modeling)- Member
10. Dr.S.Girija, Director NIFPHATT, Kochi 17 (Board of Studies Food Science and Technology) - Member
11. Dr.K.V.Lalitha, Principal Scientist, CIFT, Kochi (Board of Studies Marine Microbiology) - Member

12. Dr.C.Justin David, Academic Consultant, Dept.of Biotechnology and Bioinformatics, KUFOS (Board of Studies Biotechnology and Bioinformatics) - Member
13. 14. Dr.Baban Ingole, Scientist F., NIO, Goa - Member



III Faculty of Ocean Engineering

Dean – Dr. K.Vasudevan, Emeritus Professor, Dept of Electronics, CUSAT

Chairperson of all Board of studies comprised in the faculty

1. Chairperson of Board of Studies of Remote Sensing Technology & GIS – Member
2. Prof.Sasikumar, Course Professor and Co-ordinator of PG Programme, K.M., School of Marine Engineering, CUSAT Cochin – 22 - Member
3. Prof.V.Sundar, Dept.of Ocean Engineering, IIT, Chennai - Member



IV Faculty of Climate Variability and Aquatic Ecosystem

Dr.K.V.Thomas, Scientist (Rtd), NATIONAL CENTRE FOR EARTH SCIENCE STUDIES (NCESS), AKKULAM, THIRUVANANTHAPURAM

Chairperson of all Board of studies comprised in the faculty

1. Chairperson of Board of Studies in Coastal Zone Management - Member
2. Chairperson of Board of Studies in Disaster Management - Member
4. Dr.Ramesh, Director, National Centre for Sustainable Coastal Management, Koodal Building, Anna University, Chennai -25 - Member
5. Dr.K.V.Thomas, Scientist F & Head of Marine Science (Rtd.), National Centre for Earth Science Studies, Thiruvananthapuram - Member



V Faculty of Management, Humanities and Social Sciences

Dean S.HARIKUMAR, Professor and Head, Department of Applied Economics, CUSAT

Chairperson of all Board of studies comprised in the faculty

1. Chairperson of Board of Studies in Economics & Statistics Member
2. Chairperson of Board of Studies in Legal Studies - Member
3. Chairperson of Board of Studies in Business Administration & Management - Member
4. Prof.K.R.Muraleedharan Nair, Former Dean, Faculty of Statistics, Cochin University of Science and Technology (Board of Studies ; Economic and Statistics) - Member
5. Dr.K.B.Balakrishnan, Associate Professor, NUALS, Kochi (Board of Studies ; Legal Studies) - Member
6. Prof. P. Sudarsanan Pillai, former Dean (CUSAT) (Board of Studies ; Business Administration and Management) - Member
7. Dr.P.T.Sreenivasan, Former Head, Dept. of Management Studies University of Madras - Member

Academic Programmes

KUFOS offers two under Graduate Programmes-B.F.Sc and B.Tech-Food Technology , 34 Post Graduate Programmes in various subjects and Ph.D Programmes in subjects related to Fisheries, Ocean Studies and Management under

- I. Faculty of Fisheries
- ii. School of Management and Entrepreneurship
- iii. School of Ocean Science and Technology
- iv. School of Fishery Environment and
- v. School of Ocean Engineering

Courses Offered

B.F.Sc

M.F.Sc

- a) M.F.Sc. Aquaculture
- b) M.F.Sc. Aquatic Animal Health Management
- c) M.F.Sc. Aquatic Environment Management
- d) M.F.Sc. Fish Nutrition and Feed Technology
- e) M.F.Sc. Fish Processing Technology
- f) M.F.Sc. Fisheries Engineering and Technology
- g) M.F.Sc. Fisheries Resource Management

MSc

- a) M.Sc. Biotechnology
- b) M.Sc. Climate Science
- c) M.Sc. Disaster Management
- d) M.Sc. Earth Sciences
- e) M.Sc. Environmental Sciences
- f) M.Sc. Food Science and Technology
- g) M.Sc. Marine Biology
- h) M.Sc. Marine Chemistry
- I) M.Sc. Marine Microbiology
- j) M.Sc. Physical Oceanography
- k) M.Sc. Remote Sensing and GIS
- l) M.Sc. Statistics

MBA

- a) MBA dual specialisation (Finance/ Marketing/ Human Resource Management/ Rural Management / Fisheries Business Management)
- b) MBA Energy Management

M.Tech.

- a) M.Tech. Integrated Coastal Zone Management
- b) M.Tech. Ocean and Coastal Safety Engineering
- c) M.Tech. Coastal and Harbour Engineering

B.Tech- Food Technology

LLM

- a. LLM (Maritime Law)

Diploma

- a. PG Diploma in Aquarium Science and Technology
- b. PG Diploma in Industrial Aquaculture
- c. Diploma in Brackish water and Marine Aquaculture

Ph.D. Programmes

Doctoral degree programmes leading to Ph.D. are being offered by the five Faculties. The Faculties are

- a. Faculty of Fisheries
- b. Faculty of Ocean Science and Technology
- c. Faculty of Ocean Engineering
- d. Faculty of Climate Variability and Aquatic Ecosystem
- e. Faculty of Management, Humanities and Social Sciences

Post Doctoral Fellowship (PDF) Programmes

Offered by the five faculties. The faculties are

- a. Faculty of Fisheries
- b. Faculty of Ocean Science and Technology
- c. Faculty of Ocean Engineering
- d. Faculty of Climate Variability and Aquatic Ecosystem
- e. Faculty of Management, Humanities and Social Sciences

Degree Programmes (Admitted through NEET/KEAM)

- a) Bachelor of Fisheries Science (BFSc.)
- b) B.Tech. (Food Technology)

10. Certificate Programme

- a) Certificate course on Computer Aided Designing and Drafting (CADD)
- b) Certification Programme on Entrepreneurship Development

Directors Of Various Schools

Sl.No.	Name	School
1.	Dr.Devika Pillai (i/c)	School of Fishery Environment
2.	Dr.S.Suresh Kumar, Professor& Director (i/c)	Ocean Science & Technology
3.	Dr.M.S.Raju	Management and Entrepreneurship
4.	Dr.C.D.Suriyakala	School of Ocean Engineering and Underwater Technology

Staff Details

- a. Section wise details of
(I) Teaching staff (Regular, Academic Consultants, Professor of Eminence, Contract & Guest)

Heads Of Departments

Sl. No.	Name & Designation	Department
1.	Dr.K.Dinesh, Associate Professor	Dept.of Aquaculture
2.	Dr.B.Manojkumar, Associate Professor	Dept.of Fish Processing Technology
3.	Dr.Devika Pillai, Professor	Dept.of Aquatic Animal Health & Mgt.
4.	Dr.M.K.Sajeevan, Associate Professor	Dept.of Fisheries Resource Management
5.	Dr.V.K.Venkitaramani, Academic Consultant	Dept.of Biological Oceanography and Biodiversity
6.	Dr.V.K.Venkitaramani, Academic Consultant	Dept.of Biotechnology
7.	Dr.V.K.Venkitaramani, Academic Consultant	Dept.of Coastal Zone Management
8.	Dr.Prasada Rao, Academic Consultant.	Dept.of Physical Oceanography and Ocean Modeling .
9.	Dr.S.Rajendran, Academic Consultant.	Dept.of Applied Geoscience
10.	Dr.S.Rajendran, Academic Consultant.	Dept.of Remote Sensing Tech.&GIS
11.	Dr.S.Rajendran, Academic Consultant.	Dept.of Disaster Mgt.
12.	Dr.K.Gopakumar, Prof.of Eminence	Dept.of Food Science & Technology
13.	Dr.V.Ambilikumar, Associate Professor	Dept.of Business Administration and Management

Regular Teachers working in various Departments

Sl. No.	Name & Designation	Discipline	School / Faculty
1	Dr. M.S. Raju Prof. & Director of School (Retired on 31 May 2020)	Economics	Management Studies
2	Dr. S. Shyama, Professor	Aquaculture	and Entrepreneurship School of Aquaculture and Biotechnology
3.	Dr. V. Ambilikumar Asso Professor	Business Management	Management Studies and Entrepreneurship
4.	Dr.S. Suresh Kumar Professor	Biological Oceanography	Fisheries Resource Management and Harvest Technology
5	Dr. Devika Pillai, Professor	Aquaculture	School of Aquaculture and Biotechnology
6	Dr.B. Manoj Kumar Associate Professor	Fishing Technology	Fisheries Resource Management and Harvest Technology
7	Dr. Daisy C. Kappan Associate Professor	Fishery Extension	Management Studies and Entrepreneurship
8.	Sri.Mathew Sebastian Associate Professor	Statistics	Management Studies and Entrepreneurship

9	Smt. V. Malika Associate Professor	Statistics	Management Studies and Entrepreneurship
10	Smt. Alphy Korath Associate Professor	Fishery Statistic	Management Studies and Entrepreneurship
11	Dr. K. Dinesh Assoc. Professor	Aquaculture	Fisheries Resource Management and Harvest Technology
12	Dr. Ranjeet K. Associate Professor	Biological Oceanography	Fisheries Resource Management and Harvest Technology
13	Dr M. K. Sajeevan Associate Professor	Fishery Biology	Fisheries Resource Management and Harvest Technology
14	Dr. K.R.Salin Assistant Professor	Aquaculture	Fisheries Resource Management and Harvest Technology
15	Dr. Anu Gopinath Assistant Professor	Chemical Oceanography	Fisheries Resource Management and Harvest Technology
16	Smt. Safeena M.P. Assistant Professor	Microbiology	Aquatic Food Products and Technology
17	Dr. Blossom K.L. Assistant Professor	Food Science & Nutrition	Aquatic Food Products and Technology
18.	Dr. Prabhakaran M.P. Assistant Professor	Fisheries Oceanography	Fisheries Resource Management and Harvest Technology
19.	Dr. Chiranjiv Pradhan Assistant Professor	Fish Nutrition	School of Aquaculture and Biotechnology
20	Dr. Punnedath Preetham Assistant Professor	Biochemistry	Aquatic Food Products and Technology
21	Dr. S.M. Rafi Assistant Professor	Biological Oceanography	Fisheries Resource Management and Harvest Technology
22	Dr. K Jayalakshmi Assistant Professor	Fish Biology	Fisheries Resource Management and Harvest Technology
23.	Dr. Rajeev Raghavan Assistant Professor	Fish Taxonomy	Fisheries Resource Management and Harvest Technology
24.	Dr. Linoy Libini Assistant Professor	Aquaculture	School of Aquaculture and Biotechnology
25	Dr. Abhilash Sasidharan Assistant Professor	Fish Processing	Aquatic Food Products and Technology
26	Dr. Binu Varghese Assistant Professor	Fish Breeding	School of Aquaculture and Biotechnology
27	Dr. Rejish Kumar	Aquaculture	School of Aquaculture and Biotechnology
28	Dr.Radhika Rajashree S.R Professor	Fish Processing Technology	Fish Processing Technology
29	Dr. Pramila S. Assistant Professor	Fishery Biology	Fisheries Resource Management and Harvest Technology
30	Dr. Anwar Ali P.H. Assistant Professor	Fishery Biology	Fisheries Resource Management and Harvest Technology
31.	Dr.E.M.Afsal Associate Professor	Management	School of Management and Entrepreneurship
32	Dr.Maya Raman Asso Professor	Mean and Fish Processing	School of Ocean Science and Technology
33	Dr.Girish Gopinath Asso Professor	Remote Sensing and GIS	School of Fishery Environment
34	Dr.K.Rajesh Asst Professor	Economics	School of Management & Entrepreneurship
35	Dr.Anoop K.K Asst Professor	Marketing	School of Management & Entrepreneurship

36	Dr.K.Shiny Asst Professor	Fish Processing Technology	Dept of Fish Processing Technology
37	Dr.Jenny Ann John Asst Professor	Food Science and Technology	School of Ocean Science and Technology
38	Dr.B.Abish Asst Professor	Atmospheric Science	School of Fishery Environment
39	Dr.Shijo Joseph Asst Professor	Remote Sensing and GIS	School of Fishery Environment
40	Dr.Nevin K.G Asst Professor	Biochemistry	School of Ocean Science and Technology
41	Dr.Phiros Sha Asst Professor	Physical Oceanography	School of Ocean Science and Technology
42	Dr.V.P.Limna Mol Asst Professor	Marine Ecology	School of Ocean Science and Technology
43	Dr.K.Manjush Asst Professor	Microbiology	School of Ocean Science and Technology
44	Dr.S.S.Arunkumar	Physical Education	School of Management & Entrepreneurship

Professor of Eminence

Sl. No.	Name & Designation	Department	School
1	Dr. K. Gopakumar	Food Science & Technology	Ocean Science and Technology
2	Dr. K.S. Purushan	Pandit Karuppan Chair	School of Management and Entrepreneurship
3	Dr.D.D. Namboothiri	Food Science & Technology	Ocean Science and Technology

Teachers on contract basis

Sl. No.	Name & Designation	Department	School
1	Dr. Mariya T. Cheeran	Rural Management	Management Studies and Entrepreneurship
2	Dr.Sneha Susan Simon	Food Technology	Aquatic Food Products & Technology
3	Sri. Hamid Hussain. V	Fisheires	Fishery Environment
4	Dr. Suresh P.R.	Economics	Management Studies and Entrepreneurship
5	Sri. Mahesh J	Geosciences	Ocean Science and Technology
6	Dr.Rachanamol S.	Microbiology	Ocean Science and Technology
7	Dr.Raghul Subin. S.	Microbiology	Ocean Science and Technology
8	Sri.Sarath Prasanth S.V.	Geosciences	Ocean Science and Technology
9	Arun Kumar V.S.	Ocean Engineering	Ocean Engg. & Technology
10	Sri.Sreenal Sreedhar	Remote Sensing	„
11	Smt. Ashamol V.	Management Studies and Entrepreneurship	„
12	Mary Jisha Francis	Physical Oceanography	Ocean Sciences and Technology
13	Sandhya Lekshmi	Aquaculture	Aquaculture and Biotechnology
14	Sri. George Joseph	Human Resource Management	Management Studies and Entrepreneurship
15	Sri. Rajeeve G.K.	Marketing Management	Management Studies and Entrepreneurship
16	Sri. Shajeera K.A.	General Management	„School of Management and Enterpruenership
17	Smt. Sanu Jacob	Agricultural Post Harvesting Technology	„Faculty of Fisheries
18	Dr.Rachel Fernadez	Aquaculture	Faculty of Fisheries

Guest Lecturers

Sl. No.	Name		
1.	Anju K. Joshi	9.	Nellengol Kavitha Karunakaran
2.	Praveen Kurian Thomas	10.	Saranya P.
3.	George Basil	11.	Renjith T.A.
4.	Dr. K.M. Mathew, Professor (Rtd.)	12.	Adv. Jayaprakash
5.	Sri. Sudhir	13.	Dr. V.N. Sanjeevan
6.	Dr. Rachel Fernandez	14.	Sruthy Baby
7.	Dr. Sanu Jacob	15.	Adv. Syam Kumar
8.	Sri. Ankur Nagori	16.	Adv. Smitha Chathanarambath
		17.	Dr. V.S. Sebastian
		18.	Dr. Benjamin P.V.

(I) Non - teaching staff

Name & Designation

Section

GENERAL ADMINISTRATION

Sri.K.M. Mohammed Iqbal Deputy Registrar & P.S. to Vice Chancellor	Vice Chancellor's Office
Shri Cleetus P.J, Assistant Registrar Sri. P.R.Sreekumar, Assistant Registrar Smt. Meera. T. M., Section Officer (FC& D)	Administration,, ,,Academic and Examination Administration
Sri.Shaheer, Asst. Section Officer	,, Administration
Sri.Vijayshine. K. V, Asst. Section Officer	,,Finance
Sri.K.K. Faizal, Asst. Section Officer	,, Administration
Sri.Muhammed Shanar, Asst. Section Officer	,, Administration
Smt. Ajitha T.C, O.S. (Hr. Gr.)	Administration
Smt. Litty Fernandez, Office Supdt.	Administration
Sr. T.M. Devassy, Asst. Section Officer	Fisheries Station, Puduveyypu
Sri. Raju Kurian. M, Asst. Section Officer	,,Finance
Smt. Vinu C.V., Asst. Section Officer	,, Administration
Smt. Deepthi. V., Asst. Section Officer	,, Administration
Sri.Ajith Kumar K.L., Asst. Section Officer	,, Administration
Ms.Chandana Chandrasekharan, Assistant	Administration
Shri Akhil V.S.Assistant	Academic & Examination
Sri.Anu S, Assistant	Finance
Smt.Anusha P.V, Assistant	Academic & Examination
Smt. Dhanya, Typist Sr. Gr	,, Administration
Sri. C. Pradeep, Deputy Registrar	Finance
Sri.T.K. Deleep, Section Officer	,, Administration

Smt. Elizabeth Edward, Asst. Section Officer	„Administration
Smt. Thressiamma John, Office Superintendent	Administration
Smt. Seema M.C., Sel. Gr. Computer Assistant	Academic
Smt. Dhanya, Sel. Gr. Computer Assistant	Administration
Smt. Priya M, Asst. Section Officer	„Administration
Sri. A.V. Thomas, Sel. Gr. Computer Assistant	„Registrar Office
Sri. Vijayan Office Superintendent	Office of Pro Vice Chancellor Sri. N.B. Sudheer, Section Officer & PA to Registrar Office of Registrar
Smt. Tessy K. Thomas, Computer Programmer	Computer Lab
Sri.Kunjumammed. V. S., Assistant Librarian	Library
Smt. P. V. Vijayalakshmi, Reference Assistant	Library
Smt. Ramya Raveendran, Technical Assistant	„
Smt. Padma Narayanapillai, Farm Superintende	Farm Staff Sri. K.K. Reghuraj, Farm Manager Gr. I „
Smt. Bindumol Abraham, Farm Officer Sel. Gr.	„ Sri.K.K. Sreekumar, Pump Operator
Sri. P. M Beneesh	Lab Assistant
Smt. P. S. Surya	„
Smt. Rajamma K.M.	„
Sri. K. Surendran, HDV Driver	Transportation Wing Sri. N.C., Jose, LDV Driver
Sri. A.T. Gheevarghese, LDV Driver	
Smt. Girijamma G., Matron Sel. Gr.	Hostel
Sri.K.J. Jose, Dupli. Machine Operator Sr.Gr.	Office
Sri. Lineesh K.R.	Office Attendant
Sri. Arun K.J.	„
Sri. Renjith.A.R.	„
Smt. Sindhu Devi (On deputation)	„

Director of Public Relations and Publication – Shir Raju E Raphael (on contract)

(I) Contract staff –	External Aided Project / Plan Project		
1. Sri. Rajeesh P.M.	Research Fellow	10. Smt. Syamala V.K.	„
2. Smt. Mekha Bose	Tech. Assistant	11. Smt. Remya L. Sundar	Research Fellow
3. Sri. Sanju K.	Research Fellow	12. Sri. S. Thiruvarasu	„
4. Smt. Resmi M.R.	Field Assistant	13. Smt. Maneeja Murali	„
5. Smt. Shiny Peter	„	14. Sri. Sreenath V.R.	Senior Research Fellow
6. Smt. Anju M.S.	„	15. Smt. Divya V. Haridas	„
7. Smt. Salini N.S.	„	16 Smt. Anu Remanan	Research Fellow
8. Smt. Henamol A.A.	„	17. Smt. Gilgi M.G.	Nursery Attendant
9. Smt. Hema A.A.	„	18. Smt. Surya A.B.	SRF
		19. Smt. Sreeja P.V.	Field Assistant

20. Sri. Vineeth kumar	„	Accountant
21. Smt. Gayathri P.V.	Project Scientist	
22. Smt. Fejila Agnes	SRF	
23. Smt. Sreeparvathy	SRF	
24. Sri. Sam Peter	SRF	
25. Sri. Vipin Das P.V.	SRF	
26. Sri. Silesh M.S.	SRF	
27. Sri. Viji V.	SRF	
28. Sri. Harish K.C.	SRF	
29. Sri. Akhil P.B.	SRF	
30. Smt. Divya A.S.	Tech. Asst.	
31 Smt. Rekha K.R.	Office Asst-cum-	
32. Smt. Geeji M.T.	SRF	
33. Smt.Sneha K.G.	SRF	
34. Sri. RakeshC.G.	SRF	
35. Smt. Neenu Prakash	SRF	
36. Smt. Aswathy	SRF	
37. Dr. Elizabeth Carolin	Project Scientist	
38. Smt. Devi.	SRF	
39. Sri.Arjunan	SRF	
40. Sri.Renjith	SRF	
41 Sri. Hareesh V.N.	Fieldman (F)	

(I)Daily wage staff

1	Sri. Babu Paul	Assistant, Academic
2	Smt. Reshma V.S.	„
3	Smt. Simi Sajeevkumar	„
4	Smt. Sunila M.	Assistant, Administration
5	Smt. Shamila P.H.	„
6	Smt. Sajila V.L.	„
7	Smt. Praveena A.P.	Assistant, Finance
8	Smt. Preetha V.N.	„
9	Smt. Sajila V.L.	„
10	Smt. Meharunnisa A.	„
11	Smt. Praveen C. Prasad	Assistant, Management Studies
12	Smt. Salini T.S.	Assistant, Processing Dept.
13	Smt. Bindhu P.P.	Assistant, SOST
14	Smt. Shabeera	Assistant, Directorate of Research
15	Smt. Sheela M.T.	Computer Assistant, Acad.
16	Smt. Sindhu K.S.	Class IV
17	Smt. Sreedevi Bijumon	„
18	Smt. Omana N.K.	„
19	Sri. Ramesh A.K	Driver cum Office Attended
20	Sri. Bijumon K.K.	„
21	Sri. Anoop G. Menon	„
22	Sri. Harikrishnan V.M.	„
23	Sri. Jayapalan K.P.	Bus Attendant
24	Smt. Swathylakshmi	Field Assistant, F.S.Puduveypu
25		Lab Assistant
26	Sri. Saneer N.S.	Field Assistant
27	Sri. Nazeer T.K.	Pump Operator
28	Sri. Sasidharan Pillai	Security Guard.



FACULTY OF FISHERIES SCIENCE

Staff strength	Professors	: 5
	Associate Professors	: 5
	Assistant professors	: 17
	Adjunct faculty	: 1
	Contract/Guest faculty	: 13
Student strength	B.F.Sc (I Year)(2020 Admission):	74
	B.F.Sc (II Year)(2019 Admission) :	80
	B.F.Sc (III Year)(2018 Admission):	80
	B.F.Sc (IV Year)(2017 Admission) :	78
	MFSc(I year)(2020 Admission) :	54
	MFSc (II year)(2019 Admission) :	53
	PhD(I Year)(2020 Admission) :	11
	PhD(II Year)(2019 Admission) :	15
	PhD(III Year)(2018 Admission) :	8
	PhD(IV Year)(2017 Admission) :	2
PhD(V Year)(2016 Admission) :	1	

Plan for the current academic period:

- B.F.Sc Programme
- M.F.Sc Programme on Aquaculture
- M.F.Sc Programme on Fish Processing Technology
- M.F.Sc Programme on Fisheries Resource Management
- M.F.Sc Programme on Aquatic Animal Health Management
- M.F.Sc Programme on Aquatic Environmental Management
- M.F.Sc Programme on Fish Engineering Technology
- M.F.Sc Programme on Fisheries Extension

Research has been carried out for the selective breeding of Pearl spot for improving the aquaculture traits of the species, to find out alternative cost effective protein sources for the commercial feed production, gene studies to find out the growth and health factors in fish, to standardize the production of live feeds for hatchery purpose, to enhance the coloration in aquarium fish, to develop organic protocols for the seed production of tiger shrimp. Efforts are in progress to set up a model unit of biofloc, RAS, aquaponics etc. for demonstration and set up

model ponds for culturing tiger, Indian white and vannamei shrimp, milk fish, basa, Asian sea bass, carps etc.

Details of Departmental meeting conducted with agenda

Departmental meetings were conducted by all the departments under faculty of Fisheries Science with the main agenda of guide allotment for MFSc students, comprehensive examination, budgetary requirements and the details of equipment to be purchased. Four meetings were conducted by the Department of Aquaculture. Department of Fisheries Resource Management conducted meetings in every two months and analysed the academic, research and extension activities of the department. Department of Fish Processing technology conducted meetings in alternate months and recorded minutes. Department of Aquatic Environment Management conducted meetings regularly and recorded the minutes of the meeting. Department of Aquatic Animal Health Management conducted regular meetings of the faculty and research scholars. Department of Fisheries Extension economics and statistics conducted meetings with contractual staff and guest faculty. In the same way Department of Fishery Engineering and Technology also conducted meeting with the contractual staff and guest faculty.

Conference/Seminar/Workshop/Invited lectures organized by the Department

Sl No	Training programme / Workshops/Seminars	Faculty In charge and role	Duration with dates	Target group	No of Participants	Funding agency & amount
1.	Distant dynamic interactive series in aquaculture	Dr. K. Dinesh, Organizer	One day, 01-06-2020	Students , experts and farmers	90	KUFOS
2	Environment friendly aquaculture-	Dr. K. Dinesh, Organizer	One day, 05-06-2020	Experts, researchers, students and farmers	108	KUFOS
3	Aquaculture in urban metabolism of major cities	Dr. K. Dinesh, Organizer	One day, 12-06-2020	Students	116	KUFOS
4	Awareness programme on Mangrove based organic shrimp farming for farmers	Dr. K. Dinesh, Organizer	One day, 27/06/20	Students and farmers	15	CHEC
5	Awareness programme on Need of conserving mangroves for	Dr. K. Dinesh, Organizer	One day, 30/06/20	Students	20	CHEC

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	children on					
6	Awareness programme on Ecological significance of mangroves for local fisheries folks	Dr. K. Dinesh, Organizer	One day, 28/06/20	Farmers and fisher men	30	CHEC
7	Distant dynamic interactive series for farmers- Pearl spot farming and challenges	Dr. K. Dinesh, Organizer	One day, 15-06-2020	Farmers and experts	122	KUFOS
8	Culture of <i>Penaeus vannamei</i>	Dr. K. Dinesh, Organizer	One day, 19-06-2020	Farmers	110	KUFOS
9	Biofloc culture systems suitable for Kerala	Dr. K. Dinesh, Organizer	One day, 26-06-2020	Farmers	150	KUFOS
10	Potential of cage culture	Dr. K. Dinesh, Organizer	One day, 03-07-2020	Farmers	75	KUFOS
11	Culture of Tilapia	Dr. K. Dinesh, Organizer	One day, 10-07-2020	Farmers	86	KUFOS
12	Culture of freshwater prawns	Dr. K. Dinesh, Organizer	One day, 17-07-2020	Farmers	90	KUFOS
13	COOP Seminar on Organic aquaculture	Dr. K. Dinesh, Organizer	One day, 15-09-2020	Farmers	104	KUFOS
14	Two-day workshop on cage culture	Dr. K. Dinesh, Organizer	Two day	Farmers	100	Plan
15	Enchanting world of Ornamental fish keeping	Dr. K. Dinesh, Organizer	One day, 03-12-20	Farmers	110	KUFOS
16	Students-Public-Experts Interaction, Agriculture Day Celebration	Dr. K. Dinesh, Organizer	One day, 03-12-20	Co- Students and Experts	130	KUFOS
17	Online Interactive Lecture Series for SC & ST	Dr. K. Dinesh, Organizer	7 days, 9/5/2021 to 15/5/202	Students	80	ICAR

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	Students		1			
18	Conservation of Life Below water perspective on systematic and sustainable livelihood and citizen Science, (COLIBA 2021)	Hani P M and Jayalakshmi K J	March 18-20 2021, organized by Dept. of Aquatic Biology and Fisheries	-	-	-
19	Conservation of Life Below water perspective on systematic and sustainable livelihood and citizen Science, (COLIBA 2021)	Christy Ouseph, Jayalakshmi	March 18-20 2021, organized by Dept. of Aquatic Biology and Fisheries , Trivandrum (Online)	-	-	
20	Conservation of Life Below water perspective on systematic and sustainable livelihood and citizen Science, (COLIBA 2021)	Swetha K.C., K.J. Jayalakshmi,	March 18-20 2021, organized by Dept. of Aquatic Biology and Fisheries , Trivandrum (Online)	-	-	

Sl. No.	Title of the course/programme	Period		Name of the Institute/ Organization offered
		From	To	
21	National Capacity Building Programme on Marine Biodiversity and its Conservation	29 -07-2020	31-07-2020	PG and Research Department of Zoology, Dr.Ambedkar Government Arts College, Chennai.
22				

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23	National Webinar on “Microplastics In the Marine Environment (MIME-2020)”	25-11-2020	27-11-2020	Department of Marine Science, School of Marine Sciences, Bharathidasan University.
24	Panel Discussion on Nutritional Security and Fisheries	21-11-2020	21-11-2020	Association of Fisheries Graduates
	Online training cum awareness programme on Marine Ornamental Fish Culture	26-02-2021	26-02-2021	ICAR- CMFRI, Vizhinjam Research centre

25. Five days training program on “Entrepreneurship Development in Fish Processing Technology & Value Addition of Fish and Fishery Products” in association with National Institute of Agricultural Extension Management (MANAGE), Hyderabad.
26. Webinar On Agribusiness and Startup Opportunities -How to start a start up
27. Webinar on Packaging of Fish and Fishery products,
28. Webinar On Start up and employment opportunities in fisheries and aquaculture – Government initiatives and schemes
29. Webinar On Start-up opportunities in Agriculture and Allied Sectors with special emphasis on Agri-Business and Fisheries
30. One day Life Skill and Personality Development class to BFSc -2019 Batch Students in collaboration with CASRED.
31. Online Chromatography and mass spectrometry analysis fisheries products
32. Two day skill development programme jointly organized by FPT-CASRED on “Value added Fish Products”
33. Training of Trainers on value added fish products and byproducts from freshwater fishes
34. Five days training program on “Entrepreneurship Development in Fish Processing Technology & Value Addition of Fish and Fishery Products” (9th to 13th March 2020) in association with National Institute of Agricultural Extension Management (MANAGE), Hyderabad for 40 participants at Kerala University of Fisheries and Ocean Studies , Panangad.
35. Agri-business and start-up opportunities in Agriculture and Allied sectors on 5th October, 2020(Lecture Series1)
36. Webinar On Agribusiness and Startup Opportunities -How to start a start up on 10th October,2020.
37. Invited talk on Packaging of Fish and Fishery products, Dr. S. Sreejith , ICAR-CIFT 10th May, 2020.
38. Invited talk on Chromatography and mass spectrometry analysis fisheries products, Dr. Niladri Chatterjee, Scientist, ICAR-CIFT 14th May, 2020.
39. Webinar On Start up and employment opportunities in fisheries and aquaculture –

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Government initiatives and schemes 06th November ,2020

40. Webinar On Start-up opportunities in Agriculture and Allied Sectors with special emphasis on Agri-Business and Fisheries 03rd October, 2020

41. Two day skill development programme jointly organized by FPT-CASRED on “Value Added Fish Products” (30-31st August 2020) for 20 participants at Kerala University of Fisheries and Ocean Studies, Panangad.

42. MANAGE-KUFOS Online Training of Trainers programme on value added food products and by-products development from freshwater fishes, 18 to 21st February, 2021.

43. High Field UK - Level 3 HACCP FOR FOOD PRODUCTS on 17 – 23rd February 2021

44. DST-TEDP (Govt of India) sponsored Online Technology Based Entrepreneurship Development Programme - 25th August-October 11th ,2021

45. Online talk on Emerging Demands in Food safety and Quality for BFSc students- 13th May, 2021.

46. Online talk on Chemical hazards in fish and fishery products-BFSc students-13th May, 2021.

47. Online talk on freshwater fish processing, Dr.L.N.Murthy, ICAR,CIFE-11th May, 2021

Sl. No.	Name / Title	Place	Period		Number of Participants	
			From	To	Male	Female
48	International Training Workshop on Ichthyotaxonomy (ITWIT 2021)	Online (Jointly organized by KUFOS and University of Kerala)	23 rd March	27 th March	140	108
49	Diversified farming practices of native fishes	Tribal fisherwomen		UNDP-IHRML Project	15	
50	Diversified farming practices of native fishes	Tribal fisherwomen		UNDP – IHRML Project		15

Academic achievements of Faculty

Student guidance.

1. Guided MFSc student on the topic “Standardization and development of a value added product from *Sardinella longiceps* Valenciennes, 1847 using the leaves of tropical plants”
2. Guided MFSc student on the topic “Quality evaluation of protein bar developed by incorporating fish protein hydrolysate from *Oreochromis niloticus*”

3. Guided MFSc student on the topic “Fortification of rice flour with calcium extracted from tuna bone”
4. Guided student from St.Teresa College, Ernakulam on the topic “Development and Quality Evaluation of Vegetable Incorporated Pasta”

Programs attended

5. Attended Orientation programme conducted by UGC HRDC at Venkateswara University, Tirupati from 21.01.19 to 16.02.19.
6. Attended National Faculty Development Programme in entrepreneurship and startups organized by Entrepreneurship Development Institute of India (EDII) from 21.12.2019 to 04.01.2020 (2 weeks) at Kerala Forest Research Institute, Peechi, Thrissur
7. Act as reviewer for the “Microbiology research journal international” on the topic “ Burden of Helicobacter pylori Infections and Associated Risk Factors among Cases of Iron Deficiency Anaemia in Egypt”
8. One article entitled “Role Of Fish In Cardiovascular Disease” in an e- book published by CMS College, Kottayam as part of World Heart Day 29th September 2020
9. Mrs. Amrutha R Krishnan completed Post Graduate Diploma in Education Technology

Academic achievement of Students

1. Three students got admission for Post-Graduation in abroad under Erasmus Mundus Fellowship.
2. Ms. Roopa Rajan, and Radhika Rajasree S.R. – Best paper award . International E-conference on bioengineering for Health and Environment(ICBHE 2020) MAHSA University ,Malaysia .
3. Ms. Preenanka R. and Dr. Safeena Best poster award in the 3 days International conference on Aquatic Recourses and Blue Economy (Aquabe) conducted during 28th to 30th Nov 2019 organized by KUFOS
4. Mentored BfSc 2019 Batch students – ED conclaveEnlight 2020, Govt of Kerala, (28-31st January 2020)
5. Bonny Mathew, Blossom K.L, Somy Mary Mathew, *Arogyathinu kattupazham mootikaya*, February 2020, Rashtra DeepikaPublications

National Eligibility test passing by the students

Mr. Akshay A Kumar	UGC –NET for Asst. Professor 2019
Miss. Gopika Suresh Babu	UGC –NET for Asst. Professor 2019
Miss. Ashna Shanmughan	UGC –NET for Asst. Professor 2020
Miss. Unnimaya	UGC –NET for Asst. Professor 2020

Udhayan	
Miss. Sruthymol U.M	UGC –NET for Asst. Professor 2020
Miss. Ashna Shanmughan	AICE-SRF (Ph.D.)-2020 Undergoing PhD at CIFE, Mumbai
Miss. Abinaya	ICAR –NET for Asst. Professor 2021

Capacity building of Staff and Students

1. Conducted ELP programme for BFSC students 2016 Batch
2. Mrs. Amrutha R Krishnan attended,
 - Faculty Development Programme on “Modern Trends in Agro – Informatics” sponsored by TEQIP – III organized Division of Information Technology, School of Engineering, CUSAT in association with THDC Institute of Hydropower Engineering and Technology, Tehri, Uttarakhad on 26th and 27th August 2020
 - Two-week Online Faculty Development Programme on “ICT Tools for Teaching, Learning Process and Institute” jointly organized by Electronics and ICT Academies held from 15th – 26th March, 2021 under the “Scheme of financial assistance for setting up of Electronics and ICT Academies” of the Ministry of Electronics and Information Technology (MeitY), Government of India.
 - Five days online Short Term Course (e-STC) on Structural Engineering (ASE-2021) organised by the Department of Civil Engineering, National Institute of Technology Hamirpur during January 11-15, 2021.
 - Online short term course on Advanced Materials Testing and Characterization organized by the Department of Materials Science and Engineering, National Institute of Technology Hamirpur from 11th -15th January 2021.
- 3 Three students got admission for Post-Graduation in abroad under Erasmus Mundus Fellowship.

Research achievements and publications of Staff and Students

1. Jose, S. and Ranjeet K. 2020 A New Record of Symbiotic Crab (*Harroviaelegans* de Man, 1887) from the Gulf of Mannar, India. *Thalassas: An International Journal of Marine Sciences*, 36(2), 585-588. 6.84
2. Renjithkumar, C.R., Roshni, K., Raghavan, R. and Ranjeet, K. 2020 First record of the Mayan cichlid *Mayaherosurophthalmus*(Günther, 1862) in South Asia and its potential implications. *Journal of Applied Ichthyology*, 36(5), 699-704. 6.62
3. Roshni K, Renjithkumar CR, Raghavan R and Ranjeet K2020 Population dynamics and management strategies for the invasive African catfish *Clariusgariepinus*(Burchell, 1822) in the Western Ghats hotspot, *Journal of Threatened Taxa*, 12(10), 16380-16384. 6.45
4. Kripa NV, Reyhanath PV, RaziaBeevi M and Ranjeet K2020 Isolation of *Streptomyces* spp. with bioprospecting potential from mangrove regions of Ponnani, Kerala, India *Journal of Aquatic Biology and Fisheries*, 8(1), 1-6.

5. Renjithkumar CR, Roshni K and Ranjeet K2020 Feeding ecology of the endemic and threatened freshwater puffer fish *Carinotetradontravancoricus* in Western Ghats hotspot, India. International Journal of Aquatic Biology, 8(5), 300-310. 6.54
6. Renjithkumar CR, Roshni K and Ranjeet K2020 Food and Feeding habits of Malabar butter catfish, *Ompokmalabaricus*(Valenciennes, 1840) from the Chalakudy river, Kerala, India. Journal of Aquatic Biology and Fisheries, 8(S), 98-101.
- 4 Muhsin AI, Shahul Hameed PVP, Pookoya P, Harikrishnan M and Ranjeet K2020 Fish stock demographics of skipjack tuna (*Katsuwonuspelamis*) from Kavaratti in Lakshadweep, Southern Arabian Sea. Journal of Fisheries, 8(3), 940-944.
- 5 NilimaPriyadarshin, Dinesh Kaippilly, Chiranjiv Pradhan and Marco Saroglia2 2020 Effect of Guar Sprout Meal on the Growth, Nutrient Utilization and Hematological Characteristics of Genetically Improved Farmed Tilapia(Gift) Fingerlings International Journal of Current Microbiology and Applied Sciences2020: 5.38
- 6 NilimaPriyadarshin, Dinesh Kaippilly, and Marco Saroglia22020 Digestive enzyme activities in Nile tilapia, *Oreochromisniloticus* fed diet supplemented with guar sprout meal JEZS 2020; 8(5): 2181-2186 RJIF 5.48
- 7 Dinesh Kaippilly, Geeji M. Tharanath and E. R., Chinchu2020 Mangrove ecosystem and coastal livelihood with special reference to Indian scenario, Spring 2020 Issue 30: 24-27. *Journal of the Commonwealth Human Ecology Council*
- 8 Pradhan C.,Gopinath, D.B., Namitha D., Nikhila P., Sankar, T.V2020 Replacement of soybean meal with cashew nut meal as an alternative protein source in the diet of tilapia, *Oreochromismossambicus*. Aquaculture Research 51 (4): 1660-1672. Doi: 10.1111/are.145127.75
- 9 Sasidharan, A., Michu, V. J. Pradhan, C. Sabu S.2020 Utilisation of isoelectric precipitation to recover fish protein isolate from seafood processing waste. Indian Journal of Fisheries 67(3): 99-105. DOI: 10.21077/ijf.2020.67.3.88426-116.29
- 10 Pradhan C., Giri, S. S., Mohanty, T. K., Mohanty, S. N2020Feeding a diet containing plant ingredients at different levels influenced growth performance, carcass composition and blood biochemical parameters in Indian major carps grown in polyculture earthen ponds Tropical Animal Health and Production. 52, 1769–1777. doi:10.1007/s11250-019-02184-7. 7.33
- 11 Jena, R., Pradhan, C.,Maiti, N.K, Choudhury, P.K. (2020). Evaluation for Nutrient Utilization Pattern of Bacillus Spp. Isolates in Response To Water Quality Parameters In vitro Biosc.Biotech.Res.Comm. 13 (12): 92-97.
- 12 Nilima P., Dinesh K., Pradhan,C.,Saroglia M.2020 Effect of Guar Sprout Meal on the Growth, Nutrient Utilization and Hematological Characteristics of Genetically Improved Farmed Tilapia (Gift) Fingerlings. Int.J.Curr.Microbiol.App.Sci. 9(07): 3587-3599. doi: <https://doi.org/10.20546/ijcmas.2020.907.419>
- 13 Pradhan C., Das, D.R.,Mohanty, T. K., Giri, S. S. (2020). Evaluation of nutritive value, fatty acid composition and lipid quality indices of freshwater catfishes and murels. Journal of Aquaculture and Marine Biology. 9 (3), 80-85.

- 14 Chandhini S, Sneha Varghese, SibyPhilip and Rejish Kumar VJ2020 Deciphering the mitochondrial genome of Malabar snakehead *Channa diplogramma* (Teleostei; Channidae) *Biologia*75, 741–7486.81
- 15 Preena PG., Swaminathan TR, Rejish Kumar VJ, Singh ISB2020 Antimicrobial resistance in aquaculture: a crisis for concern *Biologia*. 75:1497-15176.81
- 16 Jose D, Preena, PG, Rejish kumar VJ, Philip R, Singh ISB2020 Metaproteomic insights into ammonia oxidising bacterial consortium developed for bioaugmenting nitrification in aquaculture systems *Biologia*75, 1751-17576.81
- 17 Preena PG, Swaminathan TR, Rejish Kumar V.J and Singh ISB2020 Unravelling the menace: Detection of antimicrobial resistance in aquaculture *Letters in applied microbiology*. 71: 26-388.17
- 18 Tincy Varghese, Rejish Kumar V.J, Amrutha Gopan, Rajendran K.V, Sajina K.A, Mishal P and Asim K Pal2020 Dietary arginine modulates nonspecific immune responses in Indian Major Carp, *Cirrihnusmrigala* exposed to hypoxia *Aquaculture*, 529: 7356139.22
- 19 Sneha K.G, Rahul K, Rejish Kumar V,J, Robin P. Philip M and Devika Pillai2020 Detection of New Delhi Metallo- β -lactamase 1 and Cephalosporin Resistance Genes Among Carbapenem-Resistant Enterobacteriaceae in Water Bodies Adjacent to Hospitals in India *Current Microbiology*, 77: 2886-28957.75
- 20 Sneha K.G. Robin P, Rejish Kumar V.J and Devika Pillai2020 Investigating the impact of hospital antibiotic usage on aquatic environment and aquaculture systems: A molecular study of quinolone resistance in *Escherichia coli* *Science of the Total Environment*, 748, 14153812.55
- 21 Preena P.G, Arathi D, Rejish Kumar V.J and Raja Swaminathan T2020 Plasmid-mediated antimicrobial resistance in motile aeromonads from diseased Nile tilapia (*Oreochromis niloticus*) *Aquaculture Research*, 52(1):237-2487.75
- 22 Yash Sunil Pawar and Shyama.S,2020 Plasmid-mediated antimicrobial resistance in motile aeromonads from diseased Nile tilapia (*Oreochromis niloticus*) Proceedings of NFMES -20, EPP-6, pp. 170-175 ISBN: 978-81-930558-4-7
- 23 Yash Sunil Pawar and Shyama.S2020 BMPs – an environmental management tool in shrimp farming- Proceedings of NFMES -20EPP-11, pp. 182- 187 ISBN: 978-81-930558-4-7
- 24 Yash Sunil Pawar and Shyama.S,2020 Management of soil and water quality in shrimp farming Proceedings of NFMES -20, EPP-10, pp. 178 -182 ISBN: 978-81-930558-4-7
- 25 Vazhiyil Venugopal & Abhilash Sasidharan 2020 Seafood industry effluents: Environmental hazards, treatment and resource recovery. *Journal of Environmental Chemical Engineering*. Volume 9, Issue 2, 104758, (IF:5.909)
- 26 S. Anjana, S. Abhilash, B. Varghese, S. Sabu, K.V. Sunooj, K.A. Martin Xavier2020 Performance evaluation of ultra violet assisted vertical re-circulating depuration system on microbial, heavy metal reduction and composition of black clam (*Villorita cyprinoides*) *LWT*, Volume 138, 110628, ISSN 0023-6438 IF:4.952) (NAAS: 10.01
- 27 Seba T. Jiso Thomas, G. Archana, S. Abhilash, S. Sabu, K. V. Sunooj, T. K. S. Gopal, 2020 Process Standardization of Ready-to-eat Pasteurized Crab spread from Marine Blue

- Swimming Crab (*Portunus pelagicus*) Incorporated with Threadfin Bream Surimi. *Fishery Technology* 57: 258 – 266(NAAS Score: 5.82)
- 28 Abhilash Sasidharan, Megha Krishna Murthi, Sarasan Sabu & Kappat Valiyapeediyekkal Sunooj 2020 Valorisation of Basa (*Pangasianodon hypophthalmus*) Skin Waste into Quality Leather Using a Non Chrome Treatment Method. *Journal of Aquatic Food Product Technology*, 29:10, 1041-1053, IF: 1.767) (NAAS: 7.02)
- 29 Abhilash Sasidharan, V. J. Michu, Chiranjiv Pradhan and S. Sabu 2020 Utilisation of isoelectric precipitation to recover fish protein isolate from seafood processing waste. *Indian J. Fish.*, 67(3): 99-105, 2020 99 IF:0.5) (NAAS: 6.29)
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127. Cherakkathodi Sudheesh, Kappat Valiyapeediyekkal Sunooj, Blasubhramaniam Bhavani, Basheer Aaliya, Muhammed Navaf, Plachikkattu Parambil Akhila, Sarasan Sabu, Abhilash Sasidharan, Suraj Kumar Sinha, Sunny Kumar, Vallayil Appukuttan Sajeevkumar, Johnsy George (2020). Energetic neutral atoms assisted development of kithul (*Caryota urens*) starch–lauric acid complexes: A characterisation study, *Carbohydrate Polymers*, Volume 250, 116991, ISSN 0144-8617, <https://doi.org/10.1016/j.carbpol.2020.116991>.
128. S Sabu and A Sasidharan. Impact of fishing on freshness and quality of seafood: A review. *International Journal of Fisheries and Aquatic Studies*. 2020; 8(2): 193-198.
129. Cherakkathodi Sudheesh, Kappat Valiyapeediyekkal Sunooj, Abhilash Sasidharan, Sarasan Sabu, Aaliya Basheer, Muhammed Navaf, Chikkonda Raghavender, Suraj Kumar Sinha, Johnsy George (2020). Energetic neutral N₂ atoms treatment on the kithul (*Caryota urens*) starch biodegradable film: Physico-chemical characterization. *Food Hydrocolloids*, Volume 103, 105650. <https://doi.org/10.1016/j.foodhyd.2020.105650>.
130. Rizveen Shanavas, Shilpa Jose and Blossom KL2021 Development and Quality Evaluation of Fish Protein Concentrate Incorporated Value Added Products *Journal of Scientific Research* Vol.65 Page-99-105 UGC care list
131. Seerangan Manokaran a,*, Thadickal V. Joydas a,*, Mohammad A. Qurban a,b, Linoy L. Cheruvathur a,c, Thomas J. Kariyathil a,d, Abdullajid U. Basali a, Syed Ajmal Khan a, Abdulaziz Al-Suwailem e Baseline patterns of structural and functional diversity of benthic amphipods in the western Arabian Gulf *Marine Pollution Bulletin* 164:1-1010.05 NAAS
132. Dhanya T S and V. Ambilikumar 2020 Students perception of servicescape and the mediating role of comfort on assessing business students satisfaction., *Solid State Technology*, Vol. 63 Issue: 1s, pp. 1454-1465. SCOPUS Indexed, cite score: 0.3.
133. Liya Peter and Dr.V.Ambilikumar 2020 Financial Literacy and Personal Financial Planning among Young Employees. *Solid State Technology*, Vol. 63, Issue.5, ISSN: 003-111X, pp.4054-4068. SCOPUS Indexed, cite score: 0.3.

Academic/Research/Extension activities of Faculty outside the University

- Served as Chairperson in Session 1. Biowaste Utilization- International Workshop jointly Organized by International Foundation for Science (Sweden) & Organization for Prohibition of Chemical Weapons, Hague, The Netherlands, 25-26th November, 2020.
- Served as resource person in E-course on Seafood safety and Quality control organized by Marine Safety College, Tuticorin. November, 2020.
- Subject Matter Expert -CAS Screening Cum Evaluation Committee, School of Industrial Fisheries, Cochin University of Science and Technology, November, 2020.
- Subject Expert-Selection Committee- Faculty, School of Industrial Fisheries, Cochin University of Science and Technology, November, 2020.
- Taken online class for fish farmers in an online programme organized by Kerala Aquafarmers Federation (ADCOS), Payyannur, Kerala on 17/06/2020 (8.30-9.30 pm) on the topic "Use of Probiotics in aquaculture"
- Published an article in MALAYALA MANORAMA daily
- External examiner at St. Teresas College, Ernakulam for MSC Fourth Semester Practical Examination on 11.04.2019
- Dr. Rajeev Raghavan as referee
Aquatic Conservation: Marine and Freshwater Ecosystems (Editorial Board), Journal of Threatened Taxa (Subject Editor), Biodiversity and Conservation (Editorial Board)
- Dr. Jayalakshmi K J as referee of Journals - Regional studies in Marine Sciences
Indian Journal of Ecology, Coastal and Ocean Management

Meetings attended by faculty members outside the University

Sl. No.	Title of the course/programme	Period		Name of the Institute/ Organization offered
		From	To	
1	Fisheries Standard Review Consultation	13.5.2020	13.5.2020	Marine Stewardship Council, UK
2	The New Normal in Education	23.5.2020	23.5.2020	IQAC, St. Alberts College, Ernakulam
3	How Algae Sensors Work	26.5.2020	26.5.2020	YSI, United States
4	Innovative biosecurity approaches for a healthier aquaculture industry	15.7.2020	15.7.2020	FAO, Rome
5	Aquapreneurship development through seed production of airbreathing fishes	21.7.2020	25.7.2020	CoF-CAU, Lembucherra, Tripura
6	Maturation Challenges and Solutions	14.8.2020	14.8.2020	Skretting
7	YIP 2020 Facilitators meet	28.7.2020	28.7.2020	K-DISC, Govt of Kerala
8	Sustainable Ornamental Fisheries-Way Forward (SOFI-2020)	15.10.20	17.10.20	CUSAT/OFI
9	Assessment and Accreditation for	15.12.20	15.12.20	IQAC, KUFOS

	NAAC			
10	Breeding and Seed production of Silver Pompano	19.2.21	19.2.21	ICAR-CMFRI
11	Marine Ornamental Fish Culture	26.2.21	26.2.21	ICAR-CMFRI
12	Marine Finfish Seed Production and Farming	12.3.21	12.3.21	ICAR-CMFRI

Utilization of fund for the current month (cumulative details)

Head	Amount sanctioned	Utilization	Particulars	Balance left
Administrative(Plan)	108.4Lakhs	5036852	-	-
109-AQC-25-1001	29 Lakhs	1472235	-	-
109-AEM-25-1001	22.9 Lakhs	181802	-	-
109-FRM-25-1001	16.90 Lakhs	435557	-	-
109-AAHM-25-1001	27.4 Lakhs	1321052	-	-
109-FPT-25-1001	21.85 Lakhs	2283361	-	-
109-FET-25-1001	17.55 lakhs	86400	-	-
109-FEES-25-1001	5 Lakhs	35400	-	-

കുഫോസിൽ അലങ്കാര മത്സ്യകൃഷിയിൽ പരിശീലനം

പനങ്ങാട് ▶ കേരള ഫിഷറീസ് സമുദ്രപഠന സർവ്വകലാശാലയിൽ (കുഫോസ്) ശാസ്ത്രീയ അലങ്കാര മത്സ്യകൃഷി പരിശീലനം തുടങ്ങി. വൈസ്.ചാൻസലർ ഡോ.കെ.റിജി ജോൺ ഉദ്ഘാടനം ചെയ്തു.

രജിസ്ട്രാർ ഡോ.ബി.മനോജ് കുമാർ, ഗവേഷണ വിഭാഗം മേധാവി ഡോ.ദേവിക പിള്ള, അക്വാക്കൾച്ചർ വിഭാഗം മേധാവി ഡോ.ദിനേഷ് എന്നിവർ പ്രസംഗിച്ചു. കുഫോസിലെ സസ്തൈനണീയ അക്വാക്കൾച്ചറൽ ആൻഡ് അക്വാക്കൾച്ചർ അനിമൽ ഹെൽത്ത് സെൻററിലെ പ്രൊഫസർ ചെയർ ഡോ.ടി.വി.അന്നാമേഴ്സിയുടെ നേതൃത്വത്തിലാണ് പരിശീലനം. 26 പേരാണ് പരിശീലനത്തിൽ പങ്കെടുക്കുന്നത്. വിപണി മൂല്യമുള്ള മത്സ്യങ്ങളുടെ തിരഞ്ഞെടുപ്പ്, പ്രജനനം, പരിപാലനം, വിൽപന, കയറ്റുമതി തുടങ്ങിയവയിലാണ് പരിശീലനം. പരിശീലനം വ്യാഴാഴ്ച സമാപിക്കും.



▶ കുഫോസിൽ മുൻ ദിവസത്തെ അലങ്കാര മത്സ്യകൃഷി പരിശീലന പരിപാടി വൈസ് ചാൻസലർ ഡോ. കെ.റിജി ജോൺ ഉദ്ഘാടനം ചെയ്യുന്നു

School of Ocean Science and Technology

Dr. (Prof.) S. Suresh Kumar	Director
Dr. Maya Raman	Associate Professor & Oi/c
Dr. Girish Gopinath	Associate Professor & Oi/c
Dr. Nevin K. G.	Assistant Professor & Oi/c
Dr. V. P. Limna Mol	Assistant Professor & Oi/c
Dr. K. Manjusha	Assistant Professor & Oi/c
Dr. Phiros Shah	Assistant Professor & Oi/c
Dr. Jenny Ann John	Assistant Professor & Oi/c
Dr. Abish	Assistant Professor & Oi/c
Dr. Shijo	Assistant Professor
Dr. K Gopakumar,	Adjunct Professor
Dr. V K Venkataramani,	Adjunct Professor
Dr. S Rajendran,	Adjunct Professor
Dr. D D Namboodiri,	Adjunct Professor
Dr. P T Mathew,	Adjunct Professor
Dr. M V Joseph,	Adjunct Professor
Dr. T. Pankajakshan,	Adjunct Professor
Dr. Basil Mathew,	Adjunct Professor
Dr. S Sugunan,	Adjunct Faculty
Dr. P V Joseph,	Adjunct Faculty
Dr. Benny N Peter	Adjunct Faculty
Dr. CVK Prasada Rao	Adjunct Faculty
Dr. Justin David,	Assistant Professor on contract
Dr. Sirajudheen T K,	Assistant Professor on contract
Dr. Sruthi Thalayappil RS	Assistant Professor on contract
Ms. Vrindha P K	Guest Lecturer
Ms. Megha Dixon	Guest Lecturer
Ms. Haritha Y S	Guest Lecturer
Dr. Jincy Ann Jomy	Guest Lecturer
Dr. Sreena Raj	Guest Lecturer
Dr. Adithya V. S	Guest Lecturer
Dr. Honey H Das	Guest Lecturer
Ms. Sowbhagya	Guest Lecturer

Staff strength

Professor	: 1
Professor of Eminence	: 0
Associate Professor	: 2
Assistant Professor	: 7
Assistant Professor (c)	: 6
Adjunct Professor/Faculty	: 12

Contract/Guest faculty : 9

Student strength

	Programme	I Year.	II Year	Total
1	Marine Biology	30	32	62
2	Physical Oceanography	10	9	19
3	Food Science and Technology	33	32	65
4	Marine Microbiology	17	24	31
5	Biotechnology	17	17	34
6	Applied Geology	10	10	20
7	Marine Chemistry	18	16	34
8	Remote sensing & GIS	12	14	26
9	Disaster Management	14	10	24
10	Environmental studies	15	9	24
11	Climate Science	8	14	22
12	Ph.D.	26	31	155

Plan for the current academic period

- Procurement of state-of-the-art food processing and analytical equipments to facilitate training for graduate, postgraduate and research students
- Attend online webinars/ conferences/ workshops/ on-line certificate course considering the COVID-19 conditions
- Conduct Industrial Visits/ R & D labs for students to get first-hand knowledge
- Implementation of New syllabus
- Encourage MOOC courses, competitions and webinars

Facilities

Classrooms
 Laboratories
 Computer Lab
 Other facilities

Programmes/ Conference/Seminar/Workshop/Invited lectures organized

- FST-Conducted National webinar on Emerging Technologies and Entrepreneurship in Dairy and Meat Sectors on 5th and 6th November, 2020, organized by SOST and CASRED, KUFOS.

- FST and Marine Chemistry-Conducted webinar Conducted webinar on Practical essentials of ICP and selected chromatography techniques on 12 November, 2020.
- FST-Conducted Inter-University Students' competitions to commemorate World Food Day on Oct 16, 2020.
- FST-Organized webinar on 02 March, 2021 on the topic Bio-aided water filtration: an approach to food processing waste utilization. This topic won 2nd best position under the theme Valorizing Food Biodiversity.
- FST-The Nestle Company conducted an online demo on the use of various maggi products in our daily life, for M.Sc. Food Science and Technology students on March 16, 2021.
- FST-Webinar organized on how to design brochures and how to use autocrat
- Marine Microbiology-Organizing committee member of ONE DAY FACULTY DEVELOPMENT PROGRAMME ON OUTCOME-BASED EDUCATION (OBE). 16th February 2021. KUFOS
- Marine Biology organized the “2020 Trees Challenge” programme in connection with the World Environment Day 2020. About 100 participants from schools, colleges and universities and few green initiative organisations across Kerala registered for the event and a total of 2162 saplings were planted as part of the event. All 32 students of M.Sc. Marine Biology semester II participated in the event.

Academic achievements of Faculty

1. Dr. Maya Raman delivered Expert talk as a resource person in Webinar II on “COVID-19: Food Safety and Nutrition” organized by Department of Biotechnology, Christ College, Rajkot on 30 May, 2020.
2. Dr. Maya Raman handled the session in MANAGE-KUFOS Collaborative Online Training Programme on “Value added Food Products and By-products Development from Freshwater Fishes” during January 18-22, 2021, at KUFOS
3. Dr. Maya Raman was appointed as Member of Board of UG Studies in Marine Sciences and Faculty of Marine Sciences, Cochin University of Science and Technology.

4. Dr. Maya Raman attended 5th Biennial Conference of PAI and International Symposium on Probiotics and Immunity: Way forward to microbial therapy, jointly organized by PAI and ICAR-NDRI on November 19-20, 2020
5. Dr. Maya Raman, Mentor for students who received recognition for the International Student Competition (Foodfactory-4-Us) conducted by European ISEKI Food Association. The final year students of M.Sc. Food Science and Technology, won 2nd position.
6. Dr. Maya Raman-Mentor of YIP project. Students of 4th Semester M.Sc. Food Science and Technology and B. Tech Food Technology, submitted their proposals.
7. Dr. Maya Raman attended webinar in New Product Development in Dairy organized on May 9th, 2020.
8. Dr. Maya Raman was nominated as Executive Member of AFST(I), Cochin Chapter.
9. Dr. D. D. Nambudiri, Dr. P. T. Mathew, and Dr. Maya Raman attended the AFST(I) Cochin Chapter-Online Executive Meeting conducted on May 14th using zoom.
10. Dr. Maya Raman attended webinar on the “Role of dietary spices in human health and wellness”. This was organized as part of AFST(I) webinar series on May 16th, 2020.
11. Dr. Maya Raman attended 2-week Faculty Development Programme on Advanced Concepts for Developing MOOCS from July 02 to July 17, 2020, organized by Teaching Learning Centre, Ramanujan College, University of Delhi sponsored by Ministry of Human Resource Development, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching.
12. Dr. Maya Raman attended 1-week Faculty Development Programme from November 25 to December 01, 2020, on Higher Education: Road ahead developing next generation academic leaders, conducted by Department of Commerce and IQAC, Sri Venkateswara College, University of Delhi in collaboration with Teaching Learning Centre, Ramanujan College and Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching.
13. Dr. Maya Raman attended and was the Organized Committee Member of the 6th International Conference on Sustainable Utilization of Tropical Plant Biomass-Opportunities for innovation and entrepreneurship in Kerala organized by School of Bioscience, IUCOFSA, BIIC, MG University Kottayam.

14. Dr. Jenny Ann John attended the webinar series conducted by Christ College, Saurashtra University on COVID-19: Food safety and Nutrition on 30th May, 2020.
15. Dr Jenny Ann John attended the online e-session on National Innovation conducted by Ministry of Human Resource Development (MHRD), Govt of India from April 28-30, 2020.
16. Attended the 3 weeks UGC sponsored Faculty Orientation Programme conducted by Human Resource Development, Mizoram Central University from 28th July-17th August, 2020.
17. Participated in the International Web Conference on Food and Nutrition Security for Sustainable Public Health, held on 22nd & 23rd October 2020, organized by Nehru Arts and Science College, Coimbatore.
18. Participated in the webinar on COVID-19: Food Safety and Nutrition organized by the Department of Biotechnology, Christ College, Rajkot on 30th May, 2020.
19. Participated in the National Webinar on ‘Pharmacological Potential of A1 and A2 milk: Myths and Facts, by Indian Society of Veterinary Pharmacology and Toxicology on 11th August, 2020.
20. Participated in the webinar, “Digital Classroom – the Agile way”, organized by ICT Academy of Kerala on 24th June, 2020.
21. Completed 8 weeks NPTEL Online Certification Course (Funded by the Ministry of HRD, Govt of India) “Nanotechnology in Agriculture” offered by IIT Kharagpur, with 90% marks (Elite +Gold certificate). Sep- Nov. 2020. Equivalent to full FDP of 1 week.
22. Participated in 2-day Training Program on “Transforming Agri-business with Artificial Intelligence, Machine Learning and Block Chain Technologies”, organized by National Institute of Agricultural Extension Management (MANAGE), Hyderabad from 15-16 Feb, 2021.
23. University level Facilitator, K-Disc Young Innovator Programme (YIP) since 2019 (KUFOS)
24. Dr Jenny Ann John was appointed as Member of Board of Studies in Food Technology under the Faculty of Science, University of Calicut for a period of three years from 11th February, 2020.

25. Prof (Dr.) D.D. Nambudiri, Adjunct Faculty delivered a talk on 'Food Flavours and colours' in the online Faculty Development Programme on "Recent trends and developments in food technology" held on 10th August 2020 at Saintgits College of Engineering
26. Prof (Dr.) D.D Nambudiri, Adjunct Faculty chaired the technical session of the webinar on the topic "Grow, nourish, sustain together, our actions are our future" organized as part of the WORLD FOOD DAY celebration on October 16, 2020, by the Department of Environmental Studies, Sacred Heart College, Thevara in collaboration with the Association of Food Scientists and Technologists, India, Cochin Chapter. The webinar was attended by 160 registered participants.
27. Prof (Dr.) D.D Nambudiri, Adjunct Faculty delivered a talk on 'Food Technology in Research Organizations' in a webinar on 'What after B Tech Food Technology' organized by the School of Ocean Engineering and underwater Technology, KUFOS on 20th October on the occasion of World Food Day 2020.
28. Dr Sruthi Thalayappil R S, Assistant Professor (on contract) participated in an online one day National Faculty Development Program on "Web-skills for online Classes" organised by Bishop Moore College, Mavelikkara on 30th May 2020.
29. Dr Sruthi Thalayappil R S, Assistant Professor (on contract) participated in a Webinar by CWRDM on "Biodiversity: Time for Nature" on 5th June 2020
30. Dr P T Mathew attended FSSAI scientific panel meeting on 22-01-2020 at CIFT Cochin
31. Dr P T Mathew attended a webinar on "Trends and Developments of Food Technology organized by AFSTI at SAINTGITS college on 14-08-20
32. Dr. PT Mathew presented a paper on World Food Day Webinar organized by School of Ocean Engineering and Underwater Technology, KUFOS on 20-10-20
33. Dr PT Mathew attended World Wood Day program organized by AFSTI Cochin chapter at SH college Thevara on 16-10-20

34. Dr P T Mathew Attended a Webinar on Protecting the planet with standards” organized by FSSAI New Delhi on 16-10-20
35. Dr P T Mathew attended FSAAI panel meeting on 22-09-2020
36. Dr P T Mathew presented a paper on “Food facts safety and quality aspects of food” organized by Pazhassi college ,Pulpally on 15-12-20
37. Team comprising of Radhika G and Gopika G with Dr.K.Manjusha as mentor entered Second level evaluation of Young Innovator Programme (YIP) conducted by Kerala Development and Innovation Strategic Council (KDISC) May 2021
38. Jiji K of 2016-18 batch has obtained admission in National Taiwan Ocean University to pursue higher studies
39. Ms. Nimsi K A research scholar of the department of Marine Microbiology, Faculty of Ocean Science and Technology working under the guidance of Dr.K.Manjusha won the Best Oral Presentation award under Environmental Sciences, Forestry and Wildlife session of the 33rd Kerala Science Congress held during 25-30 January 2021 for the paper entitled ‘Carotenoid pigments from Marine Yeasts and their Varied Applications”
40. Mr Nizam Ashraf of MSc Marine Microbiology (Batch 2018-20) has bagged the Best PG Dissertation Award 2019-2020 constituted by Ocean Society of India (OSI) under the stream Marine Microbiology & Biotechnology for the dissertation entitled "Studies on diversity of bacteria associated with selected corals of Lakshadweep and their bioactive potentials". The work was carried out the under the guidance of Dr.Anas Abulaziz, Principal Scientist, CSIR-NIO, Kochi, RC. The award includes a cash prize and a Citation. The award will be presented to the student during the OSICON-21 conference scheduled to be held at NCPOR, Goa during August 12-14, 2021.
41. Dr. Manjusha K. participated in following:

<i>Title of the course/programme</i>	<i>Period</i>		<i>Name of the Institute/ Organization offered</i>
	From	To	

FDP-MOOC course on Online learning and Content development	18 April	2nd May 2020	Directorate of Collegiate education and FLAIR Govt of Kerala
Webinar on Fair use of copy rights in class rooms	May 14th 2020		St.Xavier'sCollege for Women, Aluva
Webinar on Molecular docking studies; A paradigm shift in anticancer research	May 16th2020		Morning Star Home Science CollegeAngamaly
5 days online FDP on How Can Teachers Make a Difference?	26th .	30th May 2020	TLC, IIT Madras, Organized by Sree Snakara College Kalady
2-Week Faculty Development Programme on "MANAGING ONLINE CLASSES AND CO-CREATING MOOCS 3.0"	July 25	August 10, 2020	TLC, Ramanujan College, University of Delhi
Webinar on Zebrafish Disease Models for Phenotypic Drug Screens and Personalized Medicine	October 24 th 2020	October 24th 2020	Union Christian College Aluva

42. Dr. V.P. Limna Mol attended a 5 - day online Faculty Development Programme on “Methodology & Data Interpretation of Analytical Instrumentation Techniques” from 15-19 June 2020 organised by Sathyabama Institute of Science and Technology, Chennai, in association with Ministry of Earth Sciences – Earth Science Technology Cell.
43. Dr. V.P. Limna Mol attended the 3 weeks UGC sponsored Faculty Orientation Programme organized by Human Resource Development, Mizoram Central University from July 28, 2020 to August 17, 2020.
44. Dr. V. K. Venkataremani gave a lecture on Endangered Aquatic Vertebrates in January 2021 at TNJFU.
45. Dr. V. K. Venkataremani gave a lecture on Integrated Taxonomy in March 2021 at TNJFU.
46. Four teams comprising of M.Sc. Marine Biology students with Dr. V. P. Limna Mol as mentor entered Second level evaluation of Young Innovator Programme (YIP) conducted by Kerala Development and Innovation Strategic Council (KDISC).

47. Dr. V. P. Limna Mol participated in the field survey in the Lakshadweep islands from March 25 to 31, 2021, in connection with the DST project on molecular characterization of coral-associated invertebrates.

Publications

1. Minnu Rose Joy and Jenny Ann John (2020). Development of herbal infusion in fruit juice using guava leaves: Nutritional and antioxidant properties. Conference Proceedings in the International Web Conference on Food and Nutrition Security for Sustainable Public Health, Dept. of Food Science and Nutrition, Nehru Arts and Science College, Coimbatore. 22nd-23rd Oct, 2020, pp. 136-141. ISBN No. 978-93-80769-99-88.
2. Archana Ravindran and Jenny Ann John (2020). Processed banana inflorescence (*Musa paradisiaca*): Prospects as an ingredient if functional foods. Conference *Proceedings in the International Web Conference on Food and Nutrition Security for Sustainable Public Health*, Dept. of Food Science and Nutrition, Nehru Arts and Science College, Coimbatore. 22nd-23rd Oct, 2020, pp. 88-93. ISBN No. 978-93-80769-99-88.
3. Jenny Ann John (2020). Processed Foods: What is the purpose of food processing? (In Malayalam). Shasthragathy. January, 2020: 6-12.
4. Archana Ravindran, Jenny Ann John, Sanu Jacob (2021). Nutritional, functional and shelf-life assessment of processed banana inflorescence (*Musa paradisiaca*). *Journal of Postharvest Technology*, 9 (2), 58-70.
5. Jenny Ann John and Bikash C. Ghosh (2021). Production of whey protein hydrolyzates and its incorporation into milk. *Food Production, Processing and Nutrition*, 3: 9. DOI: <https://doi.org/10.1186/s43014-021-00055-z>
6. Gayathry K.S. and Jenny Ann John (2021). Banana Pseudostem: Prospects of Value Addition. *Kerala Karshakan*, 8 (10): 42-47.

7. Babu, N., Gopika, P. J., Dinakaran A., Raman, M., Sankar, T.V. & Gopal, T.K.S. (2020). Development and characterization of marine fiber enriched biscuits. Food Science Research Journal, 11(3), 140-150.
8. Babu, N., Dinakaran A., Raman, M., Ravindran, A., Sankar, T.V. & Gopal, T.K.S. (2020). Development of jackfruit leather and its shelf-life analysis in different packaging materials. Food Science Research Journal, 11(2), 158-168.
9. Ravindran, A., Raman, M., Babu, N., Dinakaran, A., Sankar, T. V., & Gopal, T. S. (2020). Diet Chocolates and Replacement of Cocoa Powder with Jackfruit Seed Powder. Food and Nutrition Sciences, 11(03), 220.
10. Maya Raman (2020). Fish processing and preservation (In Malayalam). Shasthragathy. January, 2020
11. Vinu V. Dev, Basil Wilson, Kripa K. Nair, Sibin Antony, K. Anoop Krishnan, Response surface modeling of Orange-G adsorption onto surface tuned ragi husk, Colloid and Interface Science Communications, Volume 41, 2021.
12. Rao, D.N. & Ghosh, V & Sam, P & Yadav, Kamana & Vvss, Sarma. (2021). Phosphate removal through adsorption on suspended matter in the Bay of Bengal: Possible implications to primary production. Journal of Earth System Science. 130. 10.1007/s12040-020-01524-8.
13. Meera Pradeep, Dona Sibi, Leeann Roy, Nefla N, **K.Manjusha** (2020) A study on the hydrocarbon degrading potential of marine yeasts isolated from the mangroves of Puthuvype Insight into the Advances in Life Sciences SKJ Publishers Pg148-157 ISBN 978-93-82845-41-6
14. Kottayath G Nevin, Gopalakrishnan c Akhil, Merina Benny 2021. Purified extract of costus pictus d. don containing 25 kda protein induces antidiabetic activity by down-regulating gsk3 β gene expression in pancreatic cell lines in vitro. indian journal of biochemistry & biophysics 58 (4), 434-443
15. SM Chacko, R Dhanyakrishnan, KG Nevin. Differential effects of *p*-coumaric acid in relieving doxorubicin induced cardiotoxicity in solid tumour bearing and non-tumor bearing mice. 2021. Journal of biologically active products from nature 11 (2), 138-161

16. Nevin KG, Renjith M.2020. cytotoxic profile of different extracts of m. calabura fruits and antiadipogenic activity of ethanol extract in 3t3-l1 cells. *Interdisciplinary toxicology* 13 (3), 101
17. Nevin KG Dhanyakrishnan R, Sunitha Mary Chacko. 2020. HR-LCMS analysis of methanolic extract of coconut kernel and its in vitro cytotoxic effect against human oral cancer cell line. *Journal of advanced scientific research* 11 (3), 213-219
18. Simon E K, R Sajeev and Basil Mathew. (2020). Temporal behavior of Northeast Monsoon Rainfall during NEMR years over Indian Peninsula. *Indian Journal of Geo-Marine Sciences*, 49(06), 940-946.
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Achievement of students

1. Three students of M.Sc. Food Science and Technology won International recognition for their Research Concept Presentation in “FoodFactory4Us International Student Competition on Valorizing Food Biodiversity in your Country”. They are the sole team from India and one among the selected 10 International teams. The student members are Amala, Chitra and Ashwathy. Dr. Maya Raman, Associate Professor, SOST is mentoring the team. The team will be given training in sessions till February 2021. The students won 2nd position this International contest.

കുഫോസ് പ്രബന്ധത്തിന് യൂറോപ്യൻ യൂണിയൻ പുരസ്കാരം

നാരങ്ങാത്തൊലി, വാഴനാര്, മുരിങ്ങ, പപ്പായ, കൊന്ന തുടങ്ങിയവ ഉപയോഗിച്ച് ജലം ശുദ്ധീകരിക്കുന്നതു സംബന്ധിച്ച ഗവേഷണം



പന്ത്രണ്ട് • സന്തം രാജ്യത്തെ ക്ഷേത്രവൈവിധ്യം, സംസ്കാരം എന്നിവ ലോകത്തിനു മുന്നിൽ അവതരിപ്പിക്കുന്ന രാജ്യാന്തര ഗവേഷണ പ്രബന്ധ മത്സരത്തിൽ കേരള ഫിഷറീസ് സമുദ്രപഠന സർവകലാശാലയിലെ (കുഫോസ്) വിദ്യാർത്ഥികൾക്കു നേട്ടം.

25 രാജ്യങ്ങളിലെ ഫുഡ് സയൻസ് വിദ്യാർത്ഥികൾ പങ്കെടുത്ത മത്സരത്തിൽ കുഫോസ് എഐസ്എസി ഫുഡ് സയൻസ് നാലാം സെമസ്റ്റർ വിദ്യാർത്ഥികളായ അമല ടോണി, എ. അശ്വതി, ചിത്ര ഹരിനാരായണൻ എന്നിവർ ചേർന്ന് അവതരിപ്പിച്ച പ്രബന്ധം ലോകത്തെ മികച്ച രണ്ടാമത്തെ പ്രബന്ധത്തിനുള്ള പുരസ്കാരം നേടി.

നാരങ്ങാത്തൊലി, വാഴനാര് എന്നിവയും മുരിങ്ങ, പപ്പായ, കൊന്ന തുടങ്ങിയവയുടെ വിത്തുകളും ഉപയോഗിച്ച് 100% ശതമാനം സുരക്ഷിതമായി ജലം ശുദ്ധീകരിക്കുന്നതു സംബന്ധിച്ച ഗവേഷണ പ്രബന്ധമാണ് അവതരിപ്പിച്ചത്.

പാരിസ് യൂണിവേഴ്സിറ്റി വിദ്യാർത്ഥികൾക്കാണ് ഒന്നാം സ്ഥാനം. യൂറോപ്യൻ യൂണിയന്റെ കീഴിലുള്ള യൂറോപ്യൻ ഫുഡ് സ്റ്റഡീസ് ആൻഡ് ട്രെയിനിങ് അലൈൻസാണ് മത്സരത്തിന്റെ സംഘാടകർ.

കുഫോസിലെ ഫുഡ് സയൻസ് എമിറ്റസ് പ്രഫ. ഡോ. കെ. ഗോപകുമാറിന്റെയും അധ്യാപകരായ ഡോ. മാധവൻ, ഡോ. ജെനി ജോൺ എന്നിവരുടെയും നേതൃത്വത്തിൽ 2 വർഷമായി നടത്തിയ ഗവേഷണ നിരീക്ഷണങ്ങളാണ് മത്സര പ്രബന്ധമായി അവതരിപ്പിച്ചത്.

യൂറോപ്യൻ ഫുഡ് സ്റ്റഡീസ് ആൻഡ് ട്രെയിനിങ് അലൈൻസിന്റെ ഉന്നത പരിശീലന പരിപാടികളിൽ പങ്കെടുക്കാനുള്ള അവസരമാണ് സമ്മാനം.

2. Ms. Anju and team prepared a video presentation on simple and effective techniques to understand food adulteration. The video was released by Honorable Vice Chancellor (i/c) and Government Principal Secretary-Fisheries Ms. Tinku Biswal. The video was released on the occasion of World Food Day Celebrations on October 16, 2020.



LINK: <https://youtu.be/d6gAaq4Ro1w>

3. Ms. Minnu Rose Joy, Ph.D. Scholar won best poster award for her poster entitled “Development of herbal infusion in fruit juice using guava leaves: nutritional and antioxidant properties” at International Web Conference on Food and Nutrition Security for Sustainable Public Health, organized by Nehru Arts and Science College, Coimbatore, Tamil Nadu, India on 22-23 October, 2020.
4. Mr. Jamshad, Mr. Rahul and Ms. Aswathy Ashokan, 3rd Semester clear UGC NET and Lectureship in December 2020.
5. Ms. Chitra Harinarayanan participated the Navakeralam-Yuvakeralam CM Meet on 01 February, 2021, organized by Cochin University of Science and Technology.

6. Ms. Febina (PhD scholar) and Ms Archana (MSc FST 2018) participated and presented the poster at International Web Conference on Food and Nutrition Security for Sustainable Public Health, organized by Nehru Arts and Science College, Coimbatore, Tamil Nadu, India on 22-23 October, 2020.
7. Ms Gayathry K.S. (PhD scholar) was selected as one of six recipients globally from among ASTA group members to receive the Susan L. Abbott Memorial Award from the American Spice Trade Association (ASTA), 2021.
8. Ms. Sara Baker Fenn and Er. Bhavya E. P. joined for their Ph.D programme.
9. Ms Gayathry K.S. was selected as one of six recipients globally from among ASTA group members to receive the Susan L. Abbott Memorial Award from the American Spice Trade Association (ASTA), 2021.
10. Ms. Febina M. and Ms. Radhalakshmy V. participated in the International Web Conference on Food and Nutrition Security for Sustainable Public Health on 22nd and 23rd October, 2020, organized by Nehru Arts and Science College, Coimbatore, TN.
11. Ms. Minnu Rose Joy and Ms. Radhalakshmy V. participated in webtalk Learning essentials of research planning using Elsevier tools, Scopus, ScienceDirect and Mendeley by NIFTEM on 24 June 2020.
12. Ms. Minnu Rose Joy presented a paper at the 6th International conference on sustainable utilization of tropical plant biomass: opportunities for innovation and entrepreneurship in Kerala held on December 14-15, 2020, organized by MG University.
13. M. Sc. 2nd Semester students attended Skill Development and Career Orientation Programme on 16th January 2020. Mr. Saurab K Pandey ISAB New Delhi presented the talk. Dr. K. Gopakumar inaugurated programme and Mathew sir delivered vote of thanks.
14. As part of Industrial Visit, M. Sc. 2nd Semester students visited Nirapra Rice Processing Company at Kalady, Ernakulam. The students were accompanied by Dr. D. D. Nambudiri, Dr. Maya Raman and Ms. Febina M.
15. M.Sc. 2nd Semester students also visited the 22nd edition of India International Seafood Show (IISS), 2020 organized jointly by the Marine Products Export Development Authority (MPEDA) and the Seafood Exporters Association of India (SEAI) in Kochi, Kerala from 7th-9th February 2020. They were accompanied by Dr. Jenny Ann John.

16. Ms. Meenu and Ms. Sreelekshmy with mentor Dr. Maya Raman participated in State level evaluation of Young Innovation Programme.
17. Ms. Amala and Ms. Chitra completed certificate courses on consumer neuroscience and marketing, career edge conducted by TCS, and qualified the quiz on COVID-19 conducted by Ferook College.
18. Ms. Chitra, Ms. Tintu Simnon and Ms. Ashwathy Asokan qualified the quiz conducted on the occasion of World Milk Day.
19. Ms. Chitra also won 2nd Prize for Intercollegiate photography competition conducted on the occasion of World Biodiversity Day.
20. Marine microbiology students attended: Molecular docking studies; A paradigm shift in anticancer research organized by Dept of Zoology, Morning Star College Angamaly on May 16th 2020- 6 numbers
21. Marine microbiology students attended: MBRU community immunity Ambassador Program-‘Lets break the chain of Covid-19 infection’ March 29th – 1 number
22. Marine microbiology students attended: Respiratory virus, virus receptors, virus infections augmented bacterial receptors and secondary infection, Department of Zoology, Fathima Matha National College, Kollam , 27th May 2020- 1 number
23. Marine microbiology students attended: Emerging Epidemic Diseases and Drug Reposition, FMNC College- 25th may- 1 number
24. Marine microbiology students attended: Biodiversity informatics & documentation through citizen science on the Indian Biodiversity Portal, St.Xavier’s College for Women, Aluva- 25 th May – 1number
25. E quiz: Viral Diseases , Organized by Dept of Zoology & Botany, Sri Paramakalyani College, Alwarkurchi-30th May 2020-1 number; Covid 19 awareness quiz, 24th April 2020, 2 numbers; All Kerala Enviromental Literarcy quiz, Bhoomithra Sena Club, Sree Sankara College, Kalady, 28th April- 4 number
 - E quiz: Ms Abhaya Robinson of the second year attended a workshop on Molecular Biology Techniques, Avanz Bio Pvt LTD, Chennai from 20-21 September 2020
26. YIP contest 2020-Two teams from MSc Marine Microbiology

Team 1: Anitta Abraham, Ciciliya Cyril, Ashika George, Rosemary with Dr.K.Manjusha as mentor

Team2 Radhika G and Gopika G with Dr.K.Manjusha as mentor

Participated in the Young Innovator Programme (YIP) conducted by Kerala Development and Innovation Strategic Council (KDISC)

International Day for Women and Girls in Science-Webinar PDEA's Annasaheb Magar Mahavidhyala Pune 11/2/2021	HANNA LAWRENCE PERIERA	2020-22
Webinar on Enzyme Purification Organized by St.Xavier's College for Women Aluva 2/7/2020	Honymol Ashika Ciciliya Rosemary Akhila Amala Gopika Radhika Anitta Aiswarya Gayathri Rejna Krishnendu Anusree Kristin Hadiya	2019-21
Webinar on Behavior and Relationship Intelligence, Master my life education Pvt Lt 12/08/2020	Honymol	2019-21

27. Ms. Sherin Raju Has done her M.Sc Dissertation on Cardioprotective effect of sour mangosteen (*G. xanthochymous*) fruit extract in diabetic condition under the supervision of Dr. S. P. Muthukumar, principal scientists, Department of Biochemistry, CSIR-CFTRI, Mysore
28. Ananthu Chandran J M Has done his M.Sc Dissertation on Chlorambucil loaded PLGA nanoparticles surface modified with GE11 peptide for Triple Negative Breast Cancer treatment under the supervision of Dr. G. S. Vinod Kumar Institute :Chemical biology laboratory of RGCB, Thiruvananthapuram.
29. Anusha P V Has done her M.Sc Dissertation on Differential Gene Expression Analysis of SOX Genes in Regenerating Caudal fin tissue. under the supervision of Dr. M Mohammed Idris, Sr. Principal Scientist, CCMB,Hyderabad.
30. Arnold Moses Has done his M.Sc Dissertation on Comparative Analysis of Three Universal Mitochondrial DNA Markers For Species Identification in Wildlife Crimes under the supervision of Dr. Ajay Gaur, Senior Principal Scientist, CSIR-CCMB LaCONES.
31. Venimohan J. Has done her M.Sc Dissertation on Recovery of bioactive molecules from fermented cowpea byproduct under the supervision of Dr. Mohan A Dhale, CSIR-CFTRI Mysore.
32. Anna Christy, MSc. Biotechnology (2019 - 2021), Has done his M.Sc Dissertation on Storage stability of shelf-stable curd preparation under different conditions under the supervision of Dr. Dasari Swaroopa Rani, Senior Scientist, Department of Microbiology and Fermentation Technology, CSIR-CFTRI, January 2021 - April 2021.
33. Bhuvana Manoj Has done her M.Sc Dissertation on Construction and purification of headless MsMksB point mutants under the supervision of Dr. Ravi Kumar, Senior Scientist, Department of Molecular Nutrition, CSIR-CFTRI. January 2021- August 2021
34. Gopika Joshi Has done her M.Sc Dissertation on Establishment of in vitro cultures of Fenugreek for the production of metabolites under the guidance of Dr. Nandini P Shetty, Principal scientist, department of plant cell biotechnology (PCBT) from CSIR- Central food technological research institute (CFTRI), Mysuru.

35. Shany Antony Has done her M.Sc Dissertation on Molecular identification and characterization of LW and SW opsin genes from the Tiger Shrimp, *Penaeus monodon* under the supervision of Dr.M.P.Paulton, Assistant chief technical officer, Marine Biotechnology Division, ICAR-CMFRI, Kochi.
36. Sherin Mumthas S Has done her M.Sc Dissertation on Solid-State Fermentation Production and Characterization of Antibacterial Peptides from Marine Bacillus species under the supervision of Dr. Suresh P V , principal scientist , Meat and marine science department at CSIR- CFTRI.
37. Mr. Gopikrishnan G S of M. Sc. Physical Oceanography (Batch 2018-20) was awarded the Best PG Dissertation Award 2019-2020 constituted by Ocean Society of India (OSI) under the stream “Ocean and Atmospheric Sciences” for the dissertation entitled “Assessment of Formaldehyde over the Indian Ocean and its impact on Marine Environment”.
38. Ms. Raheema Rehman of M. Sc. Physical Oceanography (Batch 2019-21) has bagged the CSIR-Junior Research Fellowship for June 2020 (During the CSIR examination conducted on November 2020).
39. Ten student teams from M.Sc. Marine Biology participated in the YIP contest 2020.
40. Three M.Sc. Marine Biology students undertook field survey in Lakshadweep islands in March 2021 in connection with the study on coral-associated invertebrates.

Placement of students

As a partial fulfillment of M.Sc. Food Science and Technology course, it is mandatory to undergo internship/ project work in reputed National Institute/ Organization to carry out the project work. The 4th batch had 32 students. Following are the establishments where students went for internship.

- | | |
|--|--------------|
| 1. Defence Food Research Laboratory | - 2 Students |
| 2. ICAR- Indian Institute of Spices Research | - 3 Students |
| 3. KUFOS, Lab | - 5 Students |
| 4. Pavizham Rice Exports | - 4 Students |

5. Spices Board India, Indian Cardamom Research Institute	- 4 Students
6. Central Plantation Crops Research Institute	- 3 Students
7. CEPCI-Laboratory and Research Institution	- 3 Students
8. Coconut Development Board	- 5 Students
9. CSIR-Central Food Technology Research Institute	- 3 Students

Marine Chemistry

- Ms. Haritha Y s got posted as project fellow at CWRDM Kozhikode
- Ms. Megha Dixon was posted as Technical assistant and soil and water lab, KUFOS

23 of 24 students of MSc Marine Microbiology were able to get an opportunity to pursue their dissertation projects in premium research institutions like CMFRI, Species Board, Calicut, KFRI etc. One student carried out her project in KUFOS itself

Marine Biology-Anusha PV was placed as Pharmacopia Associate, at CCMB Hyderabad

Mr. Gopikrishnan G S, Physical Oceanography Student (2018-2020 batch) registered for Ph.D. at IIT Kharagpur.

Ms. Arya Santhosh V, Physical Oceanography Student (2018 -2020 batch) registered for Ph.D. at School of Ocean Science and Technology, KUFOS.

Mr. Sivakrishnan K K, Physical Oceanography Student (2018 -2020 batch) joined for M.Tech in Atmospheric Science at Cochin University of Science and Technology (CUSAT).

Ms. Karthika P S, Physical Oceanography Student (2018 -2020 batch) joined for M.Tech in Atmospheric Science at Cochin University of Science and Technology (CUSAT).

Mr. Aadarsh Jayasankar, Physical Oceanography Student (2018 -2020 batch) appointed as Junior Oceanographer at Shankar Surveys, Mumbai.

Ms. Shireen Mohammed, Marine Biology Student (2018 -2020 batch) joined as Junior Research Fellow in the CARMC project at KUFOS, Panangad, Kochi.

Ms. Angel Gomez, Marine Biology Student (2018 -2020 batch) joined as Young Professional at CMFRI, Vizhinjam.

Ms. Sreelakshmi S, Marine Biology Student (2018 -2020 batch) joined as intern with the National Biodiversity Authority.

Mr. Sudhin S., Marine Biology Student (2018 -2020 batch) joined as Young Professional at CIBA, Chennai.

Mr. Adithya V Kamat., Marine Biology Student (2018 -2020 batch) joined as Young Professional at CMFRI, Goa.

Mr. Praveen Raj, Marine Biology Student (2018 -2020 batch) joined as Junior Research Fellow at ZSI, Kolkata.

Ms. Aryamol and Ms. Aswani joined as Aquaculture Promoter.

Mr. Yedhu Krishna, Ms. Shabna and Ms. Ayana P.P. joined as Sagar Mithra.

Ms. Ashitha Priya Shajan, Marine Biology Student (2018 -2020 batch) joined as Data Enumerator in the Fisheries Department of Kerala.

Ms. Harsha Krishna, Marine Biology Student (2018 -2020 batch) joined as Project Officer in Matsyafed, Government of Kerala.

Ms. Nyji Josephine, Marine Biology Student (2018 -2020 batch) registered for Ph.D. at CSIR-National Institute of Oceanography, Goa.

As part of the M.Sc. marine biology programme, the fourth semester, comprising 32 students, undertook project work in reputed National Institute/ Organizations.

1. National Institute of Oceanography	- 4 Students
2. Zoological Survey of India	- 4 Students
3. KUFOS, Lab	- 7 Students
4. National Centre for Sustainable Coastal Management	- 2 Students
5. Kerala Forest Research Institute	- 1 Student
6. Chennai Snake Park Trust	- 1 Student
7. ICAR-Central Marine Fisheries Research Institute	- 11 Students

Academic/Research/Extension activities of Faculty outside the University

1. Dr. Manjusha K-Acted as Judge for ALL INDIA PAPER PRESENTATION COMPETITION FOR COLLEGE STUDENTS QUAESITIO 2020 organized by St.Stephen's College Uzhavoor-05/11/2020
2. Dr. Manjusha K.-Served as Combined UG and PG Microbiology Board Member of Board of Studies of Microbiology, Mahatma Gandhi University, Kottayam rom 2017-2020
3. Dr. Nevin KG attended as the chairman for Question paper scrutiny of M.Sc and B.Sc Biochemistry examinations of University of Kerala, Thiruvananthapuram

School of Ocean Engineering and Under Water Technology

- Under Graduate Prog.
 - B.Tech Food Technology
- Post Graduate Prog.
 - M.Tech. Coastal and Harbour Engineering
 - M.Tech. Integrated Coastal Zone Management
 - M.Tech. Ocean and Coastal Safety Management

Staff strength

Professor	: 1 (Director)	Dr.Suriyakala C D
Associate Professor	: -	
Assistant professor	: -	
Adjunct faculty	: 1 for M Tech	Dr.Sivadas
		Dr.Prasad Rao(Guest Service from SOST)
		Dr.Pankajaction(Guest Service from SOST)
B Tech Food Tech		Dr.D D Nambuthiri(" "Service from SOST)
		Dr.P T Mathews(" " Service from SOST)
		Dr.Jenny John (Service from SOST)
		Dr.Maya Raman (Service from SOST)
Contract/Guest faculty	: 6(o/c) /	7(G)
	1.Er.RashidaRejuwa	1. Ms.Sowbhagya
	2.Er.Bhavya Francis	2.Dr.Aishwarya Rao
	3.Er.Mridhula Murali	3.Dr.Subin
	4.Er.Solomon Francis	4.Ms.Soumya
	5.Dr.LinuSalim	5.Dr.Deepak
		6.Mr.Ananthanarayanan
		7.Er.Linda
Trade Instructors	: 2(o/c)	
	1.Er.K S Sijith	
	2.Er.AbhishKalathil	

Student strength	B.F.Sc / B.Tech – year wise	2017-21	38
		2018-22	44

	2019-23	45
	2020-24	45
M Tech (I year)	2019-21	05
(II year)	2020-22	04
PhD	2017	02
	2018	01
	2019	
	2020	02

Plan for the current academic period

- The AICTE approval has been given for the four-year B Tech (Food Technology) conducted by the School of Engineering and Underwater Technology of KUFOS. The AICTE has given permission to admit 60 students to the course, that was introduced in the academic year 2020-21.
- Setting up Engineering Laboratories
- Conducting ELP, Guest lecture required and internships
- Placement for B Tech 2017 batch
- HACCP certificate course

Details of Departmental meeting conducted with agenda:

1. 2020 March 5th : Semester end Evaluation reg syllabus coverage , next sem workload distribution, B Tech 2017 Batch ELP to spices research organization
2. 2020 May 3rd Reg International Conf paper presentation, poster preparation discussion
3. 2020 July 9th Regarding B Tech 17, 18 batch workload, TT discussion, Guest lectures, online classes, 2019 batch Syllabus completion and their semester examinations, school Organised FDP
4. Nov 12th 2020 Univ exam sem4 and S6 evaluation , Internal exam dates, Guest lecture need etc
5. Dec 7th 2020 Reopening of B Tech 20 TT, ORIENTATION, Final s4 & S6 marks submission, Annual report submission, students achievements and projects
6. 19th Nov 21 Guest staff allotment, next sem plan ,invited talk NPTEL courses ELP2 Auditing, lab schedules

Conference/Seminar/Workshop/Invited lectures organized by the School

Capacity building of Staff and Students

- **Training on Oceanographic instrumentation at SNOM of Navy, Willingdon Island visited Coastal Engg. Lab of KUFOS**
India Navy staff who were undergoing training on Oceanographic instrumentation at SNOM of Navy, Kochi, Willingdon island visited Coastal Engg. Lab of KUFOS to undergo training in indigenously developed ocean technological instruments, as part of

their visits to other important oceanographic institutes. They operated different oceanographic instruments kept in live and operational conditions in the lab., and particularly “Portable MEDAS” (Marine Environmental Data Acquisition System) which is capable of acquiring 15 nos. different and important oceanographic parameters simultaneously during one single operation, making the coastal and harbor engg. survey much easier. They operated the instrument around the Panangad area under the guidance of Dr. T. K. Sivadas Visiting Faculty of both KUFOS and SNOM and acquired plenty data directly from the coastal waters.

- **One week training at Indian Institute of Spices Research (IISR), Kozhikode (Calicut)** a constituent body of Indian Council of Agricultural Research (ICAR). Training started with an introduction about IISR, including their activities and vision, about spice production and trade, the various composition and quality parameters of different spices. Students were also fortunate to visit Krishi vigyan Kendra situated at peruvannamuzhi. This visit gave them hands on training in three processing unit such as black pepper cleaning unit, white pepper cleaning unit, curry powder unit.

Innovative Initiatives

- B Tech Food Tech students along with their class room studies, they do internships, Experiential Learning Prog in Research organization related to the Food Technology

Students have undergone intern Training in CIFT-ICAR, Kochi and IISR Calicut with the financial assistance of University. Not only is that Technology based students projects financially assisted by University carried out (Annexure 1).

- PG Students also carried out their final semester projects in research organization related to Ocean engineering field
- Academic achievements of Faculty, Students

Specific achievements

- B Tech Food Tech course got approval from AICTE within 2 years of the course start shows the dedication of university/Faculty towards the student community
- All Engineering laboratories related to the course is set ready
- Faculty started the campus placement even in this pandemic period. 3 students got placed through campus, 4 students could get off campus and 3 students for higher studies.
- University is having a Center of excellence in the Food Technology field through which the students will get more exposure in the research field.

- Faculty is installing a wave flume lab to study the characteristics of waves

Achievements

- Extension of AICTE approval for the course B Tech Food Technology for another one year
- Our first Batch of B Tech Food Technology 2017-2021 could complete the course on time
- Our 3 students could get campus placement, 3 off campus placements at the time of passing out.
- Pending Mechanical Engineering workshop and Electrical Engineering lab started functioning from 2020 year onwards which completes the basic Setting up Engineering Laboratories
- Conducted an AICTE -ATAL sponsored FDP “Sensor Technology” from Nov 23-27th 2020
- Conducted an online Experiential training on "post-harvest fisheries engineering" in association with CIFT from Oct 13-16th October 2020
- Organised a session for B Tech 2017 batch students to enhance the employability skills within ‘Ultra performers way of life’ by Eldho George Varghese.
- Organised a webinar on World Food Day Oct 16th 2020 highlighting the “career prospects of Food Technology “
- Our First batch B Tech students Chrissy Elizabeth Samuel, Anjalikrishna, Ahalya Chandran and Kavya V received Best paper award for presenting the paper in International Conference ICEEMST21 Aug 24-25th 2021 entitled “AI-Powered Hand-held Citrus Disease & Fruit Spoilage Detection System” and also got published in journal International Advanced Research Journal in Science, Engineering and Technology Volume 8, Issue 8, August 2021 DOI 10.17148/IARJSET.2021.8815 Indexed in Microsoft Academic, Google Scholar, Indexcopernicus, NAAS Accredited Science Journal Thomson Reuters ID I-8645-2017
- Ms.Amrutha Ajith secured second position in Food Safety Quiz conducted in NIFTEM association with world Food Safety Day and proud to share this position from IIT graduates.

Academic achievement of Students

- Fidha Siddique, Gopika S, Farhan H, Sneha G, JiyannaTomy won FSSAI, Eat right India & mygov quiz competition, December 2020
- Fidha Siddique attended webinar on importance of millets in human nutrition and value addition through processing conducted by DadasahebMokashi College Of Food Technology

- Fidha Siddique, won second prize National Level E-Quiz Competition conducted by HINDUSTAN INSTITUTE OF TECHNOLOGY & SCIENCE
- Fidha Siddique, Athulya Babu, Pavithra K P Participation in webinar conducted by Lady Irwin College University Of Delhi on Novel Technologies for Sustainable Food Systems
- Fidha Siddique, Athulya Babu Participation in webinar conducted by Lady Irwin College University Of Delhi on Green Perspectives in Food Processing.
- Fidha Siddique Successfully completed National level e-Quiz competition in connection with WORLD FOOD DAY 2020, organized by College of Food Technology, Kerala Veterinary and Animal Sciences University in association with Indian Dairy Association (Kerala chapter)
- Fidha Siddique Participation in the International e-Conference on "Novel Nutrition Approach and Emerging Opportunities to Sustain in Pandemic Scenario" organised by the Department of Nutrition and Dietetics, Mount Carmel College Autonomous, Bengaluru in association with IITB Remote Centre, Women's Polytechnic College, Puducherry
- Fidha Siddique, Participation in the National level webinar series on the topics "NUTRITIOUS VALUE OF SPIRULINA AS FOOD AND MEDICINE" and "IMPACT OF COVID PANDEMIC ON DAIRY AND FOOD INDUSTRY" conducted by College of Food Technology, Kerala Veterinary and Animal Sciences University in association with Indian Dairy Association (Kerala chapter)
- Jamshiya A, Athulya Babu, Jumana Jaleel, Nashva CP, Pavithra K P :National level workshop on recent advances in Dairy and Food Engineering, Parul University, Vadodara on 15th September 2020
- Athulya Babu, Jency Sunny: Webinar on "millets nutritional potential and challenge" by Mar Athanasios College, Thiruvalla, 8th October 2020
- Jumana Jaleel: Seshasayee institute of technology, International webinar series on Micromagnetics of ferromagnetic nanostructures on 18/8/2020
- Sandwana Sneethan: Training by Internshala on Android App Development From 15th May to 10th July 2020
- Ms. punya Appukuttan: National webinar on Fortification of Edible oil: From commitment to action, FOOD-CASIO National Nutrition Month, 2020 by Department of Food Technology, Hindustan Institute of Technology and Science, Chennai

Online webinar/Courses attended by Teaching Staff /Research Scholars

- Er. George Basil Asst. Professor of School of Ocean Engineering & Underwater Technology attended the online workshop "9011 IIRS Outreach Programme- "Basic Principles of Remote Sensing Technology" from" conducted during April 13th - April 25th 2020

- Er.MerinSkariah Research Scholar has attended the Webinar on "Ensuring Water Security for Future" on 08 May 2020 organized by KSCSTE, Trivandrum
- Dr.LinuSalim , Asst Prof of School of Ocean Engineering & Underwater Technology attended International webinar “How molecular evolution influences structure of proteins organized by SAFI Institute of Advanced studies, Malappuram, Kerala on 30 th May2020
- Er.NebuPulickal Research Scholar attended webinar”Introduction to RTOS” organized by NIELIT,Calicut on 29th May 2020
- Er.Basim Basheer Research Scholar attended webinar”Introduction to RTOS” organized by NIELIT,Calicut on 29th May 2020
- Er.NebuPulickal Research Scholar attended webinar ”Building IoT Solutions” organized by ER& DCI, Trivandrumon 5th June 2020
- Er.Basim Basheer Research Scholar attended webinar ”Building IoT Solutions” organized by ER&DCI,Trivandrumon 5th June 2020
- Er.MerinSkariah, Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop “9011 IIRS Outreach Programme- “Basic Principles of Remote Sensing Technology" from” conducted during April 13 th - April 25 th 2020
- Er.Basimbashier,Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop “9011 IIRS Outreach Programme- “Basic Principles of Remote Sensing Technology" from” conducted during April 13 th - April 25 th 2020
- Er.Nebupulickal ,Research scholar of School of Ocean Engineering & Underwater Technology attended the online workshop “9011 IIRS Outreach Programme- “Basic Principles of Remote Sensing Technology" from” conducted during April 13 th - April 25 th 2020
- Er.Nebupulickal, Research scholar of School of Ocean Engineering & Underwater Technology attended the online course “Python for data science and machine learning boot camp “ organized by udemy online platform conducted during April 30th to May10th 2020
- Er.Basimbashier, Research scholar of School of Ocean Engineering & Underwater Technology attended the webinar on “ Ensuring Water security for future" on 08 May 2020 organized by KSCSTE, Trivandrum
- PhD Scholars Er.Basim Basheer &Er.NebuPulickal undergone3 monthstraining in the software RlanguagewithPythonat oceanography dept at CUSAT campus
- Ms.MerinSkhariaCompleted a 12 week AICTE approved FDP Course on “Remote Sensing Essentials” by Dr. Arun K. Saraf, IIT Roorke through NPTEL Swayam .
- Ms.MerinSkariahAttended a Webinar on “Ensuring water security for future” organized by NIT Suratkal on May 8th 2020.

- Ms.MerinSkariah Attended a Webinar on “Research techniques and tips for Article writing” organized by Vidya Jyothi Institute of Technology, Hyderabad on July 3rd 2020.
- Ms.MerinSkariah Attended a Webinar on “Indigenous Knowledge in Disaster Management” organized by SFE KUFOS on 1st October 2020.
- Ms.MerinSkariahattended a 5 day FDP on “Sensor Technology” organized by ATAL and SOEUT, KUFOS from 23rd November to 28th November 2020.
- Er.Bhavya Francis :Faculty development program -Recent Trends and Developmentsin food technology during 10th to 14th August 2020, organized by Department of Food Technology, Saintgits College of Engineering
- Er.RashidaRejuwa :Faculty development program -Recent Trends and Developmentsin food technology during 10th to 14th August 2020, organized by Department of Food Technology, Saintgits College of Engineering
- Er.jainy Sara Babu :Online FDP Program on Sensors Technologyorganised by AICTE Training and Learning (ATAL) Academy and School of Ocean Engineering &UnderwaterTechnology, KUFOS, Panangad from 23rd-27th November,2020

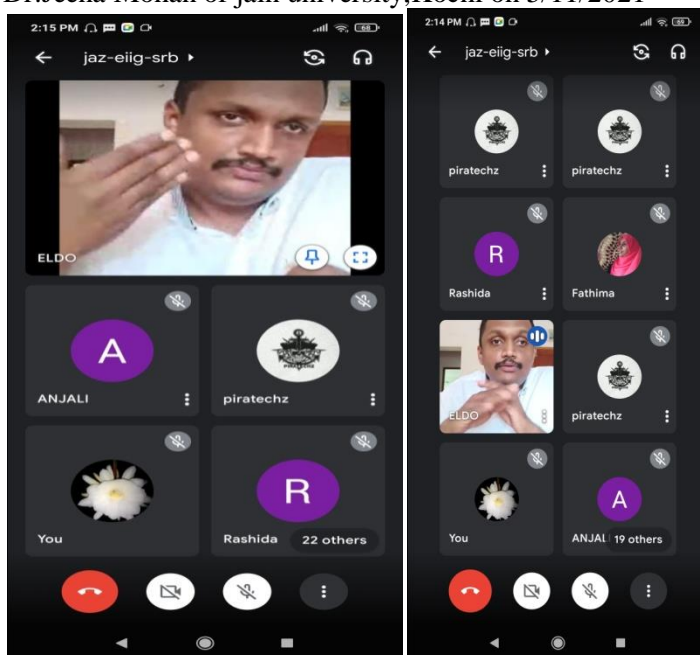
International Conference Publication

- Chrissy Elizabeth Samuel1Ahalya Chadran2, Anjali Krishna3, Kavya V B4 **AI-powered hand-held citrus disease & fruit spoilage detection system won** received Best paper award for presenting the paper in International Conference on Social Work, Science & Technology (ICSST) - 202129th & 30th July 2021, Coimbatore, India and also published in “International Advanced Research Journal in Science, Engineering and Technology” ,Vol. 8, Issue 8, August 2021 , DOI 10.17148/IARJSET.2021.8815(Indexcopernicus, NAAS Accredited Science Journal Thomson Reuters ID I-8645-2017)
- **Merin Skhariah, Suriyakala C D** ,”Gauging of Sedimentation in Idukki Reservoir, Kerala (1974–2019), and the Impact of 2018 Kerala Floods on the Reservoir” Springer *Journal of the Indian Society of Remote Sensing* (2021) Published: 31 May 2021
- Nebu Pulickal , Suriyakala C D “An exhaustive exploration of electromagnetism for underwater wireless sensor networks” 4th Springer International conference on Computer Networks and Inventive Communication Technologies (ICCNCT 2021), 23- 24 April 2021 <https://www.springer.com/gp/book/9789811596469>,
- Ms.Amrutha Ajith secured second position in Food Safety Quizconducted in NIFTEM association with world Food Safety Day and proud to share this position from IITgraduates.

- Conducted an Experiential training on "Post-Harvest Fisheries Engineering" in association with CIFT from Sept 23rd to October 4th 2021
- Second Experiential training on "Vegetable and Fruits processing" in association with VKPCK, Kakkanad is scheduled from Dec 6th to Dec 10th 2021

Invited Talk

- Organised a session for B Tech 2017 batch students to enhance the employability skills within 'Ultra performers way of life' by Eldho George Varghese June 23rd 2021
Session was about the employability skills within you as if you can show case as a ultra performer in the field, rather it can also makes the point of marketing yourself to the employer. The class clearly shows the process of evolution of better version of you so that it inspires to make it to the greater heights of life. In addition it provides how to start the journey of your career & to enjoy each and every step being associated with it.
- Organised a online webinar for b Tech 2019 Batch "Practising physiological resilience" by Dr.Jeena Mohan of jain university,Kochi on 5/11/2021



Online webinar

- Faculty of Fisheries Engineering (FFE) Jointly with Faculty of Ocean Science & Technology (SOST) On the occasion of **World Food Safety Day 7th June 2021** organized a webinar & Online contest. Speakers of the day were Dr. Zynudheen A.A Principal scientist & HOD(i/c), Quality Assurance & Management ICAR-CIFT, Cochin (Topic - Food Safety Management systems in Fisheries sector) and Mr. P.CAnil KumarAVP-QualityAssurance,SafetyandSustainability,BundITechnologies(Swiggly)

(Topic -Managing Quality of operations in E-commerce Food delivery while protecting Health of employees &customers in the Covid-19 scenario)

Winners of the competition

Essay writing results

First : Neemavas A (Btech)

2nd: Nair chithra Harinarayanan (Msc)

3rd: Punnya Appukuttan (Btech)

Poster making Result

First prize : Vaishnavi Rajesh (Msc)

2nd : Binisha NL (Msc)

3rd: Merin Benoy (Btech)

Placement Details B Tech 2017-21

Alen Sabu	Off Campus	Quality Assurance Trainee, AB Mauri India Pvt Ltd,Csez Kakkanad
Amala Eldho	Off Campus	Internship trainee at Synthite Industries, Private Ltd, Kadayirippu
Amrutha Ajith	Off Campus	Manufacturing executive,ITC Foods, Hyderabad
Anjali Krishna	Off Campus	Quality Controller, Malabar Food Products(Fruitomans), Chalikkavattom
Catherine T A	Campus Placement	Trainee-Operations Nedspice Koovapadam
Devi Chandana N	Off Campus	Jr.Quality executive trainee at Casino Air Caterers and Flight Services(CAFS) , Nedumbassery
J Darshini	Off Campus	Plant Supervisor at Aimie food and oil exports
Mariya Boban	Campus Placement	Trainee-Operations Nedspice Koovapadam
Megha N J	Campus Placement	Trainee-Operations Nedspice Processing India Pvt. Ltd. Koovapadam
Jahana Thahseen	Off Campus	Internship trainee at Synthite Industries, Private Ltd, Kadayirippu
kavya	Choice Canning	Junior Supervisor
Sidharth S	Manjilas Food tech	Quality associate

Higher studies B Tech 2017-21 National

Anju Asok	KAU	MBA- ABM
Siddharth K	KAU	MBA- ABM

Higher studies B Tech 2017-21 International

Chrissy Elizabeth Samuel	Audencia business School, Nantes, France	Food agribusiness Management
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School of Management and Entrepreneurship

Staff strength	Professor	: 1
	Associate Professor	: 1
	Assistant professor	: 2
	Adjunct faculty	: Statistics – 1, LLM- 2
	Contract/Guest faculty	: Statistics – 6, LLM- 2, Management -4

Student strength :

Sl. No.	Name of Programme	Batch	No. of Students
1	MBA	2019	41
		2020	40
2	M.Sc. Statistics	2019	11
		2020	06
3	LLM	2019	14
		2020	14
4	Ph.D-in Management		69
	- in Legal Studies		07
	- Physical Education		02

Plan for the current academic period:

During the current academic period, the post graduate programmes Viz., MBA, M.Sc. Statistics and LLM and the Ph.D programmes will be continued. The work of two projects viz., 'Business Strategies and Models for managing fisheries sector: a study with special focus on COVID 19 pandemic' (Principal Investigator: Dr.Anoop K.K, Assistant Professor) and Livelihood status of Marine Fisherfolk in Kerala in the Post Covid 19, (Principal Investigator: Dr. Rajesh K, Assistant professor) have started by two faculty members. The faculty also plans to strengthen the activities of the placement cell during the current academic year.

Details of Departmental meeting conducted with agenda:

Meeting held on 11-6-2020

The Agenda of the meeting was to identify various locations for conducting examinations of MBA-2018 Batch, MBA- 2019 Batch and LLM- 2018 Batch.

Meeting held on 19-11-2020

The agenda of the meeting was to discuss the admission related matters for MBA, Statistics and LLM batches. The meeting also decided to conduct orientation programme for newly admitted students.

Meeting held on 30-12-2020

The agenda of the meeting was to discuss about the re-opening of classes for MBA, Statistics and LLM batches by observing Covid19 protocols. The meeting decided to give separate rooms for writing the semester examination of two high risk category students.

Meeting held on 24-02-2021

The meeting decided to conduct the offline classes for MBA- 2019 Batch. The meeting also decided to conduct first and four semesters end semester examinations of MBA, Statistics and LLM.

Conference/Seminar/Workshop/Invited lectures organized by the Department:

The School of Management and Entrepreneurship, KUFOS organized a one day webinar on Shipping Law on 12-7-2020. Besides this, the Department of Business Administration and Management conducted the KUFOS Management Fest “Evoque” on 30th & 31st March 2021.

Academic achievements of Faculty:

The faculty members, besides completing the teaching as per the prescribed syllabi, have conducted seminars for the students of the departments. This has enabled the students to present their ideas and strengthen their presentation and communication skills.

Four Ph.D degrees were produced under the supervision of two Professors of KUFOS (Dr.M.SRaju and Dr.V.Ambilikumar) and one professor from Sree Narayana Gurukulam College of Engineering, Kadayirippu (Dr.C.K.Madhusoodanan)during the period 2020-21.

Academic achievement of Students:

Ph.D degrees were awarded to Four students (Shri.Sabu Varghese, Smt.Ambili.K.P.,Shri. Jithin Benedict and Smt. Chithra V Menon) during the period under report.

Manappuram Foundation Scholarships amounting to Rs. 4000 per month were awarded to 13 meritorious students of MBA programme. Total 20 scholarships are awarded in an year to the meritorious students of MBA programme. Around 60% of the students completed were placed in firms in the private sector.

Capacity building of Staff and Students

Dr Rajesh K, has participated in a Five Day Faculty Development Programme in Behavioural Economics, organized by the Department of Economics, St. Berchmans College, Changanassery, Kerala in collaboration with the Kerala State Higher Education Council on August 22 to 26, 2020. He has also participated in a Refresher course on Research Methodology for Faculty of Social Sciences organized by the Human Resource Development Centre (HRDC), University of Hyderabad during 20th July 2020 to 1st August, 2020 and obtained grade 'A'.

Stalin A, our research scholar, attended a 'Ten-Day Online Workshop in Research Methodology for MPhil, PhD and Post-Doctoral Scholars in Social Sciences' organized by Madras Institute of Development Studies, Chennai from Feb 12-Feb 21, 2021.

Jiji K.P. our research scholar, attended a 'Ten-Day Online Workshop in Research Methodology for MPhil, PhD and Post-Doctoral Scholars in Social Sciences' organized by Madras Institute of Development Studies, Chennai from Feb 12-Feb 21, 2021.

Research achievements and publications of Staff and Students:

Francis, F. S., & Ambilikumar, V. (2021). Impact of locus of control on investment behaviour: A segmentation approach. *Information Technology in Industry*, 9(2), 1144-1163.

Francis, F. S., & Ambilikumar, V. (n.d.). An Examination of Gender Dynamics in Indian Stock Market with Special Reference to Kerala. *Psychology and Education Journal*, 58(3), 1332-1341.

Kunjumuhammed, V., Ambilikumar, V., & Francis, A. (2021). CSR activities in Kizhakkambalam Grama Panchayathu A Unique Model of Sustainable Rural Development. *International Journal of Research and Analytical Reviews*, 8(2), 40-46.

Peter, L., & Ambilikumar, V. (2020, November 27). Financial Literacy and Personal Financial Planning among Young Employees. *Solid State Technology*, 63(5), 4054-4068.

Peter, L., Ambilikumar, V., & Ramanathan, H. N. (2021, March 30). Role of Retirement Self-Efficacy in explaining Retirement Planning. *PalArch's Journal of Archaeology of Egypt/ Egyptology*, 18(4), 6393-6411.

Raju, M., & Kappen, D. C. (2021). Work life balance of women employees: A theoretical framework. *International Journal of Aquatic Science*, 12(3).

T. , D. S., & Ambilikumar, V. (2020). Students perception of servicescape and the mediating role of comfort on assessing Business students satisfaction. *Solid State Technology*, 63(1s), 1454-1465.

T. S., D., & Ambilikumar, V. (2020). Impact of COVID-19 on Behavioural Intention to use Information and Communication Technology, *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(12), 220-235.

Afsal E.M. and Roshif M (2020). Linkages Among Corporate Governance, Intellectual Capital And Firm Performance: Literature Review, *International Journal of Disaster Recovery and Business Continuity*, 11(2),299-311, 2020

Haque M.I.and Afsal E.M (2020). Volatility and Information Behavior: A Study on Shariah Index and General Index, *Journal of King Abdulaziz University – Islamic Economics*, 7383-1018, 33(1)

Rajesh K., (2020), “KovidanandharaKeralam”, (Kerala: Post Covid 19), (ISBN: 9789354081613), pp.162-168), 2020 in a Malayalam book entitled as “KovidKalam: Anubhavam, Vicharam, Vicharana”, edited by Ashraf P.C. and JaleelPadanna, Sahora Books, Padanna.

Rajesh K., (2020), “Marunna Indian KarshikaMekhala: OruSamakalikaAvalokanam” (*Changing Indian Agriculture Sector: A Contemporary Analysis*) (ISBN:9788194696308), pp.44-58, 2020 in the Malayalam book entitled as “Marunna India: Nayangal, Parishkarangal” edited by Jomon Mathew and Pradeep C., Cormetrics Technologies, Thiruvananthapuram.

N Peetambari Devi, J Rajashekar Nair, KV Jayachandran, Devika Pillai, Alphy Korath and Nongmaithem Raju Singh (2020), Screening of antifungal activity of accessory nidamental glands (ANGs) and nidamental glands (NGs) of *Uroteuthis singhalensis* against selected microbes *Journal of Entomology and Zoology Studies* 2020; 8(1): 396-399.

Mullasseril Sileesh, B. Madhusoodana Kurup, Alphi Korath(2020). Length-weight relationship of deep-sea demersal finfishes from the Southeastern Arabian Sea. *Journal of Appliedichthyology*. 2020;00:1–3. <https://doi.org/10.1111/jai.14088> .

Mullasseril Sileesh , B. Madhusoodana Kurup and Alphi Korath (2020). Length at maturity and relationship between weight and total length of five deep-sea fishes from the, Andaman and Nicobar Islands of India, North-eastern Indian Ocean.*Journal of t1–6*. <https://doi.org/10.1017/S0025315420000478>he Marine Biological Association of the United Kingdom.

Rajani S. Ganga1, Anandan, R., Alphi Korath and Aneykutty Joseph(2021)

Alterations in Body Fatty acid Composition in Microalga, Pavlovalutheri, grown in different standard Culture Media Fishery Technology 58 (2021) : 113 – 121, IF:5.25.

Raju Kurian M., Dr. Felice Joy, Local Government: A Review of Indian System, Sambodhi (Print Only, UGC Care Journal), ISSN: 2249-6661, Vol-44, No-03 January-March (2021).

Popular Press articles

Rajesh K., (2020), “Kovidanadhara Keralathinte Athijeevanathinte Vazhikal”, (Surviving Strategies to be adopted by the Kerala state during the Post Covid period), appeared in the editorial page of Madhyamam paper on 25th November, 2020.

Rajesh K., (2020), “RCEP Kararile Indyan Asannidhyam Nettamo Kottamo?” (RCEP Agreement without India: Gain or Loss”, appeared in the editorial page of Maathrubhumi News Paper on 21st, November, 2020.

Rajesh K., (2020), “Adrishyakarathinu Shakthi Pakaran Oru Smithian Aparatha” (Union Budget Analysis), appeared in the editorial page of Maathrubhumi News Paper on 3rd, February, 2020.

Other Popular articles (Magazines/Yearbook etc)

Rajesh K., (2020), “Karshika Billukalum Karshakarum”, (Farm bills and farmers), pp.50-63, “Moolysruthi Magazine”, November, 2020

Rajesh K., (2020), “Kuthikkunna Saranam: Kithayakkunna Sambad Vyavastha” (Rising Gold Prices and Falling Growth Rate of the Economy”, Mathrubhumi GK & Current Affairs, (Mal.), September, 2020

Rajesh K., (2020), “Virus Akramanam: Navaloka Nirmithikku Vaathil Thurakkumbol” (Virus Attack: Opportunity for a New World Order”, pp. 12-14, Mathrubhumi GK & Current Affairs (Mal.), July, 2020

Academic/Research/Extension activities of Faculty outside the University:

The faculty members have extended their services to other universities . During the year 2020-21, Dr,V.Ambilikumar, Professor served as chairman of open defence for the award of Ph.D degrees in University of Kerala, chairman of Pre submission seminar in University of Kerala, External expert for the M.Phil degree viva voce examinations of Cochin University of Science and Technology, external expert for the evaluation of progress of Ph.D students of CUSAT and University of Calicut for the award of Senior Research fellowship of the University Grants Commission. He has also served as the adjudicator of the Ph.D theses submitted to the Mahatma Gandhi University, Kannur University and Madurai Kamaraj University. Besides these, he has served as external examiner for M.F.Sc. degree programme conducted by the Tamil Nadu Dr. J. Jayalalithaa Fisheries University.

DrAnoop K.K has served as a Resource Person for a Webinar and delivered a talk on “Changing Landscape of retail business” organized by the Department of Management studies, Co-operative Arts and Science College, Madayi, Kannur, Kerala on 24thNovember, 2020.

Dr Rajesh K, served as a Resource Person in a webinar panel discussion on Union Budget, jointly organised by the Department of Economics of KMM Govt Women’s College, Kannur and Nirmalagiri College, Kuthuparamba on 9th February, 2021.

Dr Rajesh K, served as a Resource Person in a Webinar on Union Budget organised by the Department of Economics, St Aloysius College, Thrissur on 5th February, 2021.

Dr Rajesh K, served as a Resource Person for a Webinar and delivered a talk on “Farmers story in India” jointly organised by the Department of Economics of, Poona College, Maharashtra & the S.H. College, Chalakkudy, Kerala on 23rd December, 2020.

Dr Rajesh K, served as a Resource Person for a Webinar and delivered a talk on “Farmers Bills-2020” organized by the Department of Economics, Nirmala College, Muvattupuzha, Kerala on 8th October, 2020.

Dr Rajesh K, served as a Resource Person at the One Day National Webinar on “India and its Neighbourhood in Contemporary Times: Economic and Political Perspectives” jointly organized by the Department of Economics and Department of Political Science, Christ College (Autonomous), Irinjalakuda on 28th August, 2020.

Dr Rajesh K, served as a Resource Person for an International Webinar and delivered a talk on Impact of Covid 19 on Return Migration and the Foreign Remittance in India, organized by the Govt First Grade College, Vijayanagara, Bangalore on 15th June, 2020.

Dr Rajesh K, served as a Resource Person for a national Webinar and delivered a talk on Post Covid 19 World Order: Uncertainties and Expectations, organized by the Payyannur College, Payyannur on May 27th 2020.

Dr Rajesh K, served as a Resource Person for an International Webinar and delivered a talk on Impact of Covid 19 on Return Migration and the Foreign Remittance in India, with Special Reference to Kerala, organized by the Little Flower College, Guruvayoor on 20th May, 2020.

Dr Rajesh K, delivered an extension lecture on Kerala Budget 2021-22 at the Department of Economics, University of Calicut, Dr John Matthai Centre, Aranattukara, Thrissur on 19th January, 2021

NATIONAL/INTERNATIONAL SEMINAR ATTENDED

Stalin A and Rajesh K., presented paper on the topic ‘Effectiveness of Intervention Strategies of Online Schooling in South Kerala’ on March 10, 2021 at ‘National Conference on Sustainable Business and Marketing’ organized by NIT TRICHY.

Jiji K.P. and Rajesh, K., presented paper on the topic ‘Impact of Work participation of women in GIG Economy in the Post Covid period from Kochi city’ on March 10, 2021 at ‘National Conference on Sustainable Business and Marketing’ organized by NIT TRICHY.

Asha Vijay T. (SME-2015-51-01) , Research Scholar has attended the following webinars and online programmes;

1. National Webinar on “Fine Tuning Your Research Papers: Publication in SCOPUS, Web of Science Indexed and ABDC rated journals” organized by the Research & Post-Graduate Department of Commerce, Bharata Mata College on 27th May 2020.
2. International Webinar on “Global Trade and Opportunities for India Post COVID 19” organized by the Post Graduate Department of Commerce, MAR ATHANASIUS COLLEGE (Autonomous), on 30th May 2020.
3. Two-day National Webinar Series on “Research Methodology”, organized by Loyola College (Autonomous), Chennai, on 12th and 13th June 2020.
4. Webinar on “RECENT TRENDS IN AUTOMOBILE INDUSTRY” organized by SMK FOMRA Institute of Technology (Affiliated to Anna University), Chennai, on 14th June 2020
5. One-day State Level Webinar on “Post Pandemic Teaching-Learning Method: A Paradigm Shift” organized by BhairabGanguly College in collaboration with IQAC, Sree Chaitanya College, Habra, held on 15th June 2020.
6. Two Day International Webinar on “IMPACT OF COVID-19 ON SERVICE SECTORS” organized by Senthil Research Advocacy Forum, V.H.N. Senthikumara Nadar College (Autonomous), Virudhunagar, Tamilnadu on 17th& 18th June 2020.
7. Webinar on “Post Covid Kerala and Cooperative Movement” conducted by State Cooperative Union, Kerala on 4th July 2020.
8. National Webinar on “Philosophical Research” organized by the Institute of Advance studies in Education, Bilaspur, on 13th July 2020
9. National Webinar on “5G Technologies: Fostering Holistic Approach for Digital Access” organized by the Department of Library and Information Science, Banaras Hindu University, Varanasi in collaboration with Students for Holistic Development of Humanity (SHoDH) from 14th to 16th July 2020.

10. National Webinar on “Classroom Management Tools” organized by the Department of Commerce, SCMS School of Technology and Management, Ernakulam, on 23rd July 2020.
11. International Webinar on “Business Continuity Plan and Changing Landscape of Education” organized by Sri Venkateshwara College of Engineering and Technology, Chittoor, Andhra Pradesh on 24th July 2020
12. International Webinar on “All that Matters in Entrepreneurship that you get it right once” organized by the Post Graduate and Research Department of Commerce, Sacred Heart College (Autonomous) on 26th September 2020.
13. One Week National Level Online Hands-on FDP on “Reskilling using ICT Tools”, organized by the Department of Computer Science and Engineering, Dr. M. G. R. Educational and Research Institute (Deemed to be University), Chennai, from 15th June 2020 to 21st June 2020.
14. “One-Week online Research Methodology Workshop” conducted by SHoDH Haryana in collaboration with School of Business and Management Studies, Central University of Haryana, Mahendergarh and Indian Council of Social Science Research, New Delhi from 3rd July to 9th July 2020.
15. One-week online FDP on “Effective Design and Delivery of Curriculum in Outcome Based Education”, organised by the department of Business Administration, Jhulelal Institute of Technology (JIT), from 6th to 10th July 2020.
16. One week online international workshop on “Research Methodology” organized by the Department of Commerce, Assam University from 13th to 18th 2020.
17. Online workshop on Universal Human Value on the theme “Inculcating Universal Human Values in Technical Education” organised by All India Council for Technical Education (AICTE) during 18th to 22nd July 2020.
18. Online workshop on “Bivariate Data Analysis – Hands on Training” by the Institute of Management Studies, Noida on 25th July 2020
19. Two-day National Workshop on “Enduring Quality in Scientific Research & Effective Utilization of e-resources” organized by the Central Library of Kerala University of Fisheries and Ocean Studies (KUFOS), Kerala, on 16th and 17th March 2021.

Dhanya T.S, (SME-2017-51-03) Research Scholar has presented papers in conferences, Faculty development programs, Workshop and seminars attended during the period as shown below;

1. Presented a paper titled “Perception of teachers towards the behaviour intention to use ICT during COVID era” in the Berchmans National Conference 2021, on India Unlocked:

Re-Structuring Business, organized by Berchmans Institute of Management Studies, St. Berchmans College (Autonomous), Changanacherry, on 10th March 2021.

2. Presented a paper titled “Perception of teachers towards the educational servicescape during COVID – 19 pandemic” in the One-day National webinar on Securing your saving and investment during COVID times, organized by Department of Commerce, AMC Group of Educational Institutions, Ottapalam on 7 th November 2020.

Faculty development programs attended

1. Participated in the Online FDP on “Connecting Institute to Industry” conducted by Bangalore Institute of Management Studies, Bangalore, on 20th June 2020.
2. Participated in Two-day Faculty Development program on MS-Excel essentials for academicians, organized by Department of Commerce and Professional Studies in association with IQAC, Rajagiri College of Social Sciences, Kalamassery, Ernakulam, on 20th & 21st November 2020.
3. Participated in a Ten-day Faculty Development Program on Research Methodology organized by Department of Business Management, RBVRR Women’s college, Hyderabad, Telangana, in association with ICSSR, from 28th December 2020 to 6th January 2021.

Workshop attended

1. Participated in a five-day online workshop on ‘E views-Econometric analysis for research’ organized by the Research Department of Commerce, St. Joseph College (autonomous), Irinjalakkuda, from 4th to 8th January 2021.

Seminars attended

1. Participated in the Webinar on ‘Advanced Web Search Strategies for Social Science’ organised by the Research and PG Department of Commerce, KSMDDB College, Sasthamcotta, on 13th May 2020.
2. Participated in the national webinar “Fine-tuning your research papers: Publication in Scopus, Web of Science indexed and ABDC rated journals” organized by Research and Postgraduate Department of commerce, Bharata Mata college on 27th May 2020.

Liya Peter (SME-2017-51-02) , Research Scholar has presented a paper titled '**Impact of COVID-19 on Financial Self-efficacy of employees**' in a web conference 'Change of work culture in future with impact of pandemic situations' organised by Kodaikanal Christian College on 24th September 2020. She has also attended the following Webinars ;

1. Webinar on **Do's and Don'ts in Research** organized by Research committee and PG & Research Department of Commerce in association with IQAC, Maharaja's College, Ernakulam on 22nd December 2020.
2. Three day Webinars on '**Managing Literature for Scholarly writing**' organised by Mar Athansius College (Autonomous), Kothamagalam from 28th – 30th September, 2020
3. Webinar on '**E-filing of Income tax return**' on 28th September 2020 organised by St. Albert's College (Autonomous), Ernakulam.
4. National webinar on '**Behavioural Finance and Investment Decision**' organized by PG Department of Commerce and Department of Business Administration, KMM College of Arts and Science, Thrikkakara on 15th July 2020.
5. National webinar on '**Behavioural Finance- A Prelude**' organized by Research & Postgraduate Department of Commerce, Bharata Mata College, Thrikkakara on 20th June 2020.
6. National webinar series on '**Research Methodology**' held on 12th and 13th June 2020, organized by Loyola College (Autonomous), Chennai.
7. National webinar on '**Fine-tuning your research papers: Publication in SCOPUS, Web of Science Indexed and ABDC rated journals**' organized by PG Department of Commerce and Department of Business Administration, KMM College of Arts and Science, Thrikkakara on 27th May 2020.
8. National webinar session entitled '**Managing your finances & investments during COVID-19**', conducted on 16th May 2020 jointly with the Bharata Mata College of Commerce and Arts Choondy, Aluva and Finmark Trainers India Pvt Ltd.

9. Webinar on '**Advanced Web Search Strategies for Social Science**' on 13th May 2020 organised by the Research and PG Department of Commerce, KSMDB College, Sasthamcotta.
10. National level Webinar on '**Investment for Future**' on 5th May 2020 organised by the Department of Commerce, St. Teresa's College in association with ICAI Ernakulam branch.
11. International conference on HRM 2020: Integrating research on Employee voice organized by PG Department of Commerce and Research Centre, St. Albert's College (Autonomous), Ernakulam as part of Albertain Knowledge Summit 2020 on 7th January 2020.

Kunjhu Muhammad, Research Scholar has attended the following workshops;

1. Research workshop ensuring quality in scientific research conducted during 16th and 17th March 2021 organised by KUFOS.
2. Participated in Webinarlibrary professionals as game changers organized by DELNET on 2/27/2021.
3. Three days Webinar on 'Academic writing and research ethics' organized by DONBOSCO during 27-29 June 2020.

Raju Kurien, Research Scholar has attended the following workshops and seminars;

1. Online Research Methodology Workshop organized by REST Society for Research International (RSRI), Krishnagiri, Tamil Nadu, India from 12th to 14th April, 2020.
2. International Webinar on Academic Publishing in Top Rated Journals organized by Post Graduate Department of Commerce, Government College Tripunithura on 30th April 2020.
3. National Level Webinar on Research Methodology in Social Sciences organized by Post Graduate Department of Commerce, Government College Tripunithura during 26th and 27th April, 2020.
4. Fine Tuning Research Planning Using Elsevier Tools: Science Direct, Scopus and Mendeley organized by KJ Somaiya College, Mumbai in Association with Elsevier on 25 April, 2020.
5. Behavioral Finance & Investment Decision organized by KMM College of Arts & Science, Thrikkakkara on 15th July 2020.

6. National Conference on Innovations in Finance (NCIF 2020) organized by Post Graduate Department of Commerce, Government College Tripunithura on 12 September 2020.
7. E- Filing of Income Tax Return organized by St. Albert's College (Autonomous, Ernakulam) on 28 September, 2020.
8. Webinar on Research Ethics and Integrity organized by St. Xavier's College for Women, Aluva on 10 November,2020.

Neethu Ismail, Research Scholar has participated in the following programmes during the period;

1. National Webinar series on Research Methodology held on 12th and 13th June 2020 organised by the Loyola College, Chennai.
2. Short term training programme on 'Mixed methods in social Science research: A Statistical Package approach " under the AICTE quality improvement scheme conducted by SCMS, Cochin school of Business from 23rd to 28th November 2020.

Meetings attended by faculty members outside the University:

The faculty members have attended the doctoral committee and research committee meetings of the recognized research centers of KUFOS.

Utilization of fund for the current month (cumulative details):

Head	Amount sanctioned (2020-21)	Utilization	Particulars	Balance left
108-25-1001-200		14676	Office Expenses	
108-25-1001-201		18834	Stationary & Printing	
108-25-1001-230		27,634	Repair & Maintenance	
108-25-1001-299		12230	Other items	
108-25-1001-400		25000	Training	
108-30-1197-134		1,56,751	SRF/RF/RA	
108-30-1197-141		48,387	Honorarium	
108-30-1197-350		1,79,841	Research Materials	
108-30-1197-400		6,26,041	Training	
108-30-1197-700		15,26,253	Equipments	
108-35-1130-136		1,07,339	Contractual staff	
108LS-25-1003-136		6,13,204	Contractual staff	

108LS-25-1003-141		3,23,460	Honorarium	
108LS-25-1003-150		1,100	TA	
108LS-25-1003-316		1,00,000	Scholarship/Fellowship	
108ES-25-1003-141		2,84,030	Honorarium	
108ES-25-1003-316		80,000	Scholarship/Fellowship	
108BAM-25-1003-141		2,16,970	Honorarium	
108BAM-25-1003-316		1,20,000	Scholarship/Fellowship	
108BAM-25-1004-141		12,200	Honorarium	
108BAM-25-1004-316		6,68,824	Scholarship/Fellowship	
Total		51,62,774		

Placement Cell Bulletin

The following students (MBA 2019-21) are currently working in various companies;

Mohamed Sikkandar- Business Analyst, Tata Consultancy Services

Ami Liyana U M – Sales Analyst, Eastern Mattresses Pvt Ltd

Kirankumar VC – Sales Executive, Ahalia Finforex

Ashwini Raveendran – Administration Officer, ZugZwang Academy Pvt Ltd

Adarsh Babu K - Corporate sales officer, Muthoot Chits India Pvt Ltd

Muhammed Althaf- Accounts Executive, Kool Home Builders

Alen Thomas Mathew- Sport Leader, Decathlon

Shaheeda Onathukattil- Director cum Owner, Tecaza Pvt Ltd

Athira Padmakumar- Customer relationship Officer, Canara HSBC Life Insurance

Gouri MK- Pumex Infotech Pvt. Ltd

Vironi Guilda PS- Management Trainee (HR), Group Meeran

Muhammed Aslam T A: Business Development Intern, Maker Village, Kochi

Anu Kunjumon, Asst Professor, Jai Bharath College of Engineering, Perumbavoor

During the year 2020-21, two faculty members viz., Dr.M.SRaju, Professor and Director of the School of Management and Entrepreneurship and Dr.Alphi Korath, Associate professor retired from the service. Befitting send off function was arranged all of them.

Physical Education Department:

Staff strength	Professor	:	
	Associate Professor	:	
	Assistant professor	:	1, Dr. ARUN S. S. KUMAR
	Adjunct faculty	:	
	Contract/Guest faculty	:	

Student strength	B.F.Sc / B.Tech – year wise		
	MFSc/ M Sc (I year)	:	
	MFSc/ M.Sc (II year)	:	
	PhD	:	2

Plan for the current academic period

- Will plan to conduct an annual athletic meet for boys & girls.
- Will organize Inter Faculty / Inter club Sports tournaments viz. Football, Cricket, Badminton, Chess, Volleyball etc for 2021-22 academic year.
- To be sent our Cricket and Football teams to the All India Inter University championship organized by AIU.
- Will participate in our Cricket and Football teams to the forthcoming District League Championship 2021-22.
- Will plan to conduct 2 National seminars and 2 workshops related to sports science and Yoga.

Details of Departmental meeting conducted with agenda

- 2 candidates x 2 Doctoral committee= 4 is conducted till date.

Academic achievements of Faculty

1. Getting Ph.D Guide-ship in Physical education subject under Faculty of Fisheries Management.
 2. Getting best research paper award in an International seminar on Multi- faceted perspectives on gender education: Reaching the Unreached; Organized by Titus II Teachers College, Thiruvalla in collaboration with Kerala Higher Education council.
- Doing a Research project on A Study on Physical Fitness among Academy Football Players of Fishermen Community (costal area) and Non-Fishermen Community (High area), under the financial assistance of KUFOS.
 - Research paper on “Comparative analysis of selected Psychological variables among Combative sports and Body Contact games” published in KALA SAROVAR, July-September 2021, vol-24, no-03, page 177-181.
 - Research paper on Yogic Perspective of Indian Soft Power on The Diplomatic and Economic Arena, published in International Journal of Research and Analytical review, IJRAR239137.

- Research paper on Effect of selected yogic practices on psychological dimensions of Anxiety, Stress and Depression etc among the persons during pandemic COVID 19 Lock down periods, published in International Multy disciplinary Research Analysis, ID: IJMRA/V4I10/2021-47.
- Research paper on Effect Of Selected Yogic Practices And Mindful Meditation On Mindful Awareness Of Pradhan Mantri Kaushal Vikas Yojana [Pmkvy] Students, published in International Journal of Analytical and Experimental Analysis, Volume XIII, Issue X, October/2021 Page No: 879-85.
- A paper on Efficacy Of Selected Yogic Practices And Mindful Meditation On Depression Among The Participants Of Pradhan Mantri Kaushal Vikas Yojana [Pmkvy], published in International Journal of Research and Analytical review, IJRAR_239363 IJRAR21D1394.
- A research paper on Comparative Analysis of Selected Physical Variables Between Combative Sports and Body Contact Game, presented in an International conference on commerce, Management and Interdisciplinary subjects, organized by Central University, Kasarkod from 28th and 29th Oct. 2021.

Directorate of Research

The Directorate of Research coordinates the research activities of the University, including faculty research and other research programmes under the four Centre of Excellences and Research Centres. The research is oriented to meet the aquaculture and fisheries development goals of the State Government.

Budget allotted under Plan scheme: Rs 600 lakhs

As per Elsevier Research Intelligence Report, KUFOS occupies 2nd position going by Field weighted Citation Impact in 2020

In order to prioritize the research in thrust areas, the following Centres of Excellences and Centres are in operation in KUFOS since 2017.

1. Centre of Excellence in Sustainable Aquaculture & Aquatic Animal Health Management (CAAHM)
2. Centre of Excellence in Aquatic Resource Management and Conservation (CARMC)
3. Centre of Excellence in Food Processing Technology (CEFPT)
4. Centre of Excellence in Advanced Studies and Research in Entrepreneurship Development (CASRED)

Apart from these, a Centre for Bioactive compounds and a 'state-of-art' Soil and Water Laboratory is actively involved in research.

CENTRE OF EXCELLENCE IN SUSTAINABLE AQUACULTURE & AQUATIC ANIMAL HEALTH MANAGEMENT (CAAHM)

Professor Chair/c: Dr. Devika Pillai

Faculties: Dr. Devika Pillai, Dr. S. Shyama, Dr. Chiranjeev Pradhan, Dr. Binu Varghese, Dr. Dinesh, Dr. Linoy, Dr. Rejish Kumar

PROJECTS CARRIED OUT UNDER CAAHM

- Integrated system for aquatic animal health research and management
- Development and standardisation of farmer friendly, cost-effective techniques for enhanced production in ornamental fish culture
- Development of sustainable aqua feed from wide spectrum raw materials and propagation of feed-based aquaculture in Kerala
- Developing brood bank for sustainable production of Karimeen, *Etroplus suratensis* (Bloch, 1790) and an initiation of selective breeding program
- Developing region specific organic protocols for the seed production of *Penaeus monodon*
- Intensive culture techniques for commercially important species
- Biotechnological interventions in Aquaculture for sustainable production

Research Highlights of CAAHM

This centre carried out research in the areas of Aquaculture and Aquatic Animal Health.

Some of the important finding of the centre are

- 1) Broodbank of Pearlsport, *Etroplussuratensis* has been successfully developed.
- 2) The tank rearing protocols for breeders and larvae has also been developed. The technology is ready for transfer.
- 3) Completed whole mitochondrial genome sequencing of six freshwater indigenous fishes of Kerala and the mitogenome data is submitted to NCBI database. These include *Tor malabaricus* (MG397041), *Horabagrusnigricollaris* (MG986722), *Clariasdussumieri* (MG644387), *Channadiplogramma*(MG986721), *Carinotetraodontravancoricus*(MG817403), *Pristolepisrubripinnis* (MK482630).
- 4) Completed transcriptome analysis of *Etroplussuratensis* and identified Growth, Reproduction and Immune-related genes and Microsatellite Markers.
- 5) Gut probiotic with quorum quenching activity has given excellent results in lab trials.
- 6) Surveillance of Antimicrobial resistance (AMR) in aquatic environment and aquaculture farms is being carried out. KUFOS is a partner institution in the Kerala Anti-Microbial Resistance Action Plan (KARSAP) programme of the State.
- 7) Regular surveillance and reporting of Aquatic Animal Diseases in the state.
- 8) Providing diagnostic services and technical services to the farmers and state fisheries department.
- 9) A major source of revenue generation for the university- An amount of Rs. 4, 24, 425 (Rupees Four lakh twenty four thousand four hundred and twenty five only) was generated through diagnostic services.
- 10) Growth of different live feeds suitable for feeding different stages of ornamental/food fishes in different substrata have been optimized.
- 11) Organic tiger shrimp seed production has been successfully achieved and attempts to improve the survival is in progress with University-Private partnership mode.
- 12) Artificial feeds suitable for Pangasius and other catfishes such as Singhi have been developed.
- 13) Feed specifically for different stages of Etroplus is being developed.

CENTRE OF EXCELLENCE IN AQUATIC RESOURCE MANAGEMENT AND CONSERVATION (CARMC)

The CARMAC has initiated studies on (i) the long-term trends in Vembanad Lake and its associated ecosystems, (ii) the anchovy-sardine coupling and (iii) biodiversity inventorization.

Professor Chair:Dr. V.N. Sajeevan

Faculties:Dr.AnuGopinath, Dr. M.P. Prabhakaran, Dr.Jayalakshmi, K.J., Dr. S. Pramila, Dr. Rajeev Raghavan, Dr.Anvar Ali

Broad mandates:

- *Improvising knowledge on conservation and management of aquatic resources.*
- *Facilitating policy research and impact assessment in the coastal and inland zones of Kerala.*
- *Develop clean technologies for the viable utilization of aquatic resources.*
- *Information dissemination and training.*

During the plan period the centre carried out extensive study on the hydrography, biology and biodiversity of the south sector (SS) of Vembanadlake and the study of the central sector (CS) of the lake is in progress.

Some of the important findings are

- 1) A 48.2% shrinkage in the area of the lake, 315 sq.km in 1900 to 163.1 sq.km in 2021
- 2) A drastic decrease in the depth of the lake from 8-9 m depth (in 1930) to 1.82 m (2021) in Southern Sector (SS) and 2.87 m in Central Sector (CS).
- 3) 85.7% reduction in carrying capacity.
- 4) Sediment load above Base Floor Depth (BFD-4.5 m below MSL) for the SS is 0.201 Billion Cubic Meter (BCM) and for the CS is 0.192 BCM.
- 5) The carrying capacity (CC) of the Lake can be improved to 0.820 BCM by dredging this sediment. This will allow additional storage of 0.440 BCM flood waters and prevent the inundation of low lying areas.
- 6) EIA studies recommended before dredging.
- 7) Pollution: Macroplastic load in bed sediment of Southern Sector (SS) estimated as 4276 tons @ 55.89 ton per sq.km.
- 8) Analysis of microplastics, trace metals and pesticides (organo-chlorine) will be completed by March.
- 9) Fish biodiversity: A 40% reduction in fish biodiversity is recorded ie; from 150 species (1982) to the present 90 (2021).
- 10) Clam beds: Sharp decline in Southern Sector (SS). as against 119 clams per sq.m in the Central Sector (CS), the SS has only 21 clams per sq.m. The distinct salinity regimes of SS & CS due to Thannermukkom bund appear to be the reason for this decline.

CENTER OF EXCELLENCE IN FOOD PROCESSING TECHNOLOGY (CEFPT)

The CEFPT is formed with the idea of strengthening the research in the area of food-based product development for better utilization of raw commodities such as fish, meat and other non-fishery areas as well.

Professor Chair: Dr. T. K. Srinivasa Gopal

Faculties: Dr.RadhikaRajasree, Dr.Safeena, M.P., Dr. Blossom, K. L., Dr.AbhilashSasidharan

- The utilization and value addition of fish and other food commodities were addressed and different value added products were developed.
- The products developed by the Centre include
 - 1) Seaweed incorporated multi-grain cookies

- 2) Marine fibre rich bread
 - 3) Fibre rich biscuits
 - 4) Pasteurized bilimbi juice
 - 5) Fortified fish noodles and pasta
 - 6) Rice flour fortified with calcium from fish bones
 - 7) Jackfruit leather
 - 8) Battered and breaded fishproducts.
- Stakeholder friendly techniques for these products were developed and is ready for technology transfer. This can also attract start-ups.
 - Several ready- to- eat products such as ‘ready to eat tomato curry’, ‘ready to eat banana leaf wrapped basafish curry’ and ‘fried clams in retort pouches’ that can be stored at room temperature without refrigeration have been prepared.

CENTRE FOR ADVANCED STUDIES AND RESEARCH IN ENTREPRENEURSHIP DEVELOPMENT IN FISHERIES, AGRI-BUSINESS AND ALLIED SECTORS (CASRED)

Professor Chairi/c:Dr.RadhikaRajasree

The objective of the Centre is to develop the entrepreneurship skills among the stakeholders, especially of the fisheries sector, by providing direct and virtual incubation, collaboration with international business incubators, protection and management of intellectual assets and thereby equip them to lead a socially and financially stable life.

HIGHLIGHTS

- Promoted entrepreneurs, students, artisans and women.
- Organised 22 trainings for entrepreneurs, General Public/Community people, women, BFSc, MBA, Food technology students.
- Delivered technologies developed in the University to the stakeholders and interested entrepreneurs.
- Provided training in soft skills for students, and prospective entrepreneurs.
- Facilities for bread, fruit and fish keema lines have been built up, which can be used not only be students but also business incubates. After inspection of the facilities, KSIDC has sanctioned an amount of Rs 25 lakhs to start business incubation units.
- In collaboration with the CEFPT, business incubators and start-ups are planned.

EXTERNAL FUNDED PROJECTS

There were 11 EAP projects during the period.

Dr. Ranjeet K

1. The Department of Biotechnology (DBT) project on ‘Transcriptome analysis and gene expression studies to elucidate Heterogeneous Individual Growth in *Macrobrachiumrosenbergii* for ensuring sustainable aquaculture production’ with a financial outlay of Rs. 39.43 lakhs during 2018-22.

2. The Department of Science and Technology (DST-SERB) project on ‘Studies on the Occurrence, Distribution and Composition of microplastics along the Kerala coast with emphasis on their manifestation in food chain of near shore communities’ with a financial outlay of Rs. 39.80 lakhs during 2018-22.

Dr. Rajeev Raghavan

3. Directorate of Environment and Climate Change (DoECC) funded project on ‘SUBTERFISH: Diversity, Distribution and Threats to Subterranean Fishes of Western Ghats’. The broad aim of the proposed project is to improve our understanding of the diversity, distribution and threats to subterranean fishes and to generate baseline information on fishes of Kerala’s subterranean ecosystems.
4. The project funded by State Wetland Authority, Government of Kerala titled “Status of fish diversity of Sasthamcotta Lake with special reference to the Pearl Spot, *Etroplus suratensis*” has been allotted a budget of Rs. 10,00,000/-.

Dr. Devika Pillai

5. State Referral Laboratory for Aquatic Animal Diseases and Quality Testing funded by the Pradhan Manthri Matsya Sampada Yojana (PMMSY) with a funding of Rs 9.75 crores
6. The project is funded by Government of Kerala under the project “Surveillance for the prevalence of AMR” at a cost of Rs. 9.60 lakhs for a period of one year (2020-2021).
7. NFDB funded project titled “NATIONAL SURVEILLANCE PROGRAM FOR AQUATIC ANIMAL DISEASES”, Coordinated by NBFGR Lucknow with a total fund of 76.43 lakhs Covers Brackish water & Freshwater ecosystem

Dr. Anvar Ali P. H.

8. Directorate of Environment and Climate Change (DoECC), Government of Kerala funded project titled “Species inventory, distribution and catch estimation of fish faunal resources of Kole wetlands” with 13.2 Lakh fund allotment.
9. The UNDP funded project under India High Range Mountain Landscape project scheme titled “Enhancing reservoir fish production and creation of livelihood opportunities for the Tribal community in the Munnar landscape through development of aquaculture practices of native fishes” with a fund allocation of 52.5 lakhs is ongoing.

Dr. Suresh Kumar S

10. “Molecular Taxonomic Approach for the Development of Digital Catalogue of the Coral Reef- Biota of Lakshadweep to enable conservation measures”, is a project funded by the Department of Science and Technology with a total fund allocation of Rs. 32,60,240/-.
11. KUFOS-INCOIS Project (‘Establishment of wave observation at two locations off Kerala coast Advisories and Dissemination of User interaction workshops’) funded by INCOIS (Ministry of Earth Science) for Rs. 38 Lakh is ongoing with Dr. S. Suresh Kumar and Dr. M.P. Prabhakaran as Investigators.

Dr. Anu Gopinath

12. “Natural and human induced hypoxia and its consequences in the coastal water off Kochi”. This project was funded by Ministry of Earth Sciences, Government of India in collaboration with INCOIS, Hyderabad under the O-MASCOT programme. Rs. 31 Lakhs 2018-2020 ended in March 2021

KUFOS ASSISTED RESEARCH PROJECT

Completed Project reports

Title of KARP: Potential benefits of functional amino acid Taurine in nutrition of *Pangasianodon hypophthalmus*

Name of PI: Dr Chiranjiv Pradhan

1. Title of KARP: Systematics, molecular phylogenetics and biogeography of the Western Ghats endemic hillstream loaches of the genera *Bhavania* & *Mesonoemacheilus*
Name of PI: Dr Rajeev Raghavan
2. Title of KARP: Breeding and Rearing of Malabar Dwarf Puffer, *Carinotetraodon travancoricus* (Hora & Nair, 1941)
Name of PI: Dr. Binu Varghese
3. Title of KARP: Molecular characterization and expression analysis of Insulin like Growth Factors (IGFs) in *Etroplus suratensis*
Name of PI: Dr. Rejish Kumar V. J.
4. Title of KARP: Intelligent measuring & monitoring System
Name of the PI: Dr. Suriyakala C. D.

POST-DOCTORAL RESEARCH

EXTERNAL FUNDED

1. Dr. Vineetha V.P. (PI), Dr. Devika Pillai (Mentor)
“Implications of *Tinospora cordifolia* in circumventing Nano-TiO₂ induced toxicity in fish” is a completed project funded by KSCSTE with a total budget allotment of Rs. 22,67,200/- for a period of three years (2018-2021).
2. Dr. Resmi P. (PI), Dr. Anu Gopinath (Mentor)
“Isolation and characterization of alkaloids from the mangrove plants of *Rhizophoraceae* family and investigations on their anti-bacterial and anti-diabetic activities” is an ongoing project funded by KSCSTE with a total fund allotment of Rs. 14,17,200/- for a period of three years.

KUFOS-PDF

1. Dr. Deepa John (PI), Dr. Maya Raman (Mentor)
“Correlating the genetic basis of commonly consumed rice varieties of Kerala to their glycemic index”
2. Dr. Gayathri P.V. (PI), Dr. Shijo Joseph (Mentor)
Advanced oxidation processes for the purification of water from bacterial and chemical pollutants including highly recalcitrant microplastics
3. Dr. Felice Joy (PI), Dr. V. Ambilikumar (Mentor)
“A Study on Corporate Social Responsibility Practices in Small Finance Banks - A Case of ESAF Small Finance Bank in Kerala”
4. Dr. Sweta Das (PI), Dr. Devika Pillai (Mentor)
Dietary coriander (*Coriandrum sativum*) oil as an immunostimulant in Nile tilapia, *Oreochromis niloticus*
5. Dr. Vineetha V. P. (PI), Dr. Devika Pillai (Mentor)
Evaluation of molecular mechanisms involved in micro and nano plastic-induced cardiotoxicity in aquatic animals at cellular and molecular levels

RESEARCH STUDENTS – PhD STUDENTS

Doctor of Philosophy is conducted under four faculties namely, Faculty of Fisheries Science (FFS), Faculty of Fisheries Management (FFM), Faculty of Fishery Engineering (FFE), and Faculty of Ocean Science and Technology (FOST). A total of 287 students have registered in different faculties for programs leading to Ph.D., and 11 students have been awarded the Doctoral degree.

KUFOS has 142 research guides for facilitating research leading to PhD with 40 of them from KUFOS and the remaining 102 from the Approved Research Centres.

APPROVED RESEARCH CENTERS

KUFOS establishes approved research centers for facilitating research in selected areas following the procedure of the University. As of now, we have 14 centers where research is undertaken by the students registered with KUFOS.

Number of National and International PUBLICATIONS – 80 numbers

Book chapters published – 8 numbers

Articles published in magazines – 4 numbers

Papers Presented in Conference/Seminars – 17 numbers

Workshop and trainings – 16 numbers

Invited Talks/Panellist/Radio Talk – 31 numbers

Recognitions and Awards – 15 numbers

Activities at KUFOS – 9

PhD awarded: 11

Training and awareness programmes: 52

SANCTIONED PROJECTS DURING THE YEAR 20-21

“Development of Vaccine against Tilapia lake virus (TiLV) and Cyprinid herpesvirus – 2 of Fish in Indian aquaculture system” PI- Prof. Devika Pillai, Co-PI - Dr. V. J. Rejish Kumar. DBT, Rs. 54,18,440/- Lakh

“Mycosporine - like amino acids from Corals and associated Dinoflagellates – Their Role in Preventing Coral Bleaching – A Case study of Lakshadweep Archipelago” PI- Dr Anu Gopinath. DST-SERB, 2021-2023. 37.7 Lakhs.

Centre of Excellence in Aquatic Resource Management & Conservation [CARMC]

CARMC is a Centre of Excellence (CoE) under the Directorate of Research, KUFOS, mandated to study Vembanad Wetland System (VWS) consisting of the Vembanad Lake (VL) the Rivers draining to the Lake and its associated wetlands in the form of extensive paddy fields and marshy lands. Long –term changes in the geomorphology, water quality and biodiversity are being monitored as a part of this study.

VembanadLake, the second largest Ramsar site in India, is among the most productive life supporting coastal wetland system in Kerala, spread over three districts, viz., Ernakulum, Kottayam and Alappuzha and having a length of 96 km and surface area of 1512 km². In the deltaic areas, the VWS gives off a complex network of canals and tributaries before opening to the Arabian Sea through the Thotappally spillway, Andhakaranarzhi and the Cochin Bar mouth. The study of CARMC is restricted to the South Sector (PunnamadaKayal) and Central Sector (Cochin Backwaters) of Vembanad Lake. The North Sector (Kol-wetland system) is not covered under this study. In the year under report, the CARMC Group carried out the following activities;

- i. **High resolution Bathymetry of the Central sector of VL:** During the year extensive surveys were conducted in the Central sector (Thaneermukkom – Kochi sector) of Vembanad jointly by CARMC and theHydrographic Survey Department of Govt. of Kerala to generate precision bathymetry charts. For this the Central sector was divided to 244 equal grids of 600 X 600 m dimension. Acoustic surveys using SY Quest Bathy 500 MF Echosounder were carried out in these grids.Acoustic soundings were de-tided making use of *in-situ* tide data from tide poles maintained at Thaneermukkom, North Vaikom and Kochi .Station positions were fixed through DGPS (Tremble SPS 855). The data was post processed and charts were generated. This is the first comprehensive high resolution map available for the Central Sector of Vembanad Lake.

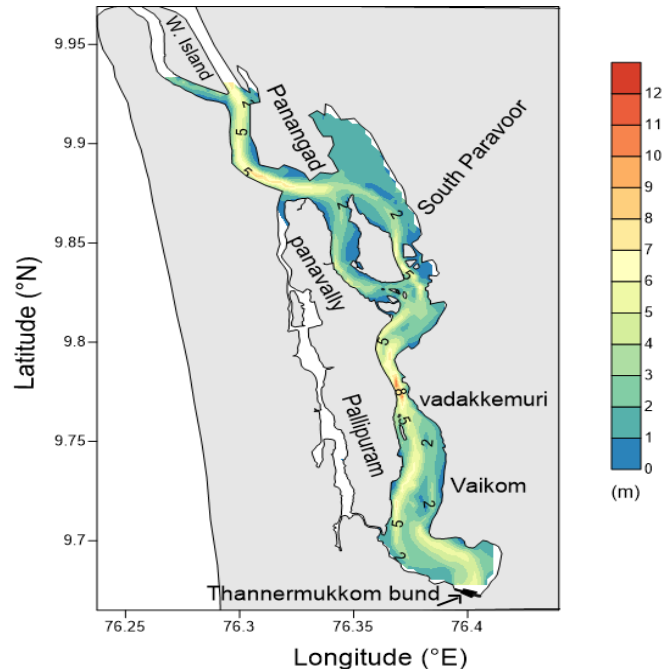


Figure 1: Bathymetry map of Central Vembanad Lake.

Depth profile of the central VL (87.8 km² area) was assessed for 244 grids each of 600 X 600 m. size. Analysis of the data show that 5.3% of the Lake fall below one meter depth, 31.3% between 1 to 2 m, 23.4% in the 2 to 3 m depth range, 15.2% in the 3 to 4m range, 13.5% in the 4 to 5m depth range, 7.4% in the 5 to 6m depth range and the remaining 4.1% had depths above 6 m. The bottom topography of the central Vembanad Lake showed deeper depths (>8m) restricted to the region of Makekadavu (pallipuram) and south eastern boundary of Perumbalam island (Figure 1).

- ii. **Quantification of Sediment deposits in the Central Sector:** Sediment deposits in the 87.8 km² area of the central sector was assessed by dividing the area to 3 sub divisions namely; Thannermukkom to Pallipuram region, Pallipuram to south Paravoor, south Paravoor to W. Island and quantifying the sediment taking 4.5 m as the base floor depth (BFD) for sub division 1, 5m as BFD for IInd sub division and 5.5m as BFD for IIIrd sub division. Accordingly, the quantum of sediment to be dredged out from above the BFD of the Central sector of VL to restore the smooth flow pattern of the Lake is estimated as 191.88 MCM (Million Cubic Meters) which include 49.32 MCM from the Ist sub division, 66.96 MCM from the IInd sub division and 75.6 MCM from the IIIrd sub division.

iii. **Sediment texture of Southern & Central sectors of VL:** Bed Sediment samples were collected during the southwest monsoon of 2020 from 68 stations of South Sector and 69 stations of the Central sector during pre-monsoon season (January to April 2021) using a Van Veen Grab (Hydrobios). Textural properties of the sediment were analysed by a Particle Size Analyser (Horiba LA-960). In the Southern sector, the grain size distribution showed wide variations along the east-west and south-north transects. On an average, sediments of the south sector was composed of sand (52.93 ± 31.63 %), silt (41.73 ± 28.95 %) and clay (5.37 ± 3.02 %) respectively. In the Central sector, sediment on an average basis was composed of sand (44.33 ± 29.64 %), silt (50.65 ± 27.42 %) and clay (5.02 ± 2.40 %). The dominance of sand in the south sector is attributed to the prevalence of flood waters and the dominance of silt in the Central sector to the tide flux. Detailed analysis and interpretation of the data are in progress.

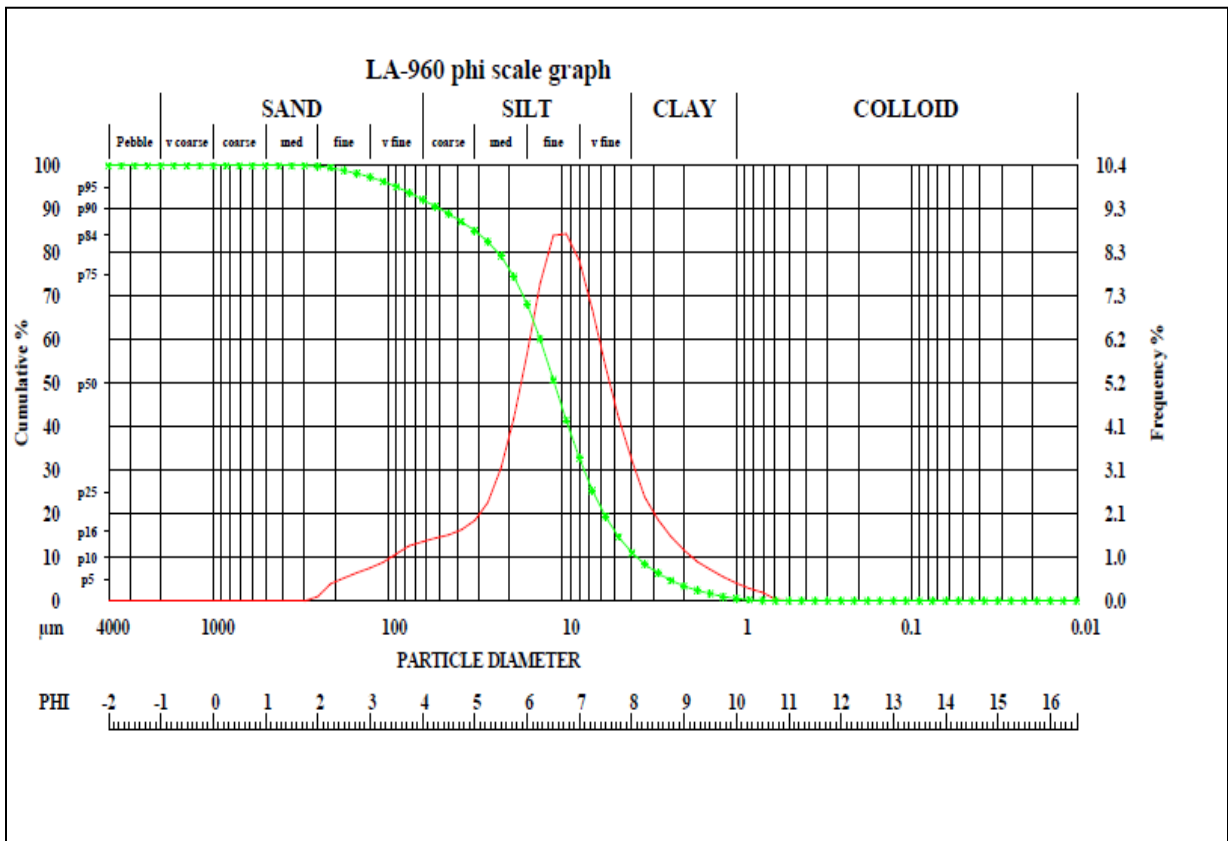
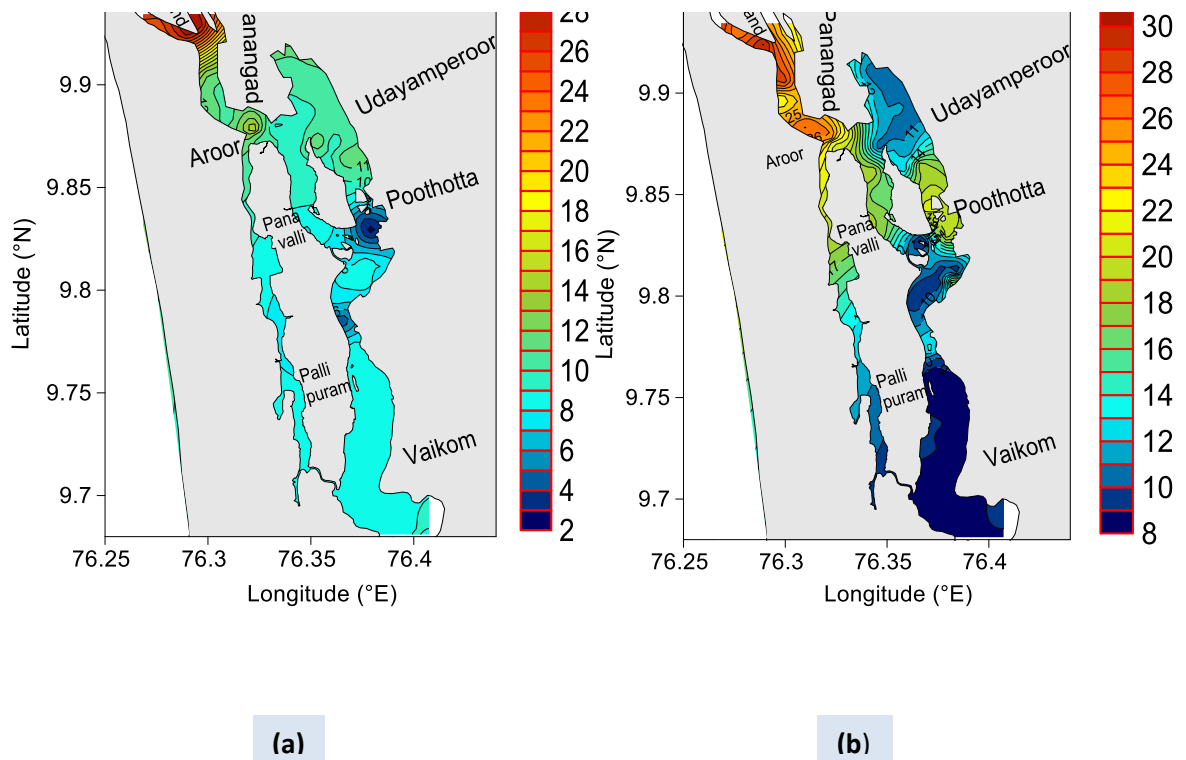


Figure -2: Composition of sand, silt & clay (red line) in the central station (SVL 43) of Kumarakom transect in the South Sector of VL.

iii. **Hydrographic characterisation of central Vemband lake - Pre-monsoon:** Pre-monsoon characteristics of central Vembanad Lake system was studied using CTD(Sea-Bird, 19 Plus V2) data collected from 69 stations during the period of end January to April 2021. Surface temperature varied between 25 to 30°C and surface salinity varied between 9 psu to 25 psu along the North Perumbalam to Thoppumpady area. Intrusion of sea water to the northern area is evident from the higher salinity. The influence of tide flux is found to decrease towards Thaneermukkom. The hydrography data indicates that the waters are stratified along northern transects of central VL. Surface DO in the range of 5.2-7.3 mg/l indicates highly saturated upper column. Nitrate (NO_3) also shows higher values (4-5 $\mu\text{m}/\text{l}$) in the surface waters of Thoppumpady to Nettoor area.

Figure 3: Salinity distribution in the (a) surface and (b) bottom layer of Central Vembanad Lake system



Along the Thanner mukkom to Perumbalam area, Surface temperature varied between 29.2 to 32.2°C and surface salinity varied between 2.4 psu to 11.4 psu. Fresh water discharge from Murinjupuzha river (Branch of Muvattupuzha river) to the study area causes low salinity (2.4 psu) near south of perumbalam island (Figure 3a) and the influence of a tributary of Muvattupuzha river at Nerekadavu region explains the presence of low saline water (4 psu) here. In other areas of this sector, surface salinity varied between 7-9 psu. Intrusion of high saline water was seen in the bottom water (15 to 21 psu) near Perumbalam Island (Figure 3b).

iv. Plankton community structure in the northern sector of central Vembanad Lake system

As part of environmental monitoring programme, 69 stations were covered in Central Vembanad Lake (CVL) during south west monsoon to determine phytoplankton diversity and composition. Phytoplankton composition revealed that 63.46 % belongs to diatoms (Bacillariophyceae), 25.00 % green algae (Chlorophyceae) and 11.54 % belongs to blue-green algae (Cyanophyceae). In all, 52 phytoplankton species were observed in northern half of central sector (24 stations). The Phytoplankton abundance in the region ranged from 3800 -12000 cells/l with an average 7900 ± 5798 cells/ml. Dominant species observed in the present study are presented in Table 1.

Table -1: Dominant phytoplankton species observed in northern half of CVL (24 stations)

Diatoms	Green algae	Blue green algae
Nitzschia closterium	Pediastrum simplex	Nostoc sp
Syndera formosa	Pediastrum duplex	Anabaena sp
Melosira sulcata	Staurastrum	Spirulina sp
Pleurosigma elongatum	Volvox sp	
Cyclotella striata	Spirogyra sp	
Eucampia zoodica	Chlorella vulgaris	

Chlorophyll pigment analysis carried out in the northern transects of central Vembanad Lake showed that Chl-a varied between 0.76-1.92 mgC/m³, Chl-b between 0.28-1.65 mgC/m³ and Chl-c between 0.40-1.84 mgC/m³

Zooplankton samples were collected from the northern transect of Central Vembanad lake (Thoppumpady to north of Perumbalam) covering 24 stations. Analysis showed that Zooplankton biomass was in the range of 0.01 – 0.18 ml/m³. Among this Copepod (99.5%) were the most dominant group among zooplankton with an average density of 11034 ± 139.4 no. of cells/m³. The other groups were represented by Sagitta, Amphipod, Decapods, Fish larvae and Mysids. Figure 4 indicates average percentage and density of zooplankton except copepod from the study area.

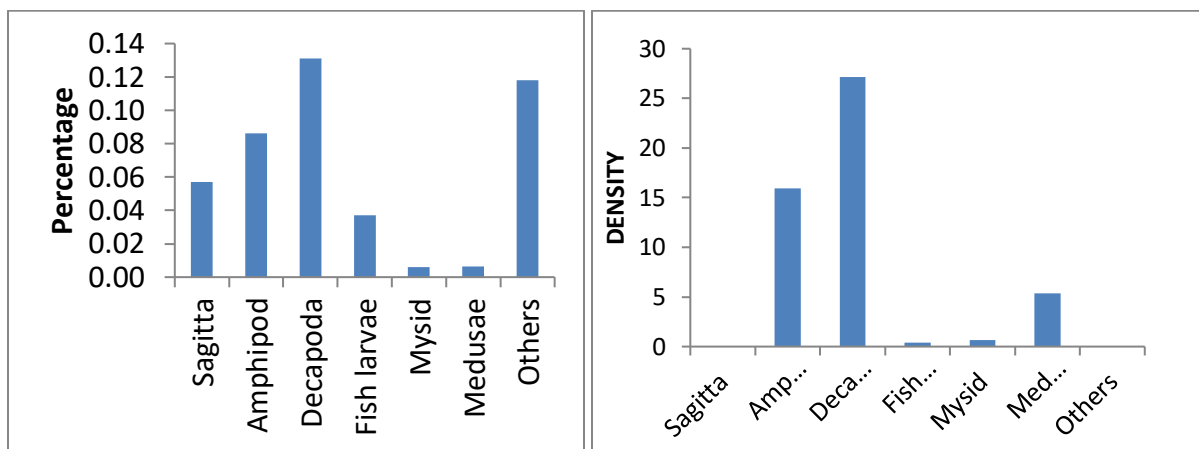


Figure 4: Average percentage and density of zoo plankton in the northern transects of Central Vembanad Lake

v. Spatio-temporal distribution and numerical abundance of benthos in the Central sector of Vemband lake

Sediment samples for inventory of macrobenthos and meiobenthos were collected from the northern transects of central vemband lake (Thoppumpady to Perumbalam north) using Van Veen Grab during the pre monsoon season of 2021.

Polychaetes (1880 ± 3289 ind./m²) formed the dominant benthic group in the Central Vembanad Lake followed by Tanaids (1627 ± 2117 ind./m²) during the study period. Polychaetes and Tanaids contributed 27 % and 23 % respectively to the total macrofaunal community. Low density of Gastropods (3 ± 11 ind./m²) and chironomids (2 ± 8 ind./m²) were observed in the sector. Maximum density of benthic organisms were observed in

Station 5 (21040 ind./m²) followed by station 3 (20240 ind./m²) and station 6 (19800 ind./m²). No organisms were found in station 9, station 11 and station 17. Percentage contribution and abundance of various groups of the macrobenthos in the study area is presented in Figure -5.

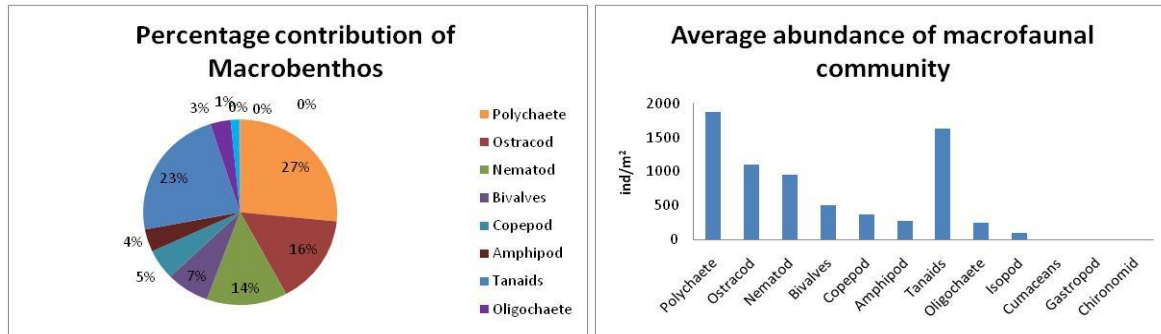


Figure -5:Percentage contribution of Macrobenthos and abundance of macrofaunal community in the northern transects of Central Vembanad Lake

Among the meiobenthos, Nematodes (45%) formed the dominant group during the study period in the northern half of CVL. Polychaete (21%) Harpacticoids (14%), Oligochaetes (9%) Ostracods (5%) Amphipods (3%) Gastrotricha (3%) were the other important groups among meiofaunal community.

vi. **Fish & Fishery of Vemband lake and associated River systems**

From the Vembanad lake and associated river systems, 38 species of brachyuran crabs were collected and identified (Table 2). These species fall under 25 genus, 11 Families and 6 super-families. Gecarcinucidae a purely freshwater family is represented by 4 species from the upper reaches of the Vembanad lake system. Rest of the species/family were collected from the Vembanad Lake. Also 19 species of prawns under 10 genus and 4 family were collected and identified.

Table 2: List of decapod crustaceans from the VLS

Brachyuran Crabs collected from the Vembanad Lake system	
1. <i>Barythelphusacunicularis</i>	2. <i>Metapograpsusmaculatus</i>
3. <i>Cylindrothelphusa sp</i>	4. <i>Metapograpsus messor</i>
5. <i>Lamella lamellifrones</i>	6. <i>Nanosesarma (Beanium) andersonii</i>
7. <i>Spiralothelphusa</i>	8. <i>Nanosesarma (Beanium) batavicum</i>

9. <i>Vanni ahini</i>	10. <i>Neopisesarma (Neopisesarma) mederi</i>
11. <i>Ebalia malefactrix</i>	12. <i>Neopisesarma (Selatium) brockii</i>
13. <i>Docleagracilipes</i>	14. <i>Neosarmatium malabaricum</i>
15. <i>Doclea gracilipes</i>	16. <i>Neosarmatium malabaricum</i>
17. <i>Elamenopsis alcocki</i>	18. <i>Neosarmatium smithi</i>
19. <i>Heteropanope indica</i>	20. <i>Neosesarma (Neopisesarma) manderi</i>
21. <i>Scylla olivacea</i>	22. <i>Parasesarma plicatum</i>
23. <i>Scylla serrata</i>	24. <i>Sesarma oceanica</i>
25. <i>Scylla tranquebarica</i>	26. <i>Sesarma quadratum</i>
27. <i>Portunus (Portunus) pelagicus</i>	28. <i>Varuna litterata</i>
29. <i>Portunus (Portunus) sanguinolentus</i>	30. <i>Macrophthalmus depressus</i>
31. <i>Charibdis callianassa</i>	32. <i>Uca (Celuca) lacteaannulipes</i>
33. <i>Charybdis (Charybdis) lucifera</i>	34. <i>Uca inversainversa</i>
35. <i>Charybdis (Goinohellenus) hoplites</i>	36. <i>Uca virens</i>
37. <i>Thalamita crenata</i>	38. <i>Xenophthalmus pinnotheroides</i>
Prawns Collected from the Vembanad lake and associated rivers	
1. <i>Alpheus sp</i>	2. <i>Penaeussemisulcatus</i>
3. <i>Caridinanaderjoni</i>	4. <i>Macrobrachiumstriatus</i>
5. <i>Caridina pseudo-gracilirustris</i>	6. <i>Metapenaeusaffinis</i>
7. <i>Fenneropenaeusindicus</i>	8. <i>Metapenaeusdobsoni</i>
9. <i>Leptocarpuspotamiscus</i>	10. <i>Metapenaeusmonoceroos</i>
11. <i>Macrobrachiumequidens</i>	12. <i>Palemonrudis</i>
13. <i>Macrobrachiumidella</i>	14. <i>Parapeneopsisstylifera</i>
15. <i>Macrobrachiumrosenbergii</i>	16. <i>Penaeuscarinatus</i>
17. <i>Macrobrachium rude</i>	18. <i>Penaeusmonodon</i>
19. <i>Macrobrachiumscabriculum</i>	

vii. Isolation and identification of micro plastics in the Black clam, *Villoritacyprinoides* (gray,1825) from southern sector of VL

Micro plastics in the body tissues of Black clams collected from Muhamma, Kumarakom, Thanneermukkom and Punnamada were isolated following standard procedures and identified by their shapes (fibres, fragments) and colours (black, blue, green, and red) under an Olympus DSX 110 digital microscope (Figure -6).

Number of micro plastic particles in Muhamma sample was higher as compared to other locations, composed of fibres of different lengths and colours. Clams from Kumarakom had 50% fragments and 50% of fibres. These fragments were transparent and fibres were black and blue in colour. A total of 5 fibres were obtained in the Thanneermukkom sample represented by distinctively long fibres with black colour. In the Punnamada sample, all the 3 fibres found were small in size and variously coloured (black, blue, and red). Micro plastics were represented only

in the form of fibres in samples from Muhamma, Thannermukkom, and Punnamadaw whereas the samples from Kumarakom had 50% fragments and 50% fibres. Variations in the lengths of microplastics indicate different rates of degradation. The longest microfiber was 6.20nm and the shortest was 0.043nm in length. Films were observed within 1.000nm to 2.000nm range.

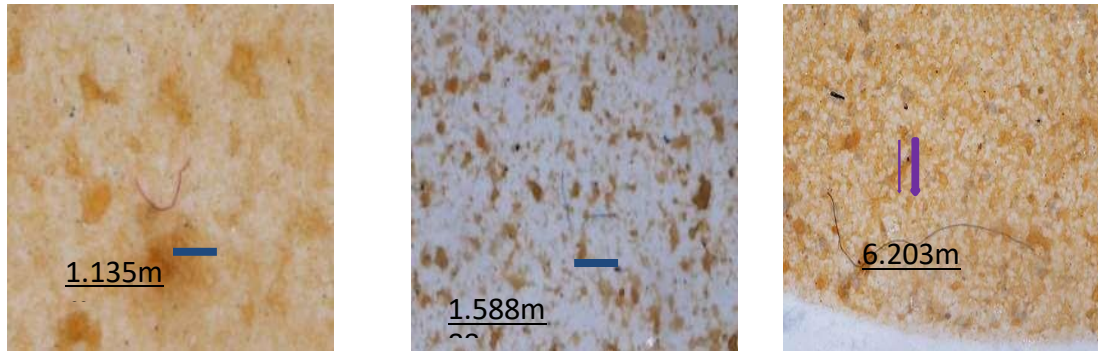


Figure -6: Microscopic view of Micro plastics from Muhamma, Kumarakom and Thannermukkom

viii. Participation in the Indian Expedition to Southern Ocean (Antarctic waters)

CARMC Team participated in the multi-disciplinary Southern Ocean Expedition on-board the South African Research Vessel S.A. Agulhas and carried out detailed survey of the study area covering the austral summer 2019 – 20. Sediment samples were collected from the Prydz Bay, Indian Sector of the Southern Ocean for studying distribution and geochemical partitioning of heavy metals in the surficial sediments.

The grain size analysis (Figure -7) shows the sediments in the Eastern Prydz Bay region to be predominantly composed of silt, followed by the clay fraction. Sand dominated regions were observed in the Western part of study area with 36.36 to 53.22% of sand, whereas in the Eastern region it was 4.74 to 8.24%. The concentration of the metals Zn, Cd, Pb, Cu, Fe, Ni, Mn, Co, and Cr in the sediments collected from Prydz Bay were considerably higher at the Eastern Prydz Bay stations (SO-4, SO-5, and SO-9) than the Western Prydz Bay stations (SO-23, SO-29, and SO-32). The metal concentration in sediments showed a decreasing order of abundance: Fe > Mn > Zn > Cr > Cu > Ni > Co > Pb. In this study cadmium content in the samples analysed were below the detection limit.

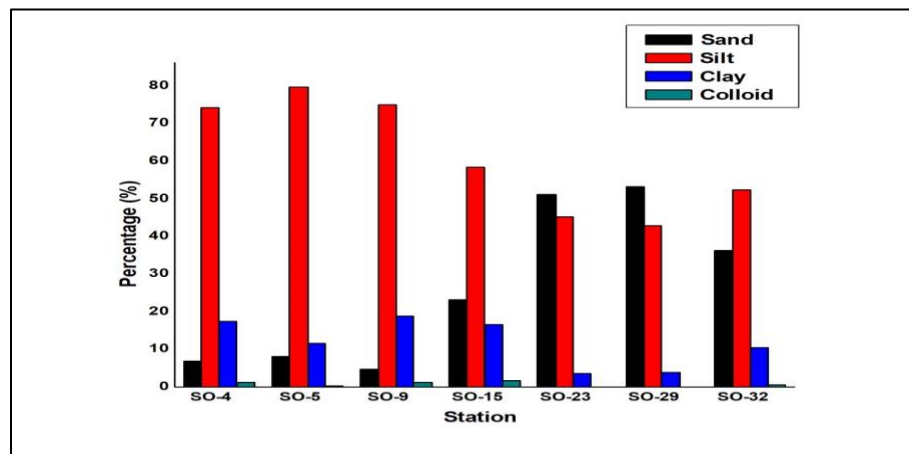


Figure -7: Grain size distribution in the sediments from Prydz Bay

ix. Other Activities

- Published 14 scientific papers in National/ International peer-reviewed journals during the year 2020-21. The total Impact Factor (IF) of CARMC publications is 34.65.

Name	Designation	Journal	I.F.
1. V.N. Sanjeevan	Prof. Chair	1. Mar. Env. Res.	2.73
		2. Scienta Marina	1.17
		3. Regional Studies in Mar.Sci	1.63
		4. Front. Mar. Sci.	4.44
		5. Mar. Bio. Res	1.30
2. Suresh Kumar	Professor	1. Regional Studies in Mar.Sci	1.63
		2. Aquaculture Research	1.37
		3. Zootaxa	0.95
3. Rajeev Raghavan Ranjeet	Asst. Prof Associate Prof	1. Regional Studies in Mar.Sci	1.63
4. Anu Gopinath	Asst. Prof.	1. Mar. Pollution Bulletin	5.55
		2. Mar. Pollution Bulletin	5.55
2. Sreenath T.M	SRF	1. Journal of Applied Ichthyology	0.87
		2. Journal of Zoological Studies	1.25
3.Vimal Kumar K.G.	Project Scientist	1. Environmental Monitoring and Assessment	2.51
		2. Regional studies in Mar. Sci.	1.63
4. Ramya L.Sundar	SRF	1. Journal of Threatened Taxa	0.44

Conference/Seminar/Workshop/Invited lectures organized by the Department
Live broadcast by FM-Kochi “ KadalKadalolum ”: Dr.T.V.Sankar (Director-Research), Dr. V.N.Sanjeevan (Prof.Chair) and Dr.AnuGopinath (Assistant professor) gave live talks each of one hour duration on different topics on different weeks.

Utilization of funds 2019-20 (Rs. In lakh)

Head	Amount sanctioned (2019- 20)	Utilization	Balance left
SRF/RF/RA	30.00	23.39	6.61
Honorarium	6.00	5.47	0.53
TA	2.00	0.02	1.98
Stationary & Printing	1.00	0.18	0.82
Other items	3.00	0.63	2.37
Research material	10.00	2.94	7.06
Workshop	1.00	0.16	0.84
Contractual services	12.00	nil	12.00
Furniture	2.00	nil	2.00
Electricity	1.00	nil	1.00
Civil works	15.00	16.28	- 1.28
Equipment	37.00	7.13	29.87
Total	120.00	56.19	63.81

Centre for Aquatic Resource Management & Conservation [CARMC]

CARMC is a Centre of Excellence (CoE) under the Directorate of Research, KUFOS, mandated to study Vembanad Wetland System (VWS) consisting of the Vembanad Lake (VL) the Rivers draining to the Lake and its associated wetlands in the form of extensive paddy fields and marshy lands. Long –term changes in the geomorphology, water quality and biodiversity are being monitored as a part of this study.

VembanadLake, the second largest Ramsar site in India, is among the most productive life supporting coastal wetland system in Kerala, spread over three districts, viz., Ernakulum, Kottayam and Alappuzha and having a length of 96 km and surface area of 1512 km². In the deltaic areas, the VWS gives off a complex network of canals and tributaries before opening to the Arabian Sea through the Thotappally spillway, Andhakaranarzhi and the Cochin Bar mouth. The study of CARMC is restricted to the South Sector (PunnamadaKayal) and Central Sector (Cochin Backwaters) of Vembanad Lake. The North Sector (Kol-wetland system) is not covered under this study. In the year under report, the CARMC Group carried out the following activities;

- i. **High resolution Bathymetry of the Central sector of VL:** During the year extensive surveys were conducted in the Central sector (Thaneermukkom – Kochi sector) of Vembanad jointly by CARMC and theHydrographic Survey Department of Govt. of Kerala to generate precision bathymetry charts. For this the Central sector was divided to 244 equal grids of 600 X 600 m dimension. Acoustic surveys using SY Quest Bathy 500 MF Echosounder were carried out in these grids.Acoustic soundings were de-tided making use of *in-situ* tide data from tide poles maintained at Thaneermukkom, North Vaikom and Kochi .Station positions were fixed through DGPS (Tremble SPS 855). The data was post processed and charts were generated. This is the first comprehensive high resolution map available for the Central Sector of Vembanad Lake.

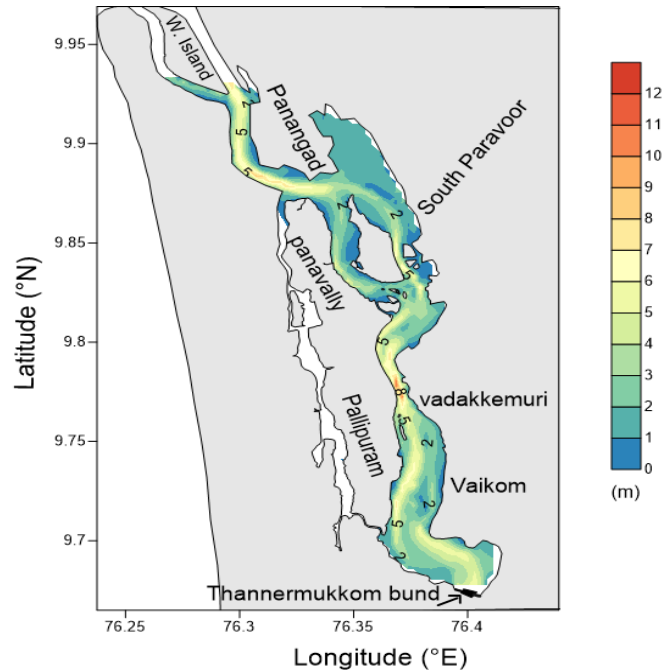


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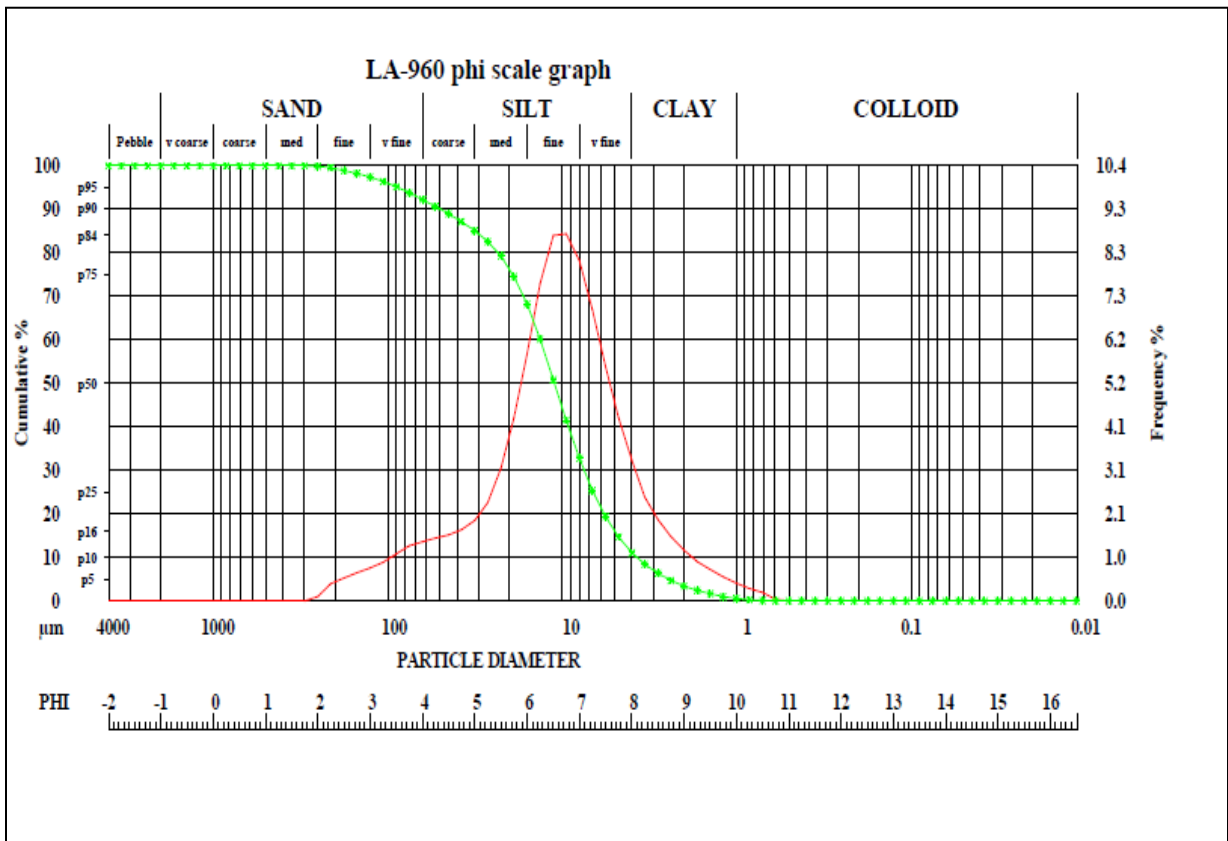


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(a)

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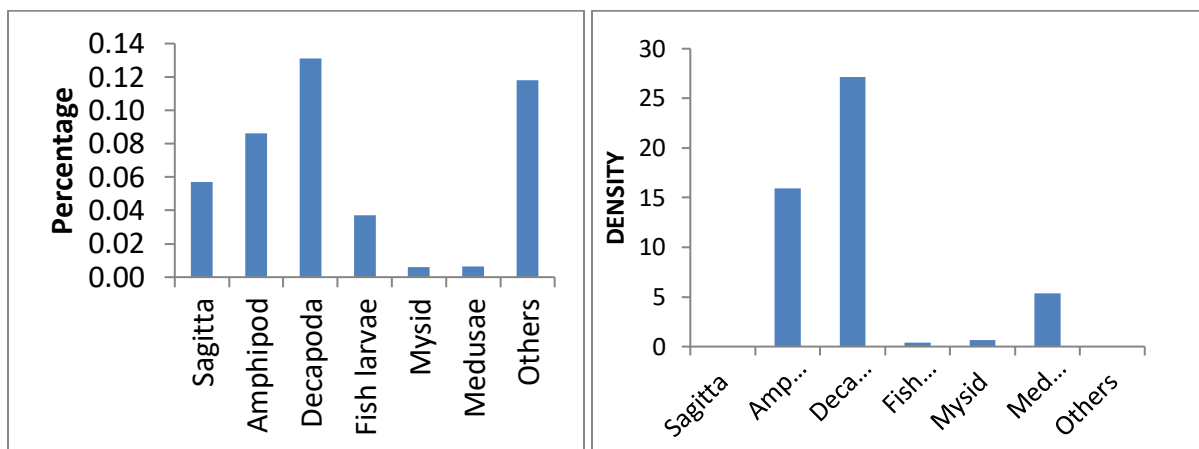


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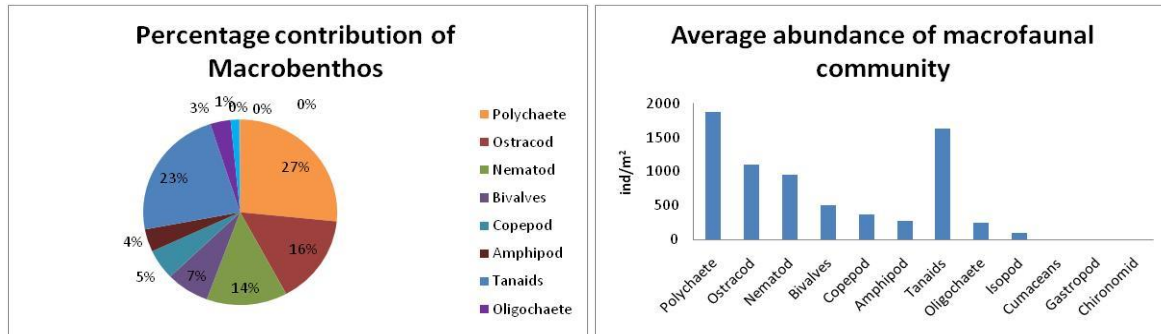


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Among the meiobenthos, Nematodes (45%) formed the dominant group during the study period in the northern half of CVL. Polychaete (21%) Harpacticoids (14%), Oligochaetes (9%) Ostracods (5%) Amphipods (3%) Gastrotricha (3%) were the other important groups among meiofaunal community.

vi. **Fish & Fishery of Vemband lake and associated River systems**

From the Vembanad lake and associated river systems, 38 species of brachyuran crabs were collected and identified (Table 2). These species fall under 25 genus, 11 Families and 6 super-families. Gecarcinucidae a purely freshwater family is represented by 4 species from the upper reaches of the Vembanad lake system. Rest of the species/family were collected from the Vembanad Lake. Also 19 species of prawns under 10 genus and 4 family were collected and identified.

Table 2: List of decapod crustaceans from the VLS

Brachyuran Crabs collected from the Vembanad Lake system	
1. <i>Barythelphusacunicularis</i>	2. <i>Metapograpsusmaculatus</i>
3. <i>Cylindrothelphusa sp</i>	4. <i>Metapograpsus messor</i>
5. <i>Lamella lamellifrones</i>	6. <i>Nanosesarma (Beanium) andersonii</i>
7. <i>Spiralothelphusa</i>	8. <i>Nanosesarma (Beanium) batavicum</i>

9. <i>Vanni ahini</i>	10. <i>Neopisesarma (Neopisesarma) mederi</i>
11. <i>Ebalia malefactrix</i>	12. <i>Neopisesarma (Selatium) brockii</i>
13. <i>Docleagracilipes</i>	14. <i>Neosarmatium malabaricum</i>
15. <i>Doclea gracilipes</i>	16. <i>Neosarmatium malabaricum</i>
17. <i>Elamenopsis alcocki</i>	18. <i>Neosarmatium smithi</i>
19. <i>Heteropanope indica</i>	20. <i>Neosesarma (Neopisesarma) manderi</i>
21. <i>Scylla olivacea</i>	22. <i>Parasesarma plicatum</i>
23. <i>Scylla serrata</i>	24. <i>Sesarma oceanica</i>
25. <i>Scylla tranquebarica</i>	26. <i>Sesarma quadratum</i>
27. <i>Portunus (Portunus) pelagicus</i>	28. <i>Varuna litterata</i>
29. <i>Portunus (Portunus) sanguinolentus</i>	30. <i>Macrophthalmus depressus</i>
31. <i>Charibdis callianassa</i>	32. <i>Uca (Celuca) lacteaannulipes</i>
33. <i>Charybdis (Charybdis) lucifera</i>	34. <i>Uca inversainversa</i>
35. <i>Charybdis (Goinohellenus) hoplites</i>	36. <i>Uca virens</i>
37. <i>Thalamita crenata</i>	38. <i>Xenophthalmus pinnotheroides</i>
Prawns Collected from the Vembanad lake and associated rivers	
1. <i>Alpheus sp</i>	2. <i>Penaeussemisulcatus</i>
3. <i>Caridinanaderjoni</i>	4. <i>Macrobrachiumstriatus</i>
5. <i>Caridina pseudo-gracilirustris</i>	6. <i>Metapenaeusaffinis</i>
7. <i>Fenneropenaeusindicus</i>	8. <i>Metapenaeusdobsoni</i>
9. <i>Leptocarpuspotamiscus</i>	10. <i>Metapenaeusmonoceroos</i>
11. <i>Macrobrachiumequidens</i>	12. <i>Palemonrudis</i>
13. <i>Macrobrachiumidella</i>	14. <i>Parapeneopsisstylifera</i>
15. <i>Macrobrachiumrosenbergii</i>	16. <i>Penaeuscarinatus</i>
17. <i>Macrobrachium rude</i>	18. <i>Penaeusmonodon</i>
19. <i>Macrobrachiumscabriculum</i>	

vii. Isolation and identification of micro plastics in the Black clam, *Villoritacyprinoides* (gray,1825) from southern sector of VL

Micro plastics in the body tissues of Black clams collected from Muhamma, Kumarakom, Thanneermukkom and Punnamada were isolated following standard procedures and identified by their shapes (fibres, fragments) and colours (black, blue, green, and red) under an Olympus DSX 110 digital microscope (Figure -6).

Number of micro plastic particles in Muhamma sample was higher as compared to other locations, composed of fibres of different lengths and colours. Clams from Kumarakom had 50% fragments and 50% of fibres. These fragments were transparent and fibres were black and blue in colour. A total of 5 fibres were obtained in the Thanneermukkom sample represented by distinctively long fibres with black colour. In the Punnamada sample, all the 3 fibres found were small in size and variously coloured (black, blue, and red). Micro plastics were represented only

in the form of fibres in samples from Muhamma, Thannermukkom, and Punnamadaw whereas the samples from Kumarakom had 50% fragments and 50% fibres. Variations in the lengths of microplastics indicate different rates of degradation. The longest microfiber was 6.20nm and the shortest was 0.043nm in length. Films were observed within 1.000nm to 2.000nm range.

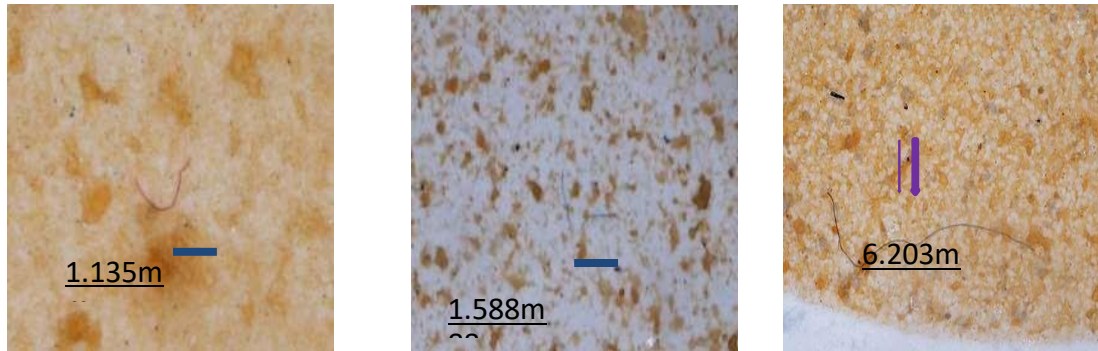


Figure -6: Microscopic view of Micro plastics from Muhamma, Kumarakom and Thannermukkom

viii. Participation in the Indian Expedition to Southern Ocean (Antarctic waters)

CARMC Team participated in the multi-disciplinary Southern Ocean Expedition on-board the South African Research Vessel S.A. Agulhas and carried out detailed survey of the study area covering the austral summer 2019 – 20. Sediment samples were collected from the Prydz Bay, Indian Sector of the Southern Ocean for studying distribution and geochemical partitioning of heavy metals in the surficial sediments.

The grain size analysis (Figure -7) shows the sediments in the Eastern Prydz Bay region to be predominantly composed of silt, followed by the clay fraction. Sand dominated regions were observed in the Western part of study area with 36.36 to 53.22% of sand, whereas in the Eastern region it was 4.74 to 8.24%. The concentration of the metals Zn, Cd, Pb, Cu, Fe, Ni, Mn, Co, and Cr in the sediments collected from Prydz Bay were considerably higher at the Eastern Prydz Bay stations (SO-4, SO-5, and SO-9) than the Western Prydz Bay stations (SO-23, SO-29, and SO-32). The metal concentration in sediments showed a decreasing order of abundance: Fe > Mn > Zn > Cr > Cu > Ni > Co > Pb. In this study cadmium content in the samples analysed were below the detection limit.

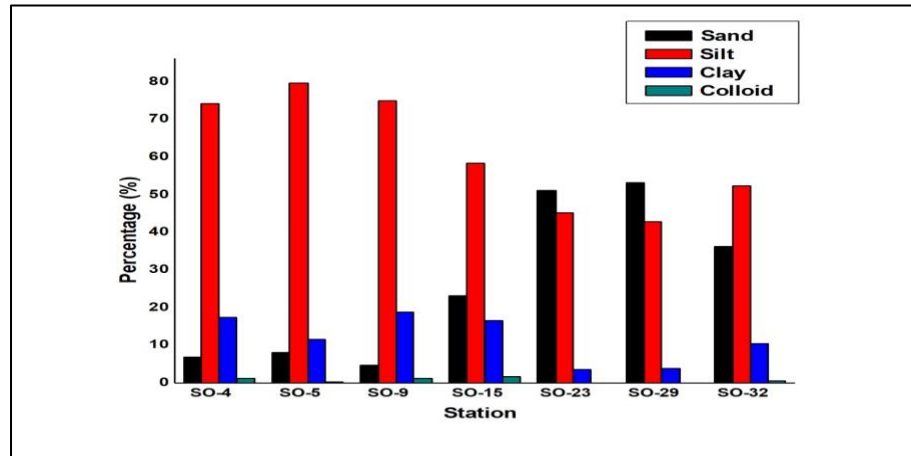


Figure -7: Grain size distribution in the sediments from Prydz Bay

ix. Other Activities

- Published 14 scientific papers in National/ International peer-reviewed journals during the year 2020-21. The total Impact Factor (IF) of CARMC publications is 34.65.

Name	Designation	Journal	I.F.
1. V.N. Sanjeevan	Prof. Chair	1. Mar. Env. Res.	2.73
		2. Scienta Marina	1.17
		3. Regional Studies in Mar.Sci	1.63
		4. Front. Mar. Sci.	4.44
		5. Mar. Bio. Res	1.30
2. Suresh Kumar	Professor	1. Regional Studies in Mar.Sci	1.63
		2. Aquaculture Research	1.37
		3. Zootaxa	0.95
3. Rajeev Raghavan Ranjeet	Asst. Prof Associate Prof	1. Regional Studies in Mar.Sci	1.63
4. Anu Gopinath	Asst. Prof.	1. Mar. Pollution Bulletin	5.55
		2. Mar. Pollution Bulletin	5.55
2. Sreenath T.M	SRF	1. Journal of Applied Ichthyology	0.87
		2. Journal of Zoological Studies	1.25
3.Vimal Kumar K.G.	Project Scientist	1. Environmental Monitoring and Assessment	2.51
		2. Regional studies in Mar. Sci.	1.63
4. Ramya L.Sundar	SRF	1. Journal of Threatened Taxa	0.44

Conference/Seminar/Workshop/Invited lectures organized by the Department
Live broadcast by FM-Kochi “ KadalKadalolum ”: Dr.T.V.Sankar (Director-Research), Dr. V.N.Sanjeevan (Prof.Chair) and Dr.AnuGopinath (Assistant professor) gave live talks each of one hour duration on different topics on different weeks.

Utilization of funds 2019-20 (Rs. In lakh)

Head	Amount sanctioned (2019- 20)	Utilization	Balance left
SRF/RF/RA	30.00	23.39	6.61
Honorarium	6.00	5.47	0.53
TA	2.00	0.02	1.98
Stationary & Printing	1.00	0.18	0.82
Other items	3.00	0.63	2.37
Research material	10.00	2.94	7.06
Workshop	1.00	0.16	0.84
Contractual services	12.00	nil	12.00
Furniture	2.00	nil	2.00
Electricity	1.00	nil	1.00
Civil works	15.00	16.28	- 1.28
Equipment	37.00	7.13	29.87
Total	120.00	56.19	63.81

CENTRE OF EXCELLENCE IN FOOD PROCESSING TECHNOLOGY

Research achievements and publications

1. Development of cookies containing Wheat flour and other millet flours with added natural sweeteners other than sugar.

The study was undertaken to develop cookies using wheat flour and millet flour like ragi and jowar. Carrageenan and Curcumin was incorporated to enhance the nutritional benefits of the product. Different natural sweeteners like Sugar, Jaggery and Palm jaggery was used as sweetening agents. The glycemic index for the products developed using different sweeteners were analysed. The glycemic index for Cookies developed using Sugar, Jaggery and palm jaggery was 54.04, 47.76 and 41.71 respectively. Thus palm jaggery having the lowest glycemic index was selected as sweetener and used for the study. The product was sensorily accepted. Storage studies are being carried out at room temperature after packing in PVC Cups. It was found to be stable for more than 10 weeks. The product is ready for commercialization.



2. Production of liquid smoke and its application to extend the shelf life of smoked products.

Developed Liquid smoke production unit which can produce 500 ml per hour Liquid smoke. Liquid smoke samples were prepared from dried coconut shell and coconut fibre using a smoke

production equipment attached with a condensation unit. It was stored in an amber coloured bottle and aged for one week at room temperature. Liquid smoke was then concentrated using rotary flash evaporator to reduce the volume to 1/10th of its initial volume and stored under refrigerator.

The biochemical characterization of samples prepared were analysed for their total phenolic content and DPPH radical scavenging activity assays. The product is having a polyphenol content of 24 g/L in terms of gallic acid and 19 % DPPH radical scavenging activity. It was found that Liquid smoke from Coconut shell had higher polyphenol and antioxidant activity compared to Liquid smoke obtained from Coconut fibre. Tilapia fillets will be used for increasing the shelf life after dipping in Liquid smoke with different concentrations and different dipping time, packed in flexible packaging materials and studies will be done at chilled storage temperature.

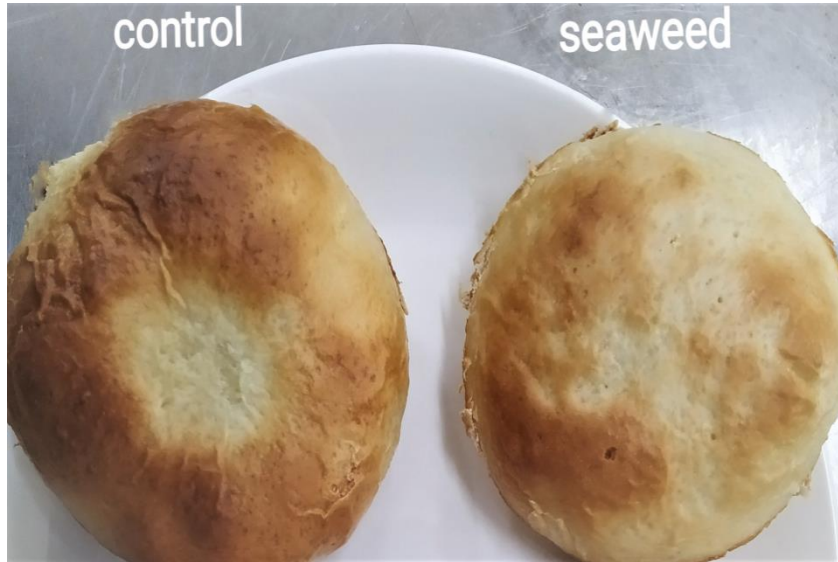
3. Studies on heat penetration characteristics of ready to eat tomato rice and its shelf life evaluation.

Studies were initiated for the development of ready to eat tomato rice in semi rigid containers. Thermal processing was done using water immersion retort and trials were carried out to standardize the recipe and F0 value of the product required for commercial sterility. The product was found to be commercially sterile when processed to an F0 value of 8 minutes. Product can be kept at room temperature without added chemical additives and refrigeration.



4. Development and characterization of Fibre rich Bun

As a part of the objective taken up by the center to develop marine fiber rich bakery products an effort was taken to develop fiber rich buns. Incorporation of κ -carrageenan extracted from *K. alvarezii* and evaluation of its nutritional and physico-chemical characteristics was carried out. Different concentrations of κ -carrageenan from 2 to 8% were used for the preparation of and the samples were subjected to different analysis, the results illustrate that antioxidant properties and other nutritional characteristics were improved by the addition of κ -carrageenan. Textural parameters like hardness and chewiness increased with an increase in the concentration of κ -carrageenan and colour analysis showed variation in lightness and yellowness of the crust colour whereas no significant change was observed in the case of crumb colour. SEM images of the bun crumb showed that the incorporation of κ -carrageenan has led to an increase in the pore area. Sensory scores suggested that κ -carrageenan incorporation above 6% was not appreciated by the sensory panel. 6% carrageenan incorporated bun samples had a shelf of 7 days after which mould growth was observed. The present-day life style has led to an increased demand for baked goods like bread, bun, etc. whereas these products do not meet the daily nutritional requirements of a human body. This study reveals that the incorporation of κ -carrageenan can result in better nutritional qualities with an improved fibre and mineral content and an enhanced antioxidant activity of Bun.



5. Standardization and development of fortified and nutritious fish pasta and noodles for fighting malnutrition

Fish pasta and noodles were standardized and developed using wheat flour (*Triticumaestivum*) by incorporating tilapia (*Oreochromisniloticus*). The wheat flour was substituted with tilapia mince at different concentration (10%, 20% and 30%). Pasta and noodles were prepared using single screw extruder. After the extrusion the product was dried in Hot air oven at 600C for 6 hours. Nutritional value of the pasta and noodles increased with inclusion of fish mince. The sample with 30% fish mince had protein content of 11.87 %, 13.25% and 17.15% whereas the control (wheat flour only) had 10.98% protein. Based on sensory evaluation sample with 30% was seemed to be more acceptable. Chemical and Microbiological examination reveals that the product packed in polyester laminated with polyether found to be acceptable even after a period of 90 days.



6. Shelf Life Evaluation of Rice Flour Fortified with Calcium Extracted From Fish Bone Collected From Various Processing Plants

Shelf life evaluation of rice flour fortified with calcium extracted from fish bone was initiated. Bones of tuna (*Thunnini*), Tilapia (*Oreochromisniloticus*), White snapper (*Macolorniger*) and pink perch (*Z rosaceus*) were obtained. The bones were cleaned and stored in freezer before processing. The bones were treated with 2% boiling NaOH for 30mins. It was then washed with 1% HCl and distilled water for neutralisation. The bones were dried in hot air oven at 105⁰C for 2hr and powdered later. The yield of tuna bone powder, tilapia bone powder, white snapper bone powder and pink perch bone powder found to be 64.16%, 34.71%, 50.74% and 40.29% respectively. Ash contents of the samples were 73.74%, 77.85%, 85.49% and 77.56%

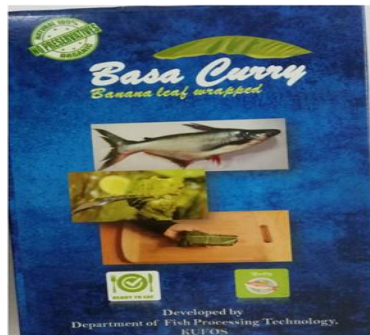


respectively. The samples were found to contain 24.44%, 19.06%, 19.66% and 12.59% calcium respectively. Detailed studies will be conducted regarding bioavailability and storage life in flexible packaging materials. Fortification studies will be conducted by incorporating in food system.

7. Development of Ready to eat Banana leaf wrapped Basa curry (Meenpollichathu) in retortable pouches

Standardised the recipe and process parameters for Ready to eat Banana leaf wrapped Basa curry (Meenpollichathu) in restorable pouches using water immersion over pressure autoclave. The

product processed to anF₀ value of 8 found to be ideal from the sensory and commercial sterility of the product. The product can be kept for more than 6 months at room temperature without the addition of chemical additives and can be kept at room temperature without any refrigeration.



Technology was developed for the preparation of instant fish soup powder from Basa fish and packed in cassava starch based edible packaging. The storage studies will be carried out.



Certain Battered and Breaded products were developed during the period and several training programmes were conducted



8. Development of Multiplex PCR for the detection of virulent factors in Enterohaemorrhagic *E. coli* (EHEC) from seafood

Seafood sampling for the screening of the presence of *E. coli* O157:H7 using multiplex PCR. The sensitivity of the Multiplex PCR protocol to detect the *E. coli* O157:H7 was found to be 2 CFU/ml in fresh seafood. Multiplex PCR protocol developed for the six virulent genes in *E. coli* O157:H7. Uniplex PCR protocol for the amplification of six primers coding virulent genes of *E. coli* O157:H7 was standardized. Product is ready for commercialisation.

⇒ Identified the candidate virulence associated genes of various strains of Enterohaemorrhagic *E. coli* (EHEC).

Among the various serotype of EHEC, *E. coli* O157:H7 is the most dangerous food-borne pathogen as it can cause hemorrhagic colitis, HUS and other severe gastrointestinal diseases. There are various reports for the presence of *E. coli* O157:H7 in seafood marketed in India, with a prevalence of 8.4%. Detection of *E. coli* O157:H7 from seafood by conventional microbiological method is found to be cumbersome, as it includes as it takes several days to

complete and thus the strain remains the most difficult to detect. Thus, in this study, a multiplex PCR targeting six major virulent genes of *E. coli* O157:H7 was developed as a rapid technique for the detection of the pathogen from seafood.

The list of virulent genes and the function is listed below (Table 1):

Table 1: Virulence coding genes of *E. coli* O157:H7

Sl. No.	Virulent Genes	Function
1	<i>fliC</i>	Flagellar antigen
2	<i>stx1</i>	Shigatoxin 1
3	<i>stx2</i>	Shigatoxin 2
4	<i>eaeA</i>	Intimin, attachment and effacement
5	<i>rfbE_{O157}</i>	O157 antigen
6	<i>hlyA</i>	Hemolysin

⇒ Designed/selected gene specific primers for each virulent factors of Enterohaemorrhagic *E. coli* (EHEC)

Primer sequence which is specific for the virulent genes under study was selected from previous works, and is listed in Table 2.

Table 2: Primer sequences for the virulence coding genes of *E. coli* O157:H7

Sl. No.	GENE	PRIMER SEQUENCE	AMPLICON SIZE (bp)
1	<i>fliC</i>	F: AGC TGC AAC GGT AAG TGA TTT R: GGC AGC AAG CGG GTT GGT C	949

2	<i>stx1</i>	F: TGT CGC ATA GTG GAA CCT CA R: TGC GCA CTG AGA AGAAGA GA	655
3	<i>stx2</i>	F: CCA TGA CAA CGG ACA GCA GTT R: TGT CGC CAG TTA TCT GAC ATT C	477
4	<i>eaeA</i>	F: CAT TAT GGA ACG GCA GAG GT R: ACG GAT ATC GAA GCC ATT TG	375
5	<i>rfbE_{O157}</i>	F: CAG GTG AAG GTG GAA TGG TTG TC R: TTA GAA TTG AGA CCA TCC AAT AAG	296
6	<i>hlyA</i>	F: GCATCATCAAGCGTACGTTCC R: AATGAGCCAAGCTGGTTAAGCT	534

⇒ Performed a uniplex gradient PCR to standardize the cycling conditions of each selected primer pair of virulent genes.

The mastermix and protocol for uniplex PCR targeting the six major virulent genes were standardized using the USFDA *E. coli* O157:H7 standard strain procured from CIFE, Mumbai.

Master mix

30 µl reaction mixture containing 3 µl 10x *Taq* Buffer (100 mM Tris-HCL, 500 mM KCL, 2 mM MgCl₂), 2.5 mM each dNTPs, 1 µl of each primer with 10 pmol/ µl concentration, 1 U of *Taq* DNA polymerase and 1 µl of DNA template.

Protocol

The uniplex PCR protocol to amplify the six virulent genes of *E. coli* O157:H7 is tabulated below (Table 3)

Steps	Protocol
-------	----------

Initial denaturation	96 °C for 2 m
Denaturation	96 °C for 30 s
Annealing	55 °C for 20 s,
Elongation	72 °C for 30 s
Final extension	72 °C for 7 min

Gel electrophoresis

- Agarose- 1.5 %.
- Running buffer- 1x TAE
- Dye- EtBr
- Loading buffer- 6x bromophenol blue
- Marker- 100bp DNA ladder
- Volt: Current: Time- 80V: 100A: 1.00 h

⇒ Developed a multiplex PCR which target all the virulent genes of EHEC strains using pure culture

The mastermix and protocol for uniplex PCR targeting the six major virulent genes are as follows,

Mastermix

Reaction volume of 30 µl consisting of 8 µl 10x Taq Buffer (100 mM Tris-HCL, 500 mM KCL, 2 mM MgCl₂), 2.5 mM each dNTPs, 1 µl of each primer with 10 pmol/ µl concentration, 2 U of Taq DNA polymerase and 2 µl of DNA template

Protocol

The multiplex PCR protocol to amplify the six virulent genes of *E. coli* O157:H7 simultaneously is tabulated below (Table 4).

STEPS	MULTIPLEX PCR
Initial denaturation	96 °C for 5 m
Denaturation	96 °C for 30 s
Annealing	55 °C for 30 s
Elongation	72 °C for 30 s
Final extension	72 °C for 10 min

Gel electrophoresis

- Agarose- 1.5 %.
- Running buffer- 1x TAE
- Dye- EtBr
- Loading buffer- 6x bromophenol blue
- Marker- 100bp DNA ladder
- Volt: Current: Time- 80V: 100A: 1.00 h

Image for uniplex and multiplex PCR of the virulent genes of *E. coli* O157:H7 is shown in Figure 1.

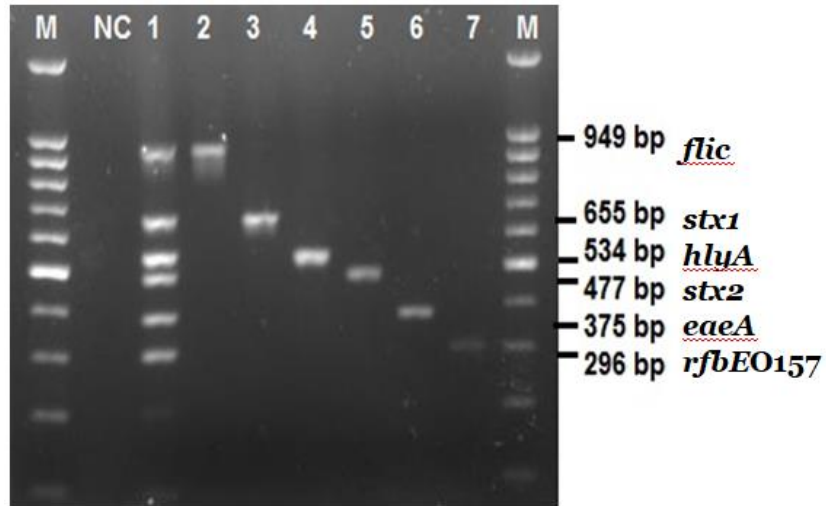


Fig. 1: Gel image for uniplex (Lane 2- 7) and multiplex PCR (Lane 1).

Efficiency of the multiplex PCR developed was tested by specificity test, sensitivity assay and spiked study.

Specificity test

To check the efficiency of the protocol it was subjected to amplify non-targeted fish pathogens including, *Listeria monocytogenes*, *Vibrio parahaemolyticus* and *Edwardsiella ictaluri* and fish spoilage bacteria *Pseudomonas aeruginosa*, along with *E. coli* O157:H7.

Image for specificity test of the multiplex PCR developed is shown in Figure 2.

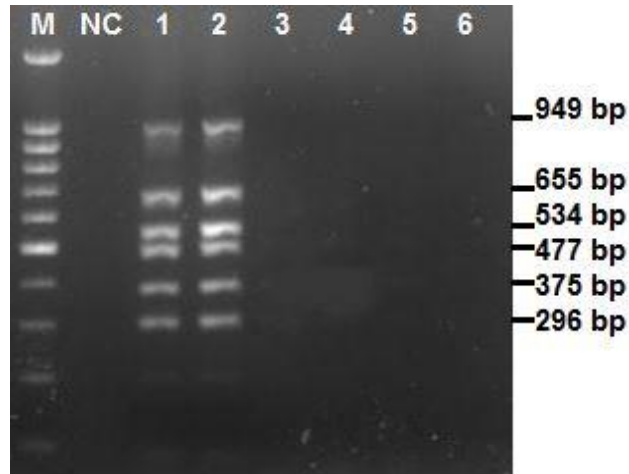


Fig. 2: Gel image showing specificity of multiplex PCR, Lane 1: template DNA in multiplex PCR is the mixture of DNA from non-targeted pathogen and E. coli O157:H7, Lane 2: Template DNA of E. coli O157:H7, Lane 3-6: Template DNA of non-targeted pathogens

Sensitivity assay

The bacterial genome was isolated and the concentration was measured as 120 ng/ μ l using fluorometer and a 10 fold serial dilution upto 10^{-5} and the concentrations were as follows, 12 ng/ μ l, 1.2 ng/ μ l, 120 pg/ μ l, 12 pg/ μ l, 1.2pg/ μ l. The test was carried out to evaluate the sensitivity of the multiplex protocol. The concentration of DNA which the protocol can amplify and resolve in gel electrophoresis was found to be 120 pg/ μ l and the image is shown in Figure 3.

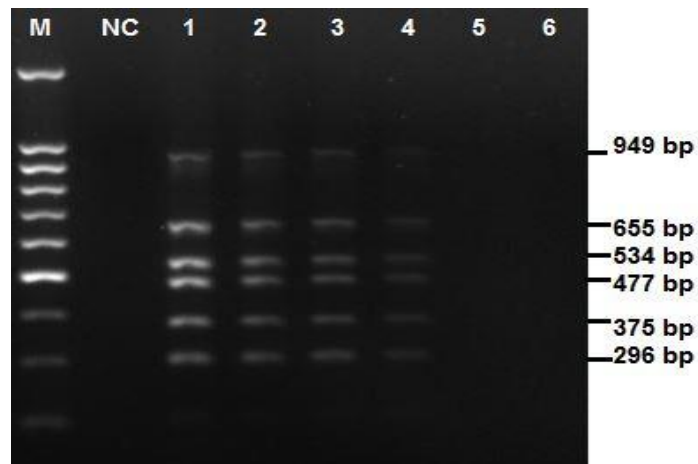


Fig. 3: Gel image showing sensitivity of multiplex PCR, Lane 1: 120 ng/μl DNA as template, Lane 2: 12 ng/μl, Lane 3: 1.2 ng/μl, Lane 4: 120 pg/μl, Lane 5: 12 pg/μl and Lane 6: 1.2 pg/μl

Spiked study

For the spike study, seafood samples were purchased from retail markets in Kochi, were placed in aseptic bags with ice, and immediately transported to the laboratory for use within 2 h. For testing the seafood samples for the presence of *E. coli* O157:H7, 25 g of each sample were homogenized in a smasher and serial decimal dilutions were prepared in Butterfield's phosphate buffered saline. 1 ml of dilution was pour plated onto tripticase soy agar (TSA) and incubated at 37 °C for 18 h. For spiking on seafood, 100 μl of *E. coli* O157:H7 (310, 36, 2 and 0 CFU) were mixed with 25 g of each sample and 225 ml of LB broth was added. It was pummeled in smasher and incubated at 37 °C for 18 h in a shaking incubator. The culture was filtered through 5 μm micropore filter to trap the seafood particles before DNA isolation. 2 ml of filtrate was used for DNA extraction using C-TAB method for multiplex PCR. On spiked study, the sensitivity of the protocol was found to be 2 CFU/25 g seafood samples (Fig. 4), thus the protocol could detect the pathogen even if it is very low in number.

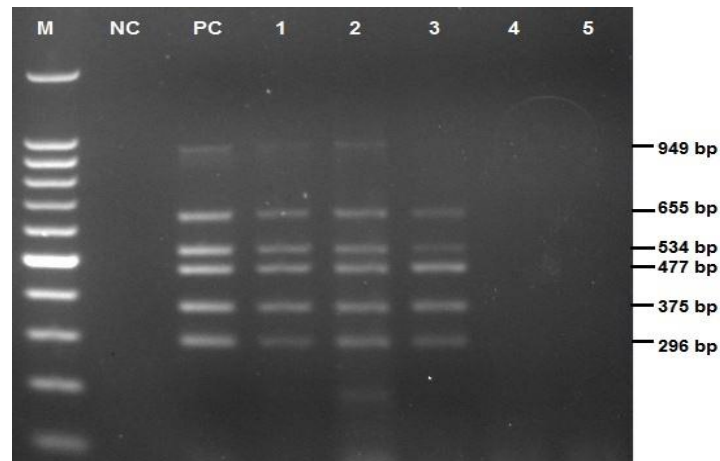


Fig 4: Gel image showing sensitivity of the spiked study, Lane 1: 310 CFU, Lane 2: 36 CFU, Lane 3: 2 CFU and Lane 4, 5: 0 CFU/25g seafood sample

⇒ Final validation of the developed multiplex PCR using various seafood samples

For testing the seafood samples for the presence of E. coli O157:H7, 25 g of each sample were homogenized in a smasher and incubated overnight at 37 °C. 1 ml of the enriched broth was used for the DNA extraction using CTAB method. The DNA extracted was further used for the detection of E. coli O157:H7 using the multiplex PCR protocol developed in this study. Among the 54 seafood samples and 10 poultry samples processed (September 2020- June 2021), no any samples got positive for E. coli O157:H7. Routine monitoring of the seafood is in process to screen out the presence of E. coli O157:H7 using the multiplex PCR protocol developed in this study.

Established Packaging testing laboratory, Fruit line processing facility and Meat and poultry processing unit during this period.

PUBLICATIONS / PRESENTATIONS/ SEMINARS

1. AkshayaRavindran, Maya Raman, NinishaBabu, Ammudinakaran, T.V.Sankar and T.K.SrinivasaGopal, (2020). Diet chocolates and replacement of cocoa powder with jackfruitseed powder, Journal of Food and Nutrition Sciences (2020), 11:220-233
2. P.J Gopika, NinishaBabu, AmmuDinakaran, DivyaVijayan, T.K SrinivasaGopal (2020), Development and characterization of kappa carrageenan(Kappaphycusalvarezii)incorporated bun. Food Science Research Journal., 11(2): 120-129
3. NinishaBabu, P.J Gopika, AmmuDinakaran, Maya Raman, T.V Sankar, SrinivasaGopal (2020), Development and chracterization of marine fibre enriched biscuits .Food Science Research Journal., 11(2): 140-150
4. NinishaBabu, AmmuDinakaran,Maya Raman, AkshayaRavindran, T.V Sankar, SrinivasaGopal(2020), Development of jackfruit leather and its shelf life analysis in different packaging materials .Food Science Research Journal., 11(2): 158-168
5. Safeena (2020). Evaluation of sensitivity and specificity of the multiplex PCR developed for the rapid detection of E. coli O157:h7 from seafood” in International Conference on Impact of Climate Change on Hydrological Cycle, Ecosystem, Fisheries and Food Security, 2020 organized by CUSAT, School of Industrial Fisheries, Cochin, India and Department of Fisheries, Govt. of Kerala.

6. T.K. SrinivasaGopal(2020) Book chapter on Foods from Ocean Nutrition , health and wellness in the text book on Nutritional and Health aspects of Food in South Asian countries , EdsJamuna Prakash, VidurangaWaisundara, Vishweshwariah Prakash , Elsevier publisher, U.K. pp 113-120
7. T.K.SrinivasaGopal delivered a talk on Emerging technologies on 19th January 2021 during Manage-KUFOS collaboration online training of trainers (TOT) on Value added food products and By product development from Fresh water fish.
8. T.K.SrinivasaGopal delivered a talk on Recent developments in different systems of Food packaging on 10th August 2020 during 5 days Virtual Five days online Faculty development programme on Recent trends and developments in Food Technology at Saintgits college of Engineering, Kottayam, Kerala
9. T.K.SrinivasaGopal delivered a talk on Recent trends in Aquatic Food products packaging on 21st January 2021 during Manage-KUFOS collaboration online training of trainers(TOT) on Value added food products and By product development from Fresh water fish.
10. T.K.SrinivasaGopal delivered a talk on Chilling and Freezing of Fish during World Refrigeration day organised by ISHRAE, Mysore chapter on 26th June 2021
11. T.K.SrinivasaGopal , Panelist member on Safety of Fish and Fish products during the workshop on Emerging opportunities for Agriculture and Food Processing Sector organised by C II Kerala Food Summit and Expos on 18th August 2020 sponsored by FMEA and FCFD
12. T.K.SrinivasaGopal, Delivered a talk on Sustainable Packaging related to Fish during the IUFOST Round table virtual discussion held at USA on 25th February 2021.
13. T.K.SrinivasaGopal, Chairman, Scientific Panel on Packaging of FSSAI, New delhi during 2020 -21
14. T.K.SrinivasaGopal, QRT member of ICAR-CIFE, Mumbai from 2020 onwards to date.
15. Gopika P J, NinishaBabu, AmmuDinakaran, Divya K Vijayan, SrinivasaGopal T K (2021)**Development and Characterization of κ -Carrageenan (*Kappaphycusalvarezii*) Incorporated Bakery Products.** National Women's Food Science & Technology

Conference in association with International Woman’s Day conducted by Indian Institute of Food Processing Technology.

16. **NinishaBabu, AmmuDinakaran, Maya Raman, AkshayaRavindran, TV Sankar, TK SrinivasaGopal.**, (2021). Process optimization for the development of shelf stable ready to eat tomato curry in see through retort pouch. National Women’s Food Science & Technology Conference in association with International Woman’s Day conducted by Indian Institute of Food Processing Technology.

17. Preenanka R, Safeena MP (2020) Evaluation of sensitivity and specificity of the multiplex PCR developed for the rapid detection of E. coli O157:h7 from seafood. International Conference on Impact of Climate Change on Hydrological Cycle, Ecosystem, Fisheries and Food Security (climfishcon) organized by School of Industrial Fisheries, CUSAT.

18. Digi George Participated in the BIOSPECTRUM 2021 - International Virtual Seminar on “Recent Trends in Biological Sciences” organized by the Postgraduate and Research Department of Microbiology, SreeSankara College, Kalady from 15th June 2021 to 19th June 2021.

19. Digi George and E.P.Preetham Presented abstract on "*In vitro* and *In vivo* analysis of alkoxy glycerol-silver nano particle (AKG-Ag NPs) on the growth parameters, immune response and disease resistance of Nile Tilapia (*Oreochromisniloticus*)”in an International Webinar on SUSTAINABLE MARINE FISHERIES AND AQUACULTURE: Policies, Packages and Perspectives in Blue Economy Paradigm (SMART P3BLUEECO-2021), March 12-13, 2021

Utilization of funds for the year 2020-21

Sl No	Account Name (103-30-1195-)	Allocation	Expenditure (Net)	Balance
1	134-SRF/JRF/TA/CHAIR	3768000	3,39,866	1701384
2	136- Contractual Staff		17,26,750	
3	141-Honorarium	100000	5,81,079	
4	150-TA	100000	4748	95252
5	299-Other items	375000	86,631	288369
6	350-Research Materials	1000000	3,44,330	
7	400-Training	57000	500	56500
8	401-Workshopd/seminars	100000	62,000	38000
9	601-Furniture/Fixtures	200000	1,65,322	34678

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10	700-Equipment	4500000	29,53,768	15,46,232
11	201-Stationaery and printing	200000	0	200000
12	202-Electricity	300000	0	300000
13	230-Repair and Maintenance	0	0	0
14	403-Document/Publication	100000	0	100000
15	600-Civil works	1200000	0	1200000
16	701-Computer/Peripherals	0	0	0
Total		12000000	62,64,994	5735006

**CENTER FOR ADVANCED STUDIES AND RESEARCH IN ENTREPRENEURSHIP
DEVELOPMENT IN FISHERIES, AGRI- BUSINESS AND ALLIED SECTOR**

Staff strength

Professor Chair: Dr Radhika Rajasree S R

Research Fellow : 3

Technical Assistant : 2

1. Webinar on Agri-business and start-up opportunities

- **LECTURE 1: Agri-business and start-up opportunities in Agriculture and Allied sectors (5th October, 2020)**

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries ,Agri-Business and Allied Sectors conducted an online webinar on “Agri-business and start-up opportunities” on 5th October, 2020. The speaker of the session was Dr. Saravanan Raj, Director (Agri. Extension), National Institute of Agricultural extension management, Ministry of Agriculture and Farmers Welfare, Government of India.



Fig 1: Dr.Saravana Raj, Director (Agri. Extension), MANAGE;
Discussion on “Agri-business and start-up opportunities”

- **LECTURE 2: How to start a start up step by step (10th October, 2020)**

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries ,Agri-Business and Allied Sectors conducted an online webinar series, lecture 2 on Agri-business and start-up opportunities on 10th October, 2020. The topic of the session was “How to

start a start up step by step” and the speaker was Mr. N. Krishna Kumar, Project Co-ordinator, Kerala start up mission.

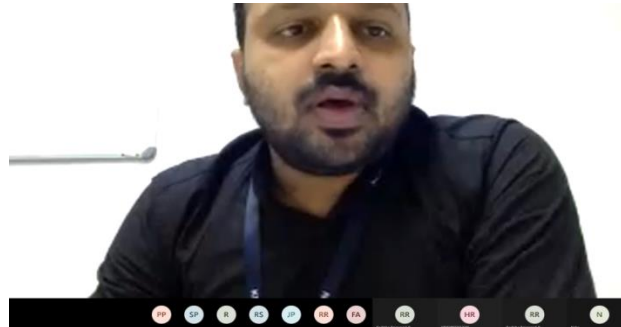


Fig 2: Mr. N. Krishna Kumar, Project Coordinator, Kerala start up mission; Discussion on “How to start a startup step by step”

- **LECTURE 3: Start-up and employment opportunities in Fisheries & Aquaculture- Government initiative and schemes (6th November, 2020)**

On 6th November, 2020 Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries ,Agri-Business and Allied Sectors conducted a webinar series; lecture 3 on the topic “ Start-up and employment opportunities in Fisheries & Aquaculture- Government initiative and schemes”. Speaker of the session was Dr. R Vijayan , Incubation manager (Fy.), Centre for Innovation and Agriprenurship (CIA), National institute of Agricultural extension management, GOI.

2. Emerging technologies and entrepreneurship in Dairy and Meat Sectors (5th&6th November, 2020)

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries ,Agri-Business and Allied Sectors and School of Ocean Science & Technology jointly organized a national webinar on “Emerging technologies and entrepreneurship in Dairy and Meat Sectors” on 5th&6th November,2020 at KUFOS. The speakers of webinar were

1. Dr. LathaSabikhi; ICAR-NDRI, Karnal on the topic “ Emerging prospects in functional dairy foods and scope for entrepreneurship
2. Dr. Bikash Chandra Ghosh ; ICAR-NDRI SRS , Bangalore on the topic “ Recent Advances in Indian dairy products and entrepreneurship”.

3. Dr. Mohamed Nadeem Fairoze, Former professor and head, Department of LPT, Veterinary college, Hebbal, Bangalore on the topic “opportunities in the meat industry in India for budding entrepreneurs”.

4. Dr. Vasudevan V. N, College of Veterinary and Animal Science, Mannuthy, on the topic “Conventional and novel technologies for valorization of abattoir co- products”.



Fig 3: Brochure with Speakers details of National webinar: “Emerging technologies and entrepreneurship in Dairy and Meat Sectors

3. Ornamental Fish Keeping (18 – 21st November 2020)

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries, Agri-Business and Allied Sectors, Directorate Of Research and National Service Scheme of the VHSE-DGE jointly organized 4 days online training programme on “Ornamental Fish Keeping “from 15 to 21st November 2020. There were 1013 school students were participated in the programme.



4. Entrepreneurship Training Programme in Bakery Products (11- 13th January 2021)

Centre for Advanced Studies and Research in Entrepreneurship Development in Fisheries, Agri-Business and Allied Sectors in association with Centre of Excellence in Food Processing Technology (CEFPT) conducted training from 11-13th January 2021 at KUFOS on the topic “Entrepreneurship Training Programme in bakery products”. There were 10 participants for the programme. The training was handled by Ananthanarayan T.R , CEO, Foodastha, Nettoor and Krishnadas, MD, Foodastha, Nettoor. The day wise schedule is given below:

DAY 1: Theory classes on principles of baking, introduction to various bakery products, practical session on cookies and biscuit making

DAY 2: Practical session on bread and bun making; Bakery entrepreneurship

DAY 3: Practical session on baking of different types of cakes; Group discussion and conclusion



Fig 5: Hands-on experience given to participants



Fig 6: Interaction of participants with trainer



5. Fig 7: Product developed by participants during training
water fishes(18 – 22nd January 2021)

By- Fig 8:Participants with trainers and coordinators.

Centre for Advanced Studies and Research in Entrepreneurship Development in Fisheries, Agri-Business and Allied Sectors in association with Department of Fish Processing Technology and National Institute of Agriculture Extension Management (MANAGE) conducted a 5 day training programme from 18th to 22nd January 2021 at KUFOS on the topic “Value Added Food Products and By-Products Development from fresh Water Fishes”. There were 40 participants participated in the programme.



Fig 9: Inauguration session of Value Added Food Products and By-Products Development from fresh Water Fishes

6. High Field Level 3 HACCP (17 – 23rd February 2021)

Centre For Advanced Studies and Research in Entrepreneurship Development in Fisheries, Agri-Business and Allied Sectors in association Department of Fish Processing Technology Jointly Conducted online High Field Level 3 HACCP training for final year BSc students of KUFOS from 17-23rd February, 2021. A total of 78 students took part in the training programmes, who were all successfully passed in the qualifying examination.



Fig 10: High Field Level 3 HACCP training

DIRECTORATE OF EXTENSION

Directorate of Extension, Kerala University of Fisheries and Ocean Studies (KUFOS) has implemented the following Plan Projects funded by Government of Kerala during the year 2020-21.

Village Adoption for Empowerment and Capacity Building Ensuring Livelihood of Fisherfolk in Central Kerala

Kerala University of Fisheries and Ocean Studies (KUFOS) is implementing the Plan Project “Village Adoption for Empowerment and Capacity Building Ensuring Livelihood of Fisherfolk in Central Kerala” from the year 2015 onwards. The major objectives of the project are promoting diversified aquaculture practices and allied activities in an eco-friendly and sustainable manner so as to increase the fish production of the State, creating more employment opportunities to the fish farmers and fisherfolk, thus ensuring livelihood security to them. The project also focuses on transfer of post harvest technologies to the target group with a view to ensure better quality products both for domestic and export market and helps in providing gainful employment by establishing small scale units along the coastal area. While promoting these activities special emphasis is being given for women empowerment also. As part of the project the following activities are carried out.

Demonstration Unit Established at CIAL, Kochi

Golf Club, CIAL, Nedumbassery is having freshwater area of 3 acres. On request of the officials working at Golf club, CIAL, Sri., Premkumar.T and Sri. Sunny Joseph who attended the training programme on “Seed Production and Farming Strategies of Pearlsplit” organized at KUFOS from 29/10/2019 to 31/10/2019 KUFOS, a team comprising of the experts Dr.K Dinesh, Head of the Department of Aquaculture, Faculty of Fisheries, Dr.Anwar Ali P H , Asst. Professor, Department of Fisheries Resource Management of the Faculty of Fisheries, Dr.Daisy.C.Kappen, Director of Extension and Sri Saneer N S, Fishing Technology Assistant visited the CIAL Golf Club during the month of November 2019 to know the prospects for promoting fresh water fish farming in this area. After site inspection, taking into consideration of the physical and chemical parameters and availability of water it was found that the this site is suitable for promoting farming of fishes like pearlsplit, GIFT tilapia, seabass, and carps. Out of the various types of fish farming the practice of cage aquaculture of the above fishes has been identified as the most suitable one taking into consideration of management of water quality parameters, detection of diseases if any,

easy harvesting and marketing as per the market demand which ensure better price for the farmers. As the above officials from Golf club, CIAL expressed their interest in the culture of pearlspot, the signature fish of Kerala having high market demand as an esteemed table fish, the University agreed to conduct a demonstration of the cage aquaculture of pearlspot. Three hundred numbers of pearlspot seed measuring 5-6cm were stocked in the cages of 3mx2mx2m size. Growth assessment and continuous monitoring of the water quality parameters are carried out. After a period of cultivation of 9 months 40 kg of fish was harvested with an average size of 200gm and a survival rate of 67 %

Demonstration Unit established at CIAL



Training Programme on “GIFT Tilapia Culture”

Kerala Agridevelopment & Sustainable Producer Co.Ltd (KADS PCL) informed that quite a good number of farmers living on the banks of the Thodupuzha River are interested in freshwater fish farming and come forward to adopt the technology. They made a request to the University to provide technical guidance in this regard. A proposal for promoting aquaculture along the banks of the Thodupuzha River has been worked out in association with the Faculty of Fisheries after conducting a survey in the proposed site on 4/6/2020 and sent to KADS. Later on they informed that about 50 members have come forward for doing GIFT Tilapia culture and requested to conduct a webinar on 25th September 2020 at 3pm. Based on their request a training programme on GIFT Tilapia Culture was organized on 25/9/2021 through on line. Dr. Binu Varghese, Asst.Professor, Department of Aquaculture, Faculty of Fisheries engaged classes to the farmers.



Earn While You Learn (EWYL)

The concept of this programme is to develop entrepreneurship among the students undergoing various courses in the University. Aquaculture and allied subjects dominate in their curriculum and a thorough hands-on exposure in the field will enable them to understand the basic concepts through a more practical oriented approach, to prepare them as capable professionals and turn them to job creators than job seekers. This programme, apart from giving practical exposure, will also enable them to be self-sufficient, confident and efficient managers. Kerala University of Fisheries and Ocean Studies (KUFOS) is implementing this project by utilizing the infrastructure facilities available in the University.

During the year 2020-21, due to Covid19 Pandemic and subsequent closing of the University the activities of the project were limited by monitoring and maintaining the brood stock of the various fishes kept in the pond utilizing the service of the labours.

Establishment of Farm Radio Station for Hastening Fisheries development in the State

Providing quick information at the right time to the stakeholders in the fisheries sector is indispensable for discharging their diversified activities both in the aquaculture and marine capture fisheries. Though tremendous developments have been made in the field of aquaculture and allied sectors, the technologies have not percolated to the fisherfolk and fish farmers to the desired extent. Lack of adequate knowledge about the various technologies still acts as a major constraint in the wide spread adoption of diversified practices in an eco-friendly and sustainable manner and efficient utilization of the vast resources in the State of Kerala. Transfer of technologies to the target group at a faster rate using appropriate media will help in the efficient utilization of the various fishery resources, augmenting fish production of the State, creating more employment opportunities to the fisherfolk who are facing problems as low catch, increased fishing effort etc. Similarly, the marine capture sector is also facing various challenges at present, of which the most important one is the more or less stagnant position of the Kerala State in marine fish production during the past few years due to over exploitation, juvenile fishing etc. Creating awareness about the responsible fisheries and need to conserve the fishery resources for the future generation is the need of the hour which requires urgent attention. In addition to these, both State and Central Government Agencies are involved in various types of welfare activities with the objective of the socio economic development fisherfolk and fish farmers and providing both technical and financial support to them. Here also, lack of awareness about these assistance provided by different agencies acts as a major constraint in availing of benefits from the concerned agencies. As the extension education focuses upon the overall development of the people, due attention should be given to their total development in all dimensions viz. financial, social, cultural, spiritual etc. For this, in addition to the dissemination of technologies, conducting value based cultural programmes, leadership and personality development programmes etc. are also required. Such programmes can be organized with the participation of the community which can be recorded, and broadcasted/telecasted later on for the benefit of the entire community. Besides these, KUFOS as part of the extension activities under various Plan Projects funded by Government of Kerala, is also conducting various programmes for the benefit of the community which can also be transferred. Towards fulfilling the above intentions, as part of the Plan Project "Farm Radio", an Audio

Video Recording Studio has started functioning during the year 2018 onwards. Currently a Cameraman cum NLE Editor and a Production Associate are working in this project. The University Governing Council in its 59th meeting held on 27/12/2018 decided to rent out the facilities of the studio to other individuals/institutions etc. so as to generate some revenue to the University. As per this decision, Directorate of Extension is outsourcing the facilities and started creating income to the University. An amount of Rs.34,700/- (Thirty four thousand and seven hundred only) has been earned during the year 2020-21 by outsourcing the studio facilities. The following activities were carried out during the year 2020-21.



AUDIO VIDEO RECORDING STUDIO

APRIL-2020

- Technical advices for conducting online classes to the students were provided to the teachers over telephone from home.
- Sorting of the photographs of convocation, seminars etc. were carried out from home

MAY-2020

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- Technical advices for conducting online classes to the students were provided to the teachers over telephone from home.
- Videography and Video Editing of the MBA online class by Dr.Amblikumar on 26/05/2020
- Provided technical support to Dr.Safeena for conducting online classes to the BFSc

JUNE-2020

- Video Editing of the five day Manage-KUFOS Training on Entrepreneurship programme on 03/06/2020 to 05/06/2020.
- Sorting of the photos of the one day training programme on HYGIENIC HANDLING AND CLEANING OF FISH organized under the plan project, Model Fish Processing Plant and Training on 09/06/2020
- Provided technical support to Dr.Abhilash for conducting online classes to the BFSc on 16/06/2020 .
- Video Editing and converting of Dr. AbhilashSasidharan's online class footage on 17/06/2020.
- Previewing the footage of Vanami shrimp culture ,cage farming and discussion with Director of Extension for re-editing the video on 29/06/2020.

JULY-2020

- Photography of the facilities available at KUFOS for conducting online classes to the students so as to submit a report to the hon'ble Vice-chancellor on 06/07/2020.
- Photography of the General Council video conference on 8/07/2020
- Video shoot of interview with Dr.Dinesh for preparing a video film on Vannamei shrimp farming on 14/07/2020.
- Audio Recording for production of informative video film on Seabass fish farming on 16/07/2020.
- Rough cut of the online classes conducted by Dr. AbhilashSasidaran for the PG and UG students on 21/07/2020.
- Audio Recording and Editing of the Pilot Episode on " Close-up with Conservation" of the PhD Scholar AryaSidharthan on 21/07/2020.
- Audio Recording for the production of informative video film on Vannamei shrimp farming on 23/07/2020.
- Final cut of the online classes conducted by Dr. AbhilashSasidaran for the PG and UG students on 27/07/2020.

AUGUST-2020

- Rough cut preparation of Vanami Shrimp documentary on 1/8/2020
- Collection of details about "fresh water fish farming" for the preparation of screenplay of the same on 3/8/2020.

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- Provided technical support to Dr.Daisy C Kappen for conducting online classes to the BFSc students on 3/8/2020 , 5/8/2020, 10/8/2020 and 12/8/2020.
- Recovered data from the storage device for video editing on 7/8/2020.
- Recovered data transferred to other external drive on 10/8/2020 and 11/8/2020
- Discussion with experts and writing of the rough draft of fresh water fish farming on 12/8/2020
- Started working on detailed first draft after consultation with the experts on 14/8/2020

SEPTEMBER -2020

- Note preparation and discussion with Dr. Daisy C. Kappen about fresh water fish farming for the production of a short film on “Freshwater fish farming”
- Writing treatment for screenplay
- Prepared third draft
- Submitted the third draft and feedback and started writing final draft
- Submitted of final draft to Dr. Daisy C. Kappen for taking feedback
- Submitted final draft to P R O Mr. Raju Raphael for offering suggestions and modifications.

OCTOBER- 2020

- Maintenance of all equipment in working condition in the audio video recording studio
- Digitalized screenplay of the short film “Fresh Water Fish Farming”
- Submitted hard copy of screenplay to Director of Extension and Director, Public Relations for further helpful suggestions
- Cinematography of pen culture at Cheppanam – from 19th to 29th October 2020
- Making backups of data after shooting
- Discussion with Director Public Relations regarding the approval of the script on Fresh Water Fish Farming.
- Started narration after receiving the approval.
- Started making the shot division of screenplay

NOVEMBER -2020

- Photography of the ponds located in the western campus for including in the annual report of the Directorate of Extension-2020-21
- Maintenance of the equipment in the studio for keeping it in working condition
- Digitalized screenplay about Vannamei shrimp farming.
- Submitted hard copy of screenplay to the Director of Extension for further helpful suggestions.
- Photography of the MOOC classroom for including in the annual report 2019-20
- keeping backups of data after shooting.
- Photography of the pledge taking in connection with the National Integration day on Nov19
- Associated PRO & HOD, Aquaculture for making introduction video for seminar presentation.
- Photography of the pledge taking in connection with the constitution day on Nov 25
- Photography of the studio for including the annual report 2020.

- Started writing narration for screenplay.

DECEMBER -2020

- Maintenance of the equipment in the studio for keeping it in working condition
- Keeping backups of data after shooting.
- Photography of Biotechnology lab ,Biochemistry lab, Marine microbiology lab, Marine biology lab, Marine chemistry lab, Food science and Technology lab, Quality assurance and sensory lab, Food processing lab, Physical oceanography lab, Soil and water analysis lab, Earth science lab and Centre for bioactive substances from marine organisms lab for including in the annual report.
- Sorting and sending of the photographs to the concerned officers.
- Field visit and videography of the demonstration unit at Thuruthippuram at 9/12/2020.
- Photography of the distribution of cages to the farmers at Pazhambillythuruth.
- Photography of IQAC one day workshop on assessment and accreditation process of NAAC on 15/12/2020.
- Assisted in conducting the practical test to examine the ability in working the cameras and FCP on 22/12/2020.
- Script writing for the production of a video film on the topic “Fresh Water Fish culture”

JANUARY-2021

- Carried out the maintenance of the various equipment in the Audio Video Recording Studio for keeping it working condition
- Photography of 3 Days Entrepreneurship “Training Programme in Bakery Products” jointly Conducted by CASRED and CEFPT, KUFOS on 11th to 13th January 2021
- Sound Recording and Video Editing from 12th to 14th January 2021 for the production of Video film showing the extension activities of the Directorate of Extension , KUFOS for presenting the same to the UGC 12B Expert Team
- Videography and Video Editing of the Visit of UGC 12B Expert Team at KUFOS on 15th to 16th January 2021
- Video editing and Sound Recording showing the activities of the KUFOS in teaching research and extension in connection with the NavakeralamYuvakeralamprogramme of Kerala Government-18th to 19th January 2021
- Photography of the Hon. Vice Chancellor’s interaction with faculty members, KUFOS on 23rd January 2021
- Photography of newly built Academic block, Mechanical workshop and ponds on 25th January 2021 for publicizing the achievements of the Govt.of Kerala

FEBRUARY- 2021

- Carried out the Maintenance of the various equipment in the Audio Video Recording Studio for keeping it working condition.
- Videography and Photography of Seed distribution to the farmers at Chathamma for producing a short film of cage farming on 8/2/2021

- Shooting of the activities and achievements of the KUFOS in teaching research and extension including an interview with the Vice chancellor as part of producing a video film for uploading the same in the web portal for the Chancellor's award.
- Videography of new academic block, name boards, garden, LED bulbs, ponds, solar panels, rain water harvesting system and Green protocol initiatives from 11-02-2021 to 17-02-2021 as part of producing the above film.
- Sound Recording of the above activities.
- Video editing of four short documentaries for Chancellors award from 8/02/2021 to 19/02/2021.
- Photography of Faculty Development Programme on "Outcome Based Education". Jointly organized by Internal Quality Assurance Cell, KUFOS and Kerala State Higher Education Council on 16-02-2021

MARCH -2021

- Carried out the Maintenance of the various equipment in the Audio Video Recording Studio for keeping it working condition.
- Shooting for producing pen and cage culture documentaries on 3rd, 6th & 9th March 2021 at various places.
- Video editing of two Documentary films about pen and cage culture from 1st march to 30th march 2021
- Videography and photography of National workshop on "Ensuring Quality in scientific Research & Effective Utilization of e-Resources" organized by Central Library, KUFOS on 16th & 17th March
- Photography of workshop on "Ornamental fish farming" on 23rd to 25th March 2021
- Sound recording and editing of a video film to commemorate the former Vice Chancellor of KUFOS Prof. Dr A Ramachandran on 26th March 2021,
- Photography of the functions arranged in connection with the Remembrance of late Prof. (Dr.) A. Ramachandran, former Vice Chancellor of KUFOS

Establishment of Fisheries Technical, Portal and Knowledge Centre

Fisherfolk engaged in fishing activities both in the inland sector as well as in the marine fisheries sector require timely information while carrying out their fishing operations. Similarly, innovations in the aquaculture including improvement in the existing practices have to be transferred in an effective manner to the fish farmers with the objective of increasing their per capita income, augmenting the fish production of the State, thus ensuring their livelihood security. Also, the dwindling catches in the marine sector indicate the necessity of creating awareness about responsible fisheries among the fisherfolk so as to avoid over-exploitation and to conserve the fishery resources for the future generation. Equally important is the post-harvest technology, as the fish is a highly perishable item, following hygienic handling practices through out the various steps in fish processing is highly essential to ensure a better quality product both for domestic and export market which plays a major role in export earnings of the country.

In the above scenario, establishment of a Fisheries Technical Portal and Knowledge Centre at KUFOS will act as a single window in disseminating all the relevant information and technologies in the field of fisheries to the fisherfolk and fish farmers. It can be transferred to them through publications, conducting awareness and training programmes etc. The research findings, extension activities, academic programmes etc. of the University can be stored as digital files in the center for further use. It will also work as an audio-video library for the use of local people and students. In addition to these, the production of video films in the diversified sectors of fisheries viz. aquaculture and marine capture sector and distributing the same to the public and various institutions engaged in the development of fisheries sector through the centre will contribute to the dissemination of information at a faster rate leading to much progress in the fisheries sector. The Audio Video Recording Studio established at KUFOS has started the production of video films on the above mentioned sectors which can be disseminated among the farming community and fisherfolk through the Portal and Knowledge center established at KUFOS. The center can also provide information on the functions various institutions/ agencies working in the field of fisheries including their welfare activities. In addition to these, problems/constraints of the stakeholders in the field which require scientific interventions can also be conveyed back to the University for conducting research and offering solutions to them through this center

Farm Advisory Services

Lack of knowledge about the improved practices in aquaculture and allied sectors acts as an important constraint in the adoption of better management practices for increasing the fish production of the State. At the same, time the technologies which are production - oriented should be promoted in an eco - friendly and sustainable manner. Creating awareness on freshwater and brackish water farming, mariculture, post- harvest technologies, responsible fisheries, need to conserve the fishery resources, judicious exploitation of the fishery wealth etc. plays a vital role in the total development of fisheries sector . Such information can be provided fruitfully to the farmers and fisherfolk by way of publications, conducting training cum demonstration programmes, showing video films, motivating them by distributing various inputs etc. The activities of the center were limited on account of the Covid 19 pandemic during the year 2020-21.

Exhibition Unit

Conducting/ participating in exhibitions organized by different institutions is an important means of transfer of technology . Participation of people in such events and exposure to various technologies will help in developing interest and motivate them in adopting the new technologies at a faster rate. Aquaclinics arranging along with exhibitions ensure the service of the experts working in different sectors of fisheries and help to solve the problems of the farmers. The exhibition unit established at KUFOS has rich collections of specimens, models of various fishing crafts and gears, visual aids showing the activities and achievements of KUFOS, aquarium tanks for setting up of aquariums while participating in exhibitions including a TV for the display of various activities in the field of teaching, research and extension. Though the University was conducting/participating various exhibitions organized by NGO/Sate/Central Govt institutions for the last 10 years, due to Covid 19 pandemic KUFOS was not set up any stall during the period 2020-2.

Celebration of Agriculture Education Day

Indian Council of Agricultural Research (ICAR) has been celebrating **3rd December** as “**Agricultural Education Day**” to commemorate the birth anniversary of first President of Independent India and Union Minister of Agriculture, Bharat Ratna, **Dr. Rajendra Prasad**. In virtue of this, **Faculty of Fisheries in association with the Directorate of Extension, Kerala University of Fisheries and Ocean Studies (KUFOS)** has organized two programmes on 3rd December, 2020. The event was organized in an ONLINE Platform streaming the live session on Face Book with more than 150 participants.

Programme 1

Time: 10.30 to 12.30 pm

The first programme was aimed at creating interest and awareness on the students and public on the scope and potential of fisheries sector especially aquaculture, ornamental fish culture and fish processing technology as a means of income generation through entrepreneurship.

The programme named as Experts-Students-Public Interaction on Fisheries was kick started at 10.30 am by Prof. (Dr.) Riji John, Dean Fisheries, Kerala University of Fisheries and Ocean Studies (KUFOS) giving an introductory note to the session. Dr. B. Manoj Kumar, Registrar of KUFOS gave the presidential address portraying the struggles undergone by the forerunners to put a solid basement to fisheries education in the country.

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Dr. K. Dinesh, Head, Department of Aquaculture was the moderator of the event Prof. (Dr.) T.V. Anna Mercy, Former Professor, KUFOS opened up the session by rendering her four decades of experience in fisheries education and research. Shri.T.Purushothaman, Chairman of Aquaculture Development Cooperative Society (ADCOS) and the President of Kerala Aqua Farmers' Federation (KAFF) was the next speaker. including lower growth, disease attack and crop losses. Shri. C. K. Sudhakaran yet another renowned aqua-farmer shared his views on the necessity of protecting the sustainability of the aquaculture sector. Prof. (Dr.)RadhikaRajasree,Head, Department of Fish Processing Technology described the enormous opportunities for the students in fish processing and value addition. Further, Dr. Binu Varghese, Assistant Professor elaborated the entrepreneurial possibilities in freshwater and marine ornamental fish cultureand seed production. Mr. Rakesh C. G.,Project Associate has explained thebiofloc technology and its opportunities in a simple manner to the students.



Programme 2

Time: 2.00 to 3.30 pm

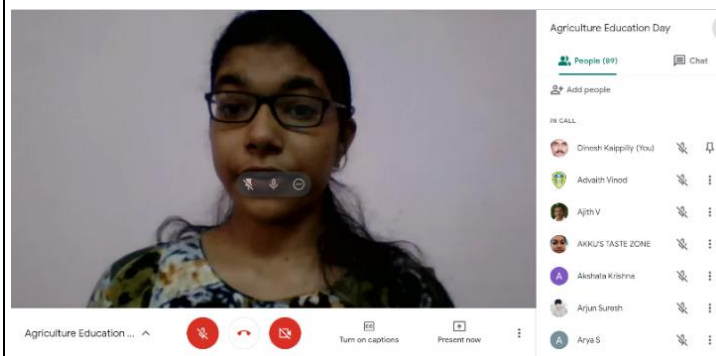
The next programme, Students-Experts Interaction on Ornamental fishes has begun at 2.00 with the opening remarks by Prof. (Dr.) Daisy C Kappen, Directorate of Extension. She has explained the importance of the Agriculture Education Day celebrations and urged all students to be a part of the programme in future also.

Ms. Suparana R (Class XI) a participant student from the online audience was given the opportunity to propose the welcome address.

Prof. (Dr.) Devika Pillai, Directorate of Research gave the presidential address. An interesting lecture was rendered by Mr. Santhosh Baby further who is a renowned aquarium expert and Managing Partner of Aqualine Exports

Dr. Chiranjiv Pradhan, Assistant Professor, Department of Aquaculture concluded the session by proposing the vote of thanks.

Visit Facebook KUFOS live @ <https://www.facebook.com/100901485011866/posts/186078623160818/?flite=scwspnss>



Centre for Field Consultancy and Data Analysis

Taking into account the need for creating a single window system for providing fisheries sector data and the growing demand for consultancy for data analysis in fisheries and allied sector, Faculty of Management Studies, KUFOS launched a Centre for "Field Consultancy and Data Analysis" during the XII Plan period. The center aims to document, analyze and publish data both from primary and secondary sources relating to fisheries and allied sectors. Providing consultancy service on data analysis and interpretation is also envisioned.

The major objectives are

- To collect world and region-wise fisheries sector data relating to resources, production, fisheries trade, etc.
- Collect data on total fish production in India and Kerala, species - wise and category wise and its documentation.
- Collect data relating to marine products export, fishery resources, fisherfolk, etc., of Kerala and India and its documentation.
- Undertake data analysis for industry, researchers, and other agencies on demand.
- Impart training and development services on demand.
- Take up consultancy services in Project preparation and evaluation.
- To suggest policy measures based on the findings of the study

Setting up of Cage culture units for production and training in two geographical zones of Kerala for further demonstration and popularization of the technology.

The current project is envisaged to establish cage culture units in two geographical zones of Kerala; North zone and South zone. In North zone, Payyannur, Kannur District has been selected and in South zone, Mundrothuruth, Kollam was selected for the implementation of the project. The programme is being operated under the Plan Project of Kerala University of Fisheries Ocean Studies (KUFOS) funded exclusively by Government of Kerala. The project was started in January 2019. The major objective of the project is to train interested beneficiaries in two geographical zones of Kerala (Kannur and Kollam Districts) and establish cage culture units for further demonstration and popularization of the technology which was successfully demonstrated by the Directorate of Extension, KUFOS elsewhere. The lead

researcher of the programme is Dr. K. Dinesh, Associate Professor and Head, Department of Aquaculture and the Co Investigators are Dr. Daisy C Kappen, Professor and Director of Extension, KUFOS, Dr. B. Manoj Kumar, Registrar, KUFOS and Mr. Prasannan, Special Officer of Kollam Regional Centre of KUFOS. The supporting personnel include one Senior Research Fellow (SRF), Miss. Keerthana T.A. and two Field Assistants, Mr. Al Ameen and Mrs. Chinju Lal. The SRF joined the office on 01.01.2019 and two Field Assistants on 29.12.2018 & 30.12.2018 respectively. Keerthana T.A. (SRF) and Al Ameen N. (Field Assistant) were directed to attend the duty in Regional Centre of KUFOS in Payyanur, Kannur and Chinju Lal (Field Assistant) was directed to work in Kollam.

Work done so far

- The first phase personal surveys were carried out at both stations (Kollam and Payyanur) to assess the interest of the beneficiaries and to collect data on existing fish culture practices in the region. The survey helped to identify the immediate need of the farmers, status of market and current issues faced by farmers in the areas like availability of inputs, disease occurrence, training and marketing assistance required pertaining to cage fish farming.
- At Payyanur, 'Thuruthi' was the area selected for the implementation of the project and at Kollam 'Mandrothuruth' island was the area selected. Both the areas are economically backward and most of the inhabitants belong to below poverty line.
- The inputs for the projects were procured from various agencies adhering to the Government norms. In both sites, 6 units (3 cages in a single unit) were erected with the dimension of 2x2x1.5 m for a single cage. Each cage unit were allotted to a single group comprising of 3 beneficiaries each. Altogether 6 groups of beneficiaries (18 beneficiaries) were formed at each site. The fish seed, feed, freezers for storing the feed and other necessary inputs were also distributed to the beneficiaries.
- A total number of 4230 *Latescalcarifer* fingerlings were stocked with a stocking density of 250 no. of seed/ cage at Kollam. In Payyannur, only 4 units were stocked with *Latescalcarifer* with a stocking density of 350/ cage. The culture period was from November to June.

- The project team has provided all the necessary technical support to the beneficiaries. Regular monitoring of water quality, feeding pattern and health of animals were also done.
- Partial harvest of both the sites was done during the first week of June. A total of 385 kg of fish was obtained from Payyanur site and a total of 394 kg fish was harvested from Kollam site. The weight and length of the fish varied from 1400 g to 350 g/ fish and 44 cm to 17 cm / fish respectively. The beneficiaries from both the sites got the highest farm gate price available in the market.

ACTIVITIES AND ACHIEVEMENTS (2020-2021)

- Conducted a one-day seminar to all beneficiaries at Payyanur on 28/11/2020 and at Kollam on 09/01/2021 to give, on the farm advice to them with the help of a cage culture expert.
- In, Payyanur, conducted a review meeting on 20/09/2021 with the beneficiaries to assess the benefits achieved from the first culture and the pros and cons related to the implementation of the same.
- In Payyanur, the cleaning and other maintenance works of all the cages and other inputs are going on.
- In Kollam, the activities for the next cycle of culture are in progress.

Instructional farms in the Western campus



Kannur Regional Centre, Payyannur

APRIL 2020

- Monitored biofloc, pond culture, pen culture in Payyanur(Vellur, Ezhimala, Kothayimukk) and assessed their water quality using a biophotometer. Also shared knowledge about disease management.
- Collected fish catch data and mussel farming data by interacting with fishermen through phone calls.

MAY 2020

- Collected fish catch data and mussel farming data from Kasaragod district.
- Screened samples in the molecular diagnostic laboratory to check the working condition of primers of WSSV, EHP, IHHNV, MBV.

JUNE 2020

Webinar on ‘Basics of Aquaculture’

- Due to the covid-19 pandemic the availability of fish was limited, this situation has turned people to think about aquaculture. So the rise in demands about aquaculture had inductive to conduct a seminar. So a seminar was conducted on the topic ‘Basics of aquaculture’ on 19/06/2020 with the participation of 25 people, the class were handled by Rakesh C J, Senior Research Fellow KUFOS.

JULY 2020

- Screened samples in the molecular diagnostic laboratory to check the working condition of primers and positive control of WSSV and EHP.
- Collected and estimated fish catch data.

AUGUST 2020

- Collected fish catch data and mussel farming data by interacting with fishermen through phone calls.

SEPTEMBER 2020

- Visited KUFOS cage culture site in Payyanur(Edat thuruthi)
- Collected and analysed water quality parameters from Madakkal, Valiyaparamba.

- Fisherman from Madakkal listed out their difficulties during fishing also mentioned the plastic pollution faced by Valiyaparamba Panchayat.
- Collected fish catch data from 21 sampling stations.

OCTOBER 2020

- Collected fish samples, shells from Kavvayi backwater and identified species.
- Visited Ori for monitoring oyster culture and cage culture.
- Visited farms in Payyanur (Vellur, Kothayimukk, Keloth, Trikaripur) for checking water quality parameters.

NOVEMBER 2020

- Visited and participated in seed stocking (seabass) in the KUFOS cage culture unit in Thuruthi.
- Conducted one-day seminar at thuruthi with the help of Dr K. Dinesh, PI(“Setting up of cage culture units for production and training in two geographical zones of Kerala for further demonstration and popularization of the technology”) to all beneficiaries regarding cage culture techniques, feeding and maintenance etc... The meeting was held at the cage culture site in Payyanur on 28th November.

DECEMBER 2020

- Collected water samples, plankton samples, benthos, sediment and shells from Perumba river, Kavvayi backwater, Chottad estuary through boat sampling with the help of a project assistant from CIBA, Chennai.
- Analysed collected samples and preserved them for further analysis.
- Collected fish samples from Kavvayi backwater and recorded data of gut content analysis and length-weight relationship.
- Participated in the harvest of Tilapia pond culture at Kothayimukk pond.
- Visited KUFOS cage culture unit for checking the condition of *Mytella strigata* spread in the cage nets.

JANUARY 2021

- Visited Kanayi pond for testing water quality parameters.
- Collected catch data from 21 landing centres.
- Conducted boat sampling from Kavvayi to Madakkara with Dr Sreekanth GB. Collected and recorded fishing data, fish catch data, Number of boats operating in Kavvayi wetlands, coracle fishing, Tourist boats and Oyster farming. Also continuously recorded ph, temperature, salinity, TDS, depth etc.. from every landing centre.

- Identified collected fish samples and took good photographs of samples.
- Visited KUFOS cage culture unit.

FEBRUARY 2021

Screened diseased tilapia(Chitralada) samples and prepared plates for detecting bacterial colonies.

- Participated in the stocking of tilapia(Chitralada) in biofloc unit in Payyanur.
- Collected fish catch data and water samples from 21 landing centres
- Collected water samples, plankton samples, benthos, sediment and shells from Perumba river, Kavvayi backwater, Chottad estuary through boat sampling with the help of a project assistant from CIBA, Chennai.
- Visited KUFOS cage culture unit.

MARCH 2021

- Conducted boat sampling from Kavvayi to Madakkara and collected and analysed plankton, benthos, sediment and water samples from 21 sampling stations.
- Tested water quality parameters of farmers from different regions of Kannur and Kasaragod.
- Visited KUFOS cage culture unit and recorded length weight of seabass and analysed water quality parameters.
- Visited biofloc unit in Payyanur and shared scientific methods and techniques of biofloc unit.
- Cooperated to distribute cows and calves to SCST colony in Payyanur, as part of an urgent livelihood programme organized by KUFOS funded by (ICAR), Government of Kerala.
- Visited and screened etroplus samples in Thayaneri pen culture unit of SCST Project KUFOS.



Collecting fish catch data and mussel data from Kavvayi Backwater



Monitoring KUFOS cage culture unit in Edat Thuruthi (Payyanur)

INFRASTRUCTURE

PLAN FUND PROPOSALS APPROVED FOR THE YEAR 2020-2021

Sl.No	HEAD	AMOUNT (2020-21) LAKHS
I	INFRASTRUCTURE	
1	Construction works at KUFOS HQ includes, Seminar Complex , , International Hostel And Staff Quarters,	460
2.	Repair and Renovation of the existing Building	100
3.	Upgradation of Playground at KUFOS	100
4.	Development Ponds For Farming	100
5.	Academic block at Western campus	200
6.	Campus development At Fisheries Station Puthuveypu	100
7	Construction of sluice gate at Puduveypu	100
8	Construction of SM E building	100
9	Construction of UG hostel building	100
7.	Establishment of Fisheries Training centre kollam and Establishment of Aquaculture training centre Kannur	200
	Total	1560

COMPLETED WORKS DURING 2020-21

CONSTRUCTION OF SEMINAR COMPLEX AT KUFOS HEAD QUARTERS PANANGAD

The building shall be of RCC framed structure with floor height 10.50m having a plinth area of 1044sq.m in ground floor accommodating 436 seats and 618sq.m.in first floor accommodating 184 seats. Thus the building shall be ultimate with a total plinth area of 1662 sq. m to accommodate a total seating capacity of 618.The Seminar Complex is designed as a main air-conditioned Seminar Hall, acoustically treated and provides with a centrally controlled audio system .This

spacious and well-equipped facility is well suited for conducting of seminars, conferences, conventions and cultural programmes etc. The hall can also be used for screening Film.

During the plan fund 2014-15 Rs.100 lakhs for phase 1 , 2015-16 plan fund Rs.150 lakhs for phase 2 , 2016-17 plan fund Rs.25 lakhs for phase 3 ,2017-18 plan fund Rs.200 lakh for phase 4 and 2018-19 plan fund Rs. 100 lakhs for phase 5 had allotted .The construction of phase 1, 2 and 3 (the structure of the building)were completed and the last phase including acoustics and interior works are in progress. The total project cost is Rs.1275 Lakhs.



INTERNATIONAL HOSTEL CUM GUEST HOUSE AND STAFF QUARTERS

The building is of RCC framed structure having (G + 6 floors) with plinth area of 235.98 sq.m in ground floor and 235.98 sq.m for 1st floor accommodating International hostel, and 2nd ,3rd ,4th ,5th& 6th floor each having 235.98 sq.m accommodating staff quarters. Thus the building shall be ultimate with a total plinth area of 1651.86 sq m. The Ground and first floor of the building is completed and is entrusted with M/s KEL. The remaining floors, are in progress.



ACADEMIC BLOCK at HEADQUARTERS

The building is a five-storied load bearing structure with a total plinth area 12855 m² in which 2571 m² in each floor. It is constructed as phased manner and the work is entrusted with M/s.KSCADC. First , second phase, third phase , fourth phase and fifth phases, utilizing the plan funds allocated Rs. 350 Lakhs during 2011-12, Rs.400 Lakhs during 2012-13, Rs.400 Lakhs during 2013-14 , Rs.400 Lakhs during 2014-15 and Rs.400 during Lakhs 2015-16 . The sixth phase (A&B) utilizing NABARD/RIDF FUND amounting Rs.4000 Lakhs. Hence a total fund of Rs. 59.50 crores is allocated. The first phase includes various labs in the ground floor. The second phase includes classrooms, staff rooms, stair cabin and toilets in ground floor, first floor and second floor. The third phase includes computer lab, PG lab etc in ground floor, first floor and second floor. The fourth phase includes UG labs, toilets, stair cabin etc in ground floor, first floor and second floor. The facilities such as mini conference room, PG classrooms etc are provided in the fifth phase. The sixth phase (A&B) utilizing NABARD/RIDF FUND amounting Rs.4000 Lakhs includes class rooms,

staff rooms, various labs ,toilets,mini conference halls.etc.



CONSTRUCTION OF PG HOSTEL FOR WOMEN -phase 4

The University had started new PG courses and doctoral programmes. The women's hostel capacity is grossly inadequate, hence it is essential to construct new P.G. Hostels for women.

The building is of RCC framed structure (G+2 floors) with floor height of 3.00m in ground floor and 3.20 m for other floors having a plinth area of 688 Sq.M in each floor. Thus the building shall be ultimate with a total plinth area of 2064 Sq.M. The building consisted of thirty six triple seated rooms, dormitory, warden room, waiting room, dining room, Pantry, kitchen, work area, care taker room, store room, toilet blocks etc. The building will have light weight sheet roofing laid on steel trusses for topmost floor. After the completion of the whole project, 150 numbers students can be accommodated. BSNL Civil wing was entrusted with the construction work in a phased manner.

First and second phase construction was entrusted with M/s. BSNL, and was completed. During 2013-14 plan fund Rs.250 lakhs is allotted for phase -1 and 2016-17 plan fund of Rs. 97.21 lakhs for phase -2. In the first phase entire ground floor (688sqm), First floor (251sqm) and in the second floor columns raised and light roof laid over the left portion (251 sqm) was completed. In the second phase six rooms with toilet block in each first and second floor of the right portion (north side) of the building with total plinth area 322 sqm (161X2) is under progress.

In the third phase, 2018-19 plan fund, Rs. 100 lakhs is allotted and the work is entrusted with KSCADC and is in progress. The work includes, First floor of area 97.92 sqm above dining of GF and Second floor of area 311.43 sqm in the front left side and also upto the next room of rear stair. In the fourth phase, ICAR fund, Rs. 120 lakhs is allotted and the work is entrusted with KSCADC and is completed.



CONSTRUCTION OF RESEARCH COMPLEX AT KUFOS HEAD QUARTERS(road work & drain) –phase 4

The building is RCC framed structure (G+1 floor) having a plinth area of 455 Sqm in GF and 455 Sqm in 1st Floor. The work is, taken up in a phased manner. The building is used for various research activities of the University which accommodates Molecular lab, Microbiology lab, Histopathology lab, Processing hall and Aqua clinic.

First ,second and third phase construction of the Research complex was entrusted with M/s. BSNL and fourth and fifth phase construction was entrusted to KSCADC. First phase work was completed and second , third, fourth and fifth phases work are in progress. During 2013-14 plan fund Rs.155 lakhs is allotted for **phase -1**, 2016-17 plan fund of Rs. 101.50 lakhs for **phase -2** ,2017-18 plan fund of Rs.50 lakhs for **phase 3**, 2017-18 plan fund of Rs.75 lakhs for **phase 4** and 2018-19 plan fund of Rs.68lakhs for **phase 5** .The last two phases includes the external works such as paving tiles, landscaping, rain water harvesting system etc.



CONSTRUCTION OF PHYSICAL AMENITY CENTRE AT KUFOS HEADQUARTERS –PHASE 4

The common amenity centre which acts as a business centre for the students and faculty to accommodate fish stalls for marketing the products from the fish farms of the university, fish kiosks to sell value added products, cafeteria, co-operative society, banking facilities, photocopying, ATM, post office, super market, students centre, parking space as per by-laws etc. In addition to this, a fully furnished and air conditioned seminar hall in the top floor is envisaged

The building is of RCC framed structure (G+2 floors) having a plinth area of 575 Sqm in Gr.FL, 575 Sqm in 1st Floor and 575 Sqm in 2nd floor. Thus the building shall be ultimate with a total plinth area of 1725 Sqm . The first and second phase are completed .The fourth phase includes a fully furnished and air conditioned seminar hall in the top floor is completed.



NATIONAL SERVICE SCHEME (NSS)

Due to the COVID-19 pandemic and associated lockdown NSS activities were very much limited during the year 2020-21

World Environment Day

Activities of the National Service Scheme (NSS) got initiated with the observance of World Environment Day Celebrations on 5th June 2020. World Environment Day was celebrated by NSS volunteers in their houses by planting trees. The main purpose of the celebration was to spread awareness about the need to protect the environment and the ways to do it. NSS volunteers became a model for other students in the university. The Programme was a great success and has certainly made a difference to the way we view our environment.



International Yoga Day

All NSS volunteers celebrated 6th International Yoga Day at home on 21 June 2020. NSS volunteers shared their experience with Yoga.

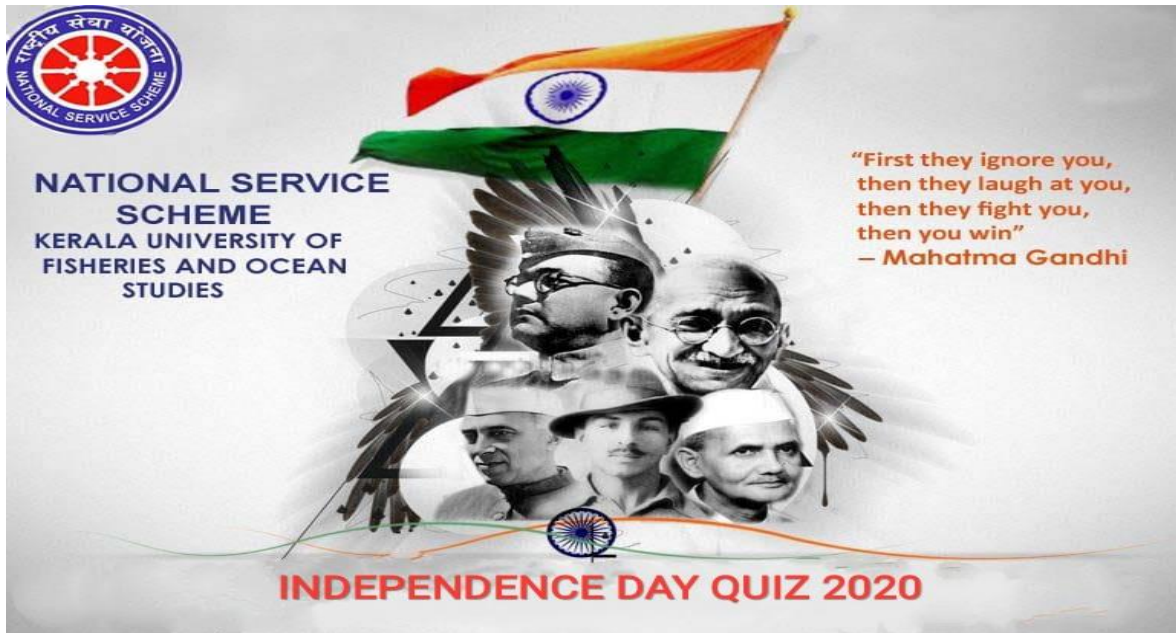


COVID-19 awareness Class

NSS KUFOS has organized an online COVID-19 awareness class for the students and teachers of KUFOS on July 17, 10. Am through Zoom platform. The class was taken by Dr. Soumya Raj, Nodal officer, District mental health program and member of TOT for Covid Ernakulam District.

Independence Day

NSS volunteers of KUFOS celebrated Independence Day through online. Volunteers sung patriotic songs. Also, an online quiz competition was conducted for high school and college students.



Teachers Day Celebration

NSS volunteers of KUFOS has celebrated Teachers Day on 5-09-2020 through online. They wished their teachers through phone and email. Also, a greeting card design competition was conducted for university students.



HAPPY TEACHERS DAY 2020

"Teachers should be the best minds in the country"
-Dr.Sarvepalli Radhakrishnan

NSS UNIT KUFOS ORGANIZES

GREETING CARD COMPETITION
-FOR UNIVERSITY STUDENTS

Write a greeting card to your teacher and
send a copy to us.

Competition open till-5PM 05/09/2020
Send your entries to:nssunitkufos@gmail.com



NSS DAY Celebration

NSS day 2020 has been celebrated online on 24-09-2020. In connection with NSS day a one week campaign from 24-30 September, 2021 was conducted to honour our COVID warriors. NSS volunteers of KUFOS expressed their gratitude to health workers of their locality for their selfless service.



Gandhi Jayanthi

NSS volunteers of KUFOS celebrated Gandhi Jayanthi October 2, 2020 through online. Volunteers cleaned premises of their house. Also an online quiz competition was conducted for the high school students with e- certificate.

University Library

Staff strength

1. Assistant Librarian : Kunjumammed V S
2. Reference Officer Hr. Gr. : P V Vijayalakshmi
3. Reference Officer : Dr. Ramya Raveendran
4. Library Assistant (on Deputation): Mathew George
5. Lab. Asst (Photocopy) : Rajamma K R
6. Office Attendant : Arun K J

Plan for the current academic period

An air-conditioned reading room and IT Lab were established in Central Library during the period with the financial assistance of ICAR. Drinking water facility was also arranged by establishing a filter cum fridge in Library.

Two Campus Libraries were established for SFE and SME Schools by purchasing necessary books and other materials and appointing one library professional staff each to both the campus libraries on contract basis.

Collection Development.

Total number of books added in the library	: 443
Total number of project reports added in the library	: 7
Total number of thesis added in the library	: 56

KUFOS Library and Information system was highly strengthened during the report period by effective utilization of Plan Fund. The Central Library has enhanced its Book Collection by adding 1212 Indian and Foreign Books. Around 5200 pages of important documents were added to the Digital Library Collection in addition to 53 e-Books. Number of online Journals and Databases was being subscribed during the period for enhancing research.

Two campus libraries (School Libraries) were established in Puthuvypu and Management Campuses. Its collection also is being improved now and two Library professional posts were created temporarily and appointed professional staff on contract basis in those Libraries. Necessary furniture and fittings also have arranged there. These libraries are serving well the users concerned.

One National Workshops was conducted on 16 and 17th March 2021 on 'Improving Quality in Scientific Research' for PG and PhD scholars and 152 participants have attended the workshop.

NEWS AND EVENTS

Photo of Riji John
Prof (Dr) K.Riji John appointed as Vice Chancellor of KUFOS
<p>Dr.K.Riji John, well known fisheries scientist and noted academician has assumed office as the Vice Chancellor of Kerala University of Fisheries and Ocean Studies (KUFOS) on January 25, 2021. Governor Arif Mohammed Khan has made the appointment in his capacity as the Chancellor of KUFOS from a panel submitted by State Government . The appointment is for five years as per the section 33 of KUFOS Act. He is the third Vice Chancellor of KUFOS. Dr. Riji John, a native of Kunnankulam in Thrissur district was serving as the Dean of Fisheries in KUFOS prior to the appointment of Vice Chancellor.</p>
<p>Dr. Riji John was graduated in 1985 in fisheries science (BFSc) from the College of Fisheries, Panangad and completed M.F.Sc from the University of Agricultural Sciences, Bangalore . He took his PhD from the Institute of Aquaculture, University of Sterling, UK in Fish Virology in 1997 under Commonwealth Scholarship programme. He has also completed a Postdoctoral assignment in Fish Biotechnology in the Virginia-Maryland College of Veterinary Medicine (VMCVM) at the University of Maryland by availing FAO fellowship, where he worked on reverse genetics.</p>
<p>Dr.Riji John has started his academic career in 1990 as an Assistant Professor in the Fisheries College and Research Institute, Thoothukudi under the Tamil Nadu Veterinary and Animal Science University, which later on came under the new Tamil Nadu Dr. J. Jayalalithaa Fisheries University (TNJFU). He has been actively involved in teaching, research and extension for the past 29 years and served as Professor in the Department of Aquaculture, Head, Department of Fish Pathology and Health Management and Chair, School of Aquaculture in the Tamil Nadu Dr J Jayalalithaa Fisheries University.</p>
<p>Dr.Riji John has developed and established new fish cell lines from different tissues of freshwater and marine fishes such as snakehead, tilapia, seabass, clown fish and isolated and characterized new viruses such as Lates calcarifer nervous necrosis virus, koi ranavirus, similar damselfish virus, snakehead rhabdovirus from infected fishes. He has operated research projects including International and National collaborative projects. His team has reported the genotyping of WSSV and genomic and pathogenicity variations in WSSV due to passaging.</p>
<p>Dr Riji John has served in different national and international bodies such as Member of the Task Force of DBT, Govt. of India for two terms; President, Professional Fisheries Graduates Forum; Member of the Expert Group, Ministry of Agriculture, GOI; Observer, Executive Committee of the Fish Health Section, Asian Fisheries Society among others.</p>
<p>He has also acted as Member of different University bodies such as Academic Council, Research Council, Extension Council, Board of Studies etc. He has over 120 publications as research papers in national and international journals, books and book chapters , research notes and abstracts in national and international conferences. He has won awards such as Best Teacher, Best Researcher and also travel grants and best paper awards.</p>

INTERNAL QUALITY ASSURANCE CELL (IQAC)- Activities

1. Conducted One day Workshop on **“RECENT GUIDELINES ON ASSESSMENT AND ACCREDITATION PROCESS OF NAAC”** on 15th December, 2020 At the Seminar Hall, KUFOS. Prof. Harry NAAC Peer Team Member and Former Principal, St. Albert’s College, Ernakulum was Resource person and all the Faculty members participated in the workshop.
2. One day faculty development programme on **“OUTCOME-BASED EDUCATION (OBE)”** on 16th february 2021 organised by Internal Quality Assurance Cell (Iqac), Kufos and Kerala State Higher Education Council, Kerala
3. WEBTALK ON **“QUALITY METRICS IN HIGHER EDUCATION”** by **Prof. Dr. M.G. Sethuraman, Professor in Chemistry, The Gandhigram Rural Institute (GRI) (Deemed to be University) Gandhigram.**
4. WEBTALK ON **“NAAC AWARENESS PROGRAMME (NAP) FOR FISHERIES AND OCEAN SCIENCE UNIVERSITY”** by **Dr. B. S. Ponnudiraj , Adviser, National Assessment and Accreditation Council (NAAC), Bangalore. Three online meetings with internal members (7 criteria –in-charge).** Chaired by Dr Susamma A.P. Director, Planning.
5. **A report was submitted by Team IQAC to the Honourable Vice Chancellor** regarding the immediate priorities as well as actions to be taken for moving towards ICAR, NAAC accreditations, participation in NIRF ranking etc.
6. **Meeting with the Honourable Vice Chancellor,** Registrar and other higher authorities. Criteria-in-charges made their presentation before the members.
7. Road-map - ready to be submitted which was prepared as per the direction of the Hon’ble Vice Chancellor.
8. Dr Anu Gopinath actively participated in the **ICAR - SSR preparation for ICAR accreditation** as the coordinator and the SSR was handed over to Dean, Faculty of Fisheries for her inputs. All the data collected as part of this will be handed over to the IQAC cell, KUFOS.



UGC expert committee chairman Prof B.K.Punia and Members Dr.Veerandra Veer Singh , Dr Amita Saxena and Mrs Kundla Mahajan are posing a photo with KUFOS Vice Chancellor Mrs Tinku Biswal IAS and Faculty Members

UGC team completed KUFOS evaluation

The four member expert committee of University Grants Commission (UGC) completed its two day evaluation of Kerala University of Fisheries and Ocean Studies (KUFOS) infrastructure , academic , research and extension facilities. The expert committee visited KUFOS on Jan 15-16, 2021. The Committee consisting of Prof B.K.Punia, former Vice Chancellor of M.D.University, Rohtak as chairman and Dr.Veerandra Veer Singh , Dr Amita Saxena and Mrs Kundla Mahajan as members was appointed by the UGC to consider the award of UGC 12 B status to KUFOS, which was already due.

On the second day, the committee evaluated the reports and other published works of the university faculty members and researchers submitted to the committee , followed by a detailed interaction session with KUFOS students, researchers and doctoral fellows and heard about the facilities and bottlenecks on academic and administrative facilities.

On the first day, in the beginning of the evaluation process, the KUFOS Vice Chancellor Mrs Tinku Biswal IAS has presented before the expert committee about the 10 years detailed working progress of the university on academic , research and extension activities . The committee members were also interacted with the statutory officers of the university and visited fisheries faculty and the other four schools working in the university. The expert team also evaluated academic facilities at different departments, library, laboratories, hatcheries, fish ponds and students hostels yesterday afternoon. Registrar Dr.B.Manojkumar and Controller of Examinations Dr.K.P.Subhashchandran were led the evaluation process from the side of KUFOS. Prof B.K.Punia, Chairman of expert committee said in the concluding session that the committee will soon present the report to the UGC and final decision on 12 B status award will be communicated from UGC head quarters within a month.

ICAR-KUFOS programmes for the underprivileged communities

Scheduled Caste Sub Plan and Tribal Sub Plan Projects

During 2020-21, the Kerala University of Fisheries and Ocean Studies (KUFOS) was chosen by Indian Council of Agricultural Research (ICAR) to implement two programmes designed for the development of the underprivileged, Schedule Caste and Schedule Tribe communities of the country. The programmes were formulated as a part of the Sixth Plan by the Government of India to channelize the allotted plan benefits directly to the beneficiaries through various implementing agencies (State Government/ Union Territories/ Government Institutes/Universities) for enhancing and ensuring the effectiveness. It has been envisaged as an ‘umbrella policy’ to ensure flow of targeted financial and physical benefits from all the sectors of development for the benefit of Scheduled Castes and Tribal communities.

The plan aims to ensure economic, educational and human resource development as well as social security and acceptance of the Scheduled Caste and Tribal communities by achieving equality with the non-Scheduled Caste/Tribe population in a time bound manner. The objective of the programme is to enhance the income of the target group through agriculture, animal husbandry, fisheries and allied sectors.

The total grant received in the last financial year under the SC-SP was Rs. 65 lakhs as two instalments and Rs. 20 lakhs for TSP as a single instalment. In SC-SP, the fund has been allotted under various heads such as Skill development Training centre for SC beneficiaries, Training for livelihood earnings, Livestock for SC clusters, Library for SC students, Tutorial classes for SC students to prepare them for national and international competitions, Entrepreneurship development and capacity building & trainings for the selected beneficiaries. The project was inaugurated by Mrs. Mercykuttyamma, Hon’ble Minister for Fisheries and Cashew Industries, Government of Kerala on 29-01-2021 by distributing fish seed to the SC beneficiaries.

KUFOS obtained this funding for the first time, it was under the component “Scheduled Caste-Sub Plan (SC-SP) and Tribal Sub Plan (TSP)” under the Agricultural Education Division Plan Scheme “Strengthening and Development of Higher Agricultural Education in India” by ICAR during the year 2020-21

Dr. Dinesh Kaippilly, Associate Professor and Head, Department of Aquaculture is officiating as the Implementing Officer of the projects and Dr. Bindhi S Kumar had worked as the Training Associate. The beneficiaries of the projects were selected through the applications received from all over Kerala in response to the beneficiary calls given in newspapers and website announcements. A fully air conditioned and furnished training centre with all sorts of projection facilities, remains established in the Amenity Centre of

KUFOS for organizing SC/ST empowerment programmes in an effective manner. A few facilities under the Department of Aquaculture were upgraded for training the stakeholders in fish culture and allied aspects. The work of a well set up aquarium is in progress to educate the trainees. A few animals are maintained in the Instructional Farm of the Department of aquaculture for training purpose.

Students of KUFOS belonging to the SC and ST communities are selected for these projects and are brought under in a single umbrella of a 'whatsapp' group. All the lectures and empowerment programmes were notified through this group which made the communication easier and deliberations effective. A separate collection of print books and e-resources worth Rs. 20 lakhs, specifically suitable for SC/ST students and beneficiaries remain established under Faculty of Fisheries to support the stakeholders.

A total of 257 beneficiaries were selected from the applications received from the Districts Kollam, Ernakulam, Thrissur, and Kannur according to the socio-economic background of the stakeholders under SC Sub Plan.

For Tribal Sub Plan, six tribal settlements from all over Kerala were selected. They are: one Kani settlement in Trivandrum, one Ulladar settlement in Ernakulam, two Kadar settlements in Thrissur, one Kudakar settlement in Kasaragod and Paniya and Kattinaikar settlements in Wayanad Districts. Altogether, 137 beneficiaries from various tribal communities were selected for the programme.

Trainings and awareness programmes for the stakeholders were extended effectively in all the SC and ST colonies for empowering them in the concerned fields. Colony to colony, the preference was varying from pond fish culture (Panangad), pen culture (Thayineri, Payyannur), cage culture (Pernigalkuthu Dam), fishing (Mukkampuzha and Peringalkuthu colony), ornamental fish culture (Mathilakam), duck rearing (Ernakulam), chicken rearing (Trichur, Ernakulam), goat rearing (Vithura, Kadankode, Madur), cow farming (Trichur, Ernakulam, Wayanad) and dove rearing (Ernakulam). Prime importance was given to the interest of the stakeholders for the input distribution. The facility available for taking up such activities were assessed by the project team prior to the input distribution.

The Department of English and Foreign Languages, Cochin University of Science and Technology has been entrusted to teach French and Japanese to the SC and ST students of KUFOS. National Academy for Agriculture and Rural Management (NAARM), Hyderabad remains entrusted with the personality development programme of the students. Along with KUFOS, National Institute of Fisheries Administration (NIFARM), Government of Kerala and Retirees Forum of Matsyafed have been entrusted with training the beneficiaries. Nearly 500 students have obtained the benefit or will benefit through these programmes.

Over thirty virtual lectures were organized for SC and ST students under the student training programme, however other students were also allowed to participate. The lecture on

“The hidden biology of venomous worms” by Prof. (Dr.)ChristophBleidorn, George August University, Germany and the presentation on “The Fisheries and Aquaculture in Norway” byDr.Kiranpreet Kaur, Specialist in Salmonids, Norway were much appreciated by the student community.

A virtual website platform containing all the relevant information of the programmes, details of SC/ST colonies and the status of the residents, a few technical manuals, educational movies and documentaries pertaining to the projects are under development.

(Amount received and spent under SC SP: Rs. 65,00,000/-

Amount received and spent under TSP: Rs. 20,00,000)



Beneficiaries of the project with project implementing officer Dr.Dinesh Kaippilly, Former Speaker K.Radhakrishnan and Vice Chancellor Dr.K.Riji John during a Goat distribution function.

കുഫോസിന് 88.08 കോടി രൂപയുടെ ബജറ്റ്

ഫിഷറീസ് പഠന മേഖലയുടെ സമഗ്ര വികസനം ലക്ഷ്യം

പനങ്ങാട് ▶ കേരള ഫിഷറീസ് -സമുദ്രപഠന സർവകലാശാലയ്ക്ക് (കുഫോസ്) 2021-22 സാമ്പത്തിക വർഷത്തേക്ക് 88.08 കോടി രൂപയുടെ വാർഷിക ബജറ്റിന് ജനറൽ കൗൺസിൽ അംഗീകാരം നൽകി. 54.07 കോടി രൂപ പദ്ധതി ചെലവുകൾക്കും 24.55 കോടി രൂപ പദ്ധതിയിതര ചെലവുകൾക്കും വകയിരുത്തി. വിവിധ പ്രോജക്റ്റുകളിലായി 5.55 കോടി രൂപയുടെ സഹായം

ബാഹ്യ ഏജൻസികളിൽനിന്ന് പ്രതീക്ഷിക്കുന്നു.

കൊല്ലം, പയ്യന്നൂർ റീജണൽ സെന്ററുകളിൽ തുടങ്ങുമെന്ന് പ്രഖ്യാപിച്ചിട്ടുള്ള ബി.എഫ്. എസ്.സി. കോഴ്സിന്റെ പ്രാരംഭ പ്രവർത്തനങ്ങൾക്കായി 50 ലക്ഷം രൂപ വകയിരുത്തിയിട്ടുണ്ട്.

ഇതടക്കം പുതിയ കോഴ്സുകൾക്കായും നിലവിലുള്ള കോഴ്സുകളുടെ ഗുണനിലവാരവും അടിസ്ഥാന സൗകര്യങ്ങളും മെച്ചപ്പെടുത്തുന്നതിനും വകയിരുത്തിയിരിക്കുന്നത് 9.50 കോടി രൂപയാണ്.

പുതുവെപ്പിനിലെ ഫിൻഫിഷ് ഹാച്ചറിയുടെ പ്രവർത്തനത്തിന് 30 ലക്ഷം രൂപ നിശ്ചയിച്ചു. 10

കോടി രൂപ ചെലവിൽ കുഫോസിൽ സ്ഥാപിക്കുന്ന റഫറൽ ലാബിന്റെ പ്രാരംഭ പ്രവർത്തനങ്ങൾക്കായും 30 ലക്ഷം രൂപ മാറ്റിവെച്ചിട്ടുണ്ട്.

ഗവേഷണ നേട്ടങ്ങൾ കർഷകരിലേക്ക് എത്തിക്കുന്ന വിജ്ഞാനവ്യാപന പ്രവർത്തനങ്ങൾക്കായി 1.5 കോടി രൂപയും ഹോസ്റ്റൽ സൗകര്യങ്ങൾ ഉൾപ്പെടെയുള്ള പശ്ചാത്തല വികസനത്തിനായി 15 കോടി രൂപയും വകയിരുത്തി. കണ്ണൂർ, കൊല്ലം സെന്ററുകളുടെ പ്രവർത്തനത്തിനായി രണ്ടു കോടി രൂപ വീതം വകയിരുത്തി.

ഭരണസമിതി യോഗത്തിൽ വൈസ് ചാൻസലർ ഡോ. കെ. റിജി ജോണാണ് ബജറ്റ് അവതരിപ്പിച്ചത്.

കേരള വിഷൽ വാർഡ്-റൺ

കുഫോസ് കണ്ണൂർ, കൊല്ലം സെന്ററുകൾക്ക് 2 കോടി വീതം

കൊച്ചി: കേരള ഫിഷറീസ് സമുദ്രപഠന സർവകലാശാല (കുഫോസ്) കണ്ണൂർ, കൊല്ലം സെന്ററുകൾക്ക് 2 കോടി രൂപ വീതവും പുതുവെപ്പ് കാമ്പസിന്റെ വികസനത്തിന് ഒരു കോടി രൂപയും 2021-22 ബഡ്ജറ്റിൽ വകയിരുത്തി.

88.08 കോടി രൂപയുടെ വാർഷിക ബഡ്ജറ്റിന് ജനറൽ കൗൺസിൽ അംഗീകാരം നൽകി. 54.07 കോടി രൂപ പദ്ധതി ചെലവുകൾക്കും 24.55 കോടി രൂപ പദ്ധതിയിതര ചെലവുകൾക്കും വകയിരുത്തുന്ന ബഡ്ജറ്റ് 5.55 കോടി രൂപയുടെ സഹായം ബാഹ്യ ഏജൻസികളിൽനിന്ന് പ്രതീക്ഷിക്കുന്നു.

കൊല്ലം, പയ്യന്നൂർ റീജിയണൽ സെന്ററുകളിൽ തുടങ്ങുന്ന ബി. എഫ്. എസ്. സി. കോഴ്സിന്റെ പ്രാരംഭ പ്രവർത്തനങ്ങൾക്ക് 50 ലക്ഷം രൂപ വകയിരുത്തി. പുതിയ കോഴ്സുകൾ തുടങ്ങാനും നിലവിലുള്ളവയുടെ ഗുണനിലവാരവും അടിസ്ഥാന സൗകര്യങ്ങളും മെച്ചപ്പെടുത്തുന്നതിനും 9.50 കോടി രൂപ

പ അനുവദിച്ചു.

മത്സ്യക്കുഞ്ഞുങ്ങളെ വികസിപ്പിച്ച് കർഷകർക്ക് കൈമാറുന്നതിന് പുതുവെപ്പിനിൽ സ്ഥാപിച്ച ഫിൻഫിഷ് ഹാച്ചറിയുടെ പ്രവർത്തനത്തിന് 30 ലക്ഷം രൂപയും കേന്ദ്ര, സംസ്ഥാന സർക്കാരുകളുടെ സഹായത്തോടെ 10 കോടി രൂപ ചെലവിൽ കുഫോസിൽ സ്ഥാപിക്കുന്ന റഫറൽ ലാബിന്റെ പ്രാരംഭ പ്രവർത്തനങ്ങൾക്ക് 30 ലക്ഷം രൂപയും മാറ്റിവെച്ചു.

ഗവേഷണ നേട്ടങ്ങൾ കർഷകരിലേക്ക് എത്തിക്കുന്ന വിജ്ഞാനവ്യാപന പ്രവർത്തനങ്ങൾക്ക് 1.5 കോടി രൂപയും വിദ്യാർത്ഥികളുടെ ഹോസ്റ്റൽ സൗകര്യങ്ങൾ ഉൾപ്പെടെ പശ്ചാത്തല വികസനത്തിനായി 15 കോടി രൂപയും വകയിരുത്തി.

കുഫോസ് ആസ്ഥാനത്ത് ചേർന്ന ഭരണസമിതി യോഗത്തിൽ വൈസ് ചാൻസലർ ഡോ. കെ. റിജി ജോണാണ് ബഡ്ജറ്റ് അവതരിപ്പിച്ചത്.

കുമ്പോസ് വിദ്യാർത്ഥികൾക്ക് അപ്രന്റീസ്‌ഷിപ്പ് നൽകും-മന്ത്രി മേഴ്‌സിക്ക്‌ടുട്ടിയമ്മ



പനങ്ങാട് കുമ്പോസ് ആസ്ഥാനത്ത് പുതിയ അക്കാദമിക് ബ്ലോക്കിന്റെ ഉദ്ഘാടനം മന്ത്രി ജെ. മേഴ്‌സിക്ക്‌ടുട്ടിയമ്മ നിർവഹിക്കുന്നു

പനങ്ങാട് എം.ബി.ബി.എസ്. വിദ്യാർത്ഥികൾ ഒരു വർഷം ഹൗസ് സർജൻസി ചെയ്യുന്നതുപോലെ, കേരള ഫിഷറീസ് സമുദ്രപഠന സർവകലാശാലയിലെ (കുമ്പോസ്) വിദ്യാർത്ഥികൾക്ക് ഫിഷറീസ് ഡിപ്ലാർട്ട്മെന്റിൽ ഒരു വർഷത്തെ അപ്രന്റീസ്‌ഷിപ്പിന് സൗകര്യമൊരുക്കുമെന്ന് ഫിഷറീസ്, തുറമുഖ വകുപ്പ് മന്ത്രി ജെ. മേഴ്‌സിക്ക്‌ടുട്ടിയമ്മ. പനങ്ങാട് കുമ്പോസ് ആസ്ഥാനത്ത് നബാർഡിന്റെ സഹായത്തോടെ 40 കോടി രൂപ ചെലവിൽ നിർമ്മിച്ച പുതിയ അക്കാദമിക് ബ്ലോക്ക് ഉദ്ഘാടനം ചെയ്യുകയായിരുന്നു മന്ത്രി.

കേരളത്തിന് ഏറ്റവും സാധ്യതയുള്ള ഉത്പാദന മേഖലയാണ് അക്വാ കൾച്ചർ. എന്നാൽ ഈ രംഗത്ത് കേരളത്തിന്റേത് പത്താം സ്ഥാനമാണ്. ഈ നില മാറണമെങ്കിൽ കുമ്പോസിലെ പഠനം പ്രായോഗിക തലത്തിലാകണമെന്ന് മന്ത്രി പറഞ്ഞു.

എം. സ്വരാജ് എം.എൽ.എ. അധ്യക്ഷത വഹിച്ചു. ഹൈബി ഇഗ്നാസ് എം.പി., ജോൺ ഫെർണാണ്ടസ് എം.എൽ.എ., ജില്ലാ പഞ്ചായത്ത് പ്രസിഡൻ്റ് ഉല്ലാസ് തോമസ്, തുടങ്ങിയവർ പ്രസംഗിച്ചു.

ഡോ. കെ. റിജി ജോൺ ഫിഷറീസ് സർവകലാശാലാ വി.സി.

തിരുവനന്തപുരം കേരള ഫിഷറീസ് ആൻഡ് ഓഷ്യൻ സ്റ്റഡീസ് സർവകലാശാലയുടെ വൈസ് ചാൻസലറായി ഡോ. കെ. റിജി ജോണിനെ ഗവർണർ ആരിഫ് മുഹമ്മദ് ഖാൻ നിയമിച്ചു.



ഇപ്പോൾ ഇതേ സർവകലാശാലയിലെ ഫിഷറീസ് ഡീൻ ആണ് അദ്ദേഹം. തൃശ്ശൂർ കുന്നംകുളം കാണിപ്പയ്യൂർ സ്വദേശിയാണ്.

1985-ൽ കേരള കാർഷിക സർവകലാശാലയിൽനിന്ന് ഫിഷറീസ് സയൻസിൽ ബിരുദം

നേടിയ റിജി ജോൺ ബെംഗളൂരു കാർഷിക സർവകലാശാലയിൽനിന്ന് ഫിഷ് പ്രൊഡക്ഷൻ ആൻഡ് മാനേജ്മെന്റിൽനിന്ന് ഫസ്റ്റ് റാങ്കും സ്വർണമെഡലും നേടി ബിരുദാനന്തര ബിരുദം കരസ്ഥമാക്കി. യു.കെയിലെ സ്റ്റീർലിങ് സർവകലാശാലയിൽനിന്ന് ഡോക്ടറൽ ബിരുദവും യു.എസ്.എയിലെ മേരിലാൻഡ് സർവകലാശാലയിൽനിന്ന് പോസ്റ്റ് ഡോക്ടറൽ ഫെലോഷിപ്പും നേടി.

അഞ്ചുവർഷം അല്ലെങ്കിൽ 60 വയസ്സുവരെയാണ് നിയമനകാലാവധി.