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UMT NEWSLETTER

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OCEAN OF DISCOVERIES FOR GLOBAL SUSTAINABILITY

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Vol. 3 Issue 7, July 2023

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Every year, UMT marks World Oceans Day that occurs on 8 June with a month of activities and programmes, in line with us being a university whose niche area is marine science and aquatic resources. The main objective is to raise awareness about the vital role the oceans play in sustaining life on Earth and the importance of conserving and preserving the oceans for the planet's future.

The oceans are the lifeblood of our planet, serving as a source of sustenance, climate regulation, and economic prosperity. They are home to a remarkable diversity of marine life, playing a critical role in global biodiversity. The oceans are instrumental in regulating the earth's climate. They provide livelihoods for millions of people worldwide.

However, our oceans are facing numerous threats. Plastic pollution, overfishing, habitat destruction, and pollution from land-based activities are jeopardizing the delicate balance of marine ecosystems. Rising temperatures and acidification due to climate change are posing additional challenges. We must address these issues urgently and collectively. By reducing plastic waste, adopting sustainable fishing practices, establishing marine protected areas, and promoting ocean literacy, we can ensure our oceans' long-term health and resilience.

At UMT, we celebrate the oceans by raising awareness of their importance and establishing the urgent need to work collectively to protect and restore them. Many programmes with various stakeholders including the industries and communities have been organised to inspire further actions at all levels of society to ensure a sustainable future for the coming generations.

Professor Dr. Fauziah Hj. Abu Hasan
Executive Editor

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UMT's Research Helps Improve Community's Economy

Mohd Yusmiza bin Mamat / Siti Nurhasmira binti Abu Hassan,
Centre for Knowledge Transfer, Industrial Networks and Community

UMT researchers have been actively creating new products and innovations. However, they do not stop there but transfer the knowledge gained from their research to the community to help improve the socioeconomic status and quality of life of the people, especially the poor (B40) in urban and rural areas.

Oftentimes, UMT's noble efforts went unnoticed to the public. But two recent events allowed the university to share how its research projects have helped the community.

Through its Centre for Knowledge Transfer, Industrial Linkages, and Community, UMT held a community programme, *Program Semarak Komuniti Kota Tinggi*, from 27 - 28 May in Sedili, Johor, and participated in the Ministry of Higher Education's Knowledge Transfer Project Expo from 7 - 10 June at World Trade Centre, Kuala Lumpur (WTCKL).

The programme in Sedili, which was officiated by Minister of Higher Education Dato' Seri Mohamed Khaled Nordin, was attended by 200 people, comprising the local fishermen, single mothers, youths, B40 group, teachers, and school students.

The programme was filled with knowledge sharing sessions and also demonstrations by UMT researchers, who explained about their beneficial projects that included Production of Soap from Used Cooking Oil, Stingless Bee Farming, Oyster Mushroom Cultivation, Fish Capture Technology, Mud Crab Farming, and Creation of Fish-based Products.

UMT also set up a research exhibition, held a career talk, and explained about its academic programmes.

In conjunction with UMT's RV Discovery Expedition to the Langkawi International Maritime and Aerospace Exhibition 2023 (LIMA '23), a maritime awareness talk was held. Visitors listened to an invited Malaysian Maritime Enforcement Agency officer.

In addition, a student-community programme was conducted with the assistance of the Association of Johor Natives and under the supervision of the Student Affairs Office (HEPA), UMT.

Meanwhile, UMT's participation in the expo at WTCKL provided another opportunity to highlight its research

outcomes. Visitors were able to see research projects related to not only UMT's niche area of marine science and aquatic resources but also food source production and agriculture.

UMT showcased five impactful projects, namely Stingless Bee Farming, In-cage Seeding and Farming of Mangrove Crabs, Development of System for Quality Freshwater Fish Farming for Commercial Purposes, Black Soldier Flies, and Farming of Grey Oyster Mushrooms. These projects are practical as they provide high impact, require low cost, can be implemented quickly, generate incomes within a short period, and are long-sustained.

UMT also brought along Tengku Azam Tengku Mat, whom UMT has appointed as a Community Scientist, to share his involvement in UMT's research projects. The man known as Ayohku was the pioneer participant for the Stingless Bee Farming and has earned a steady income from the sales of stingless bee honey. His stingless bee farm, *Taman Kelulut Rumah Tokki*, currently has 15 hives. Ayohku was also taught to create other products from the stingless bees for additional income.

UMT, Hasanuddin University Co-organize International Symposium

Khor Wai Ho, Azmie Ghazali, Ahmad Shuhaimi Draman, AKUATROP

The Institute of Tropical Aquaculture and Fisheries (AKUATROP) of UMT and the Faculty of Marine Sciences and Fisheries (FIKP) of Hasanuddin University, Indonesia, have successfully organized the 6th International Marine and Fisheries Symposium in Makassar recently.

UMT and Hasanuddin University (UNHAS) have had long-established cooperation with each other, with both sharing points of commonality and interest, especially in several Sustainable Development Goals (SDGs) and particularly in SDG14 (Life Below Water). The two research institutions have held various joint activities, such as research projects, publications, inbound and outbound programmes, and symposiums, to achieve the SDG targets as well as to ensure the sustainable management of fisheries, marine and aquaculture resources, and food security between the two countries. The symposium was held on 11 June to provide a platform for researchers, practitioners, and stakeholders in the field of fisheries and marine science to share research findings, discoveries, ideas, and experiences, further contributing to the progress and sustainability of the marine and fisheries sector.

With the theme "Strengthening the SDGs through Marine and Fisheries Innovations," the symposium attracted more than 180 participants from all over the world. More than 20 research papers from UMT researchers were also presented at the symposium.

The symposium was also co-organized by Marine Technology Cooperation Research Center (MTCRC) and Maritime and Fisheries Polytechnic of Bone, Indonesia.

Invited as a speaker to the symposium was UMT's Assoc. Prof. Ts Dr. Nor Azman Kasan, Deputy Director of AKUATROP. Dr. Nor Azman conducts studies in the field of green technology where he uses beneficial microbes, such as bacteria, microalgae, and fungi, to maintain ecological balance in both marine and freshwater aquaculture systems. One of his research focuses is the development of sustainable aquaculture systems using biofloc technology (BFT) for valuable freshwater species. Dr. Nor Azman delivered his speech during the symposium's opening ceremony.

Also held at the event was the Memorandum of Understanding (MoU) and Memorandum of Agreement (MoA) re-signing between UMT and UNHAS. The MoA is specific to the co-organization of the symposium while

the MoU is for the research activities, staff and student exchange programmes, and joint publications between both parties. At the re-signing ceremony, UMT was represented by Vice Chancellor Prof. Dato' Dr. Mazlan Abdul Ghaffar, and UNHAS was represented by its Rector Prof. Dr. Jamaluddin Jompa.

Also present during the ceremony were the Director of Capture Fisheries from the Ministry of Maritime Affairs and Fisheries, Indonesia, Dr. Agus Suherman; Director of AKUATROP, Prof. Dr. Mhd Ikhwanuddin Abdullah; representatives from the government sector; and national and international private agencies.

UMT Joins in Marine Awareness Campaign

Amirul Salam Hasan, Office of Corporate Communication

In conjunction with World Oceans Day celebration on 8 June, UMT has organised several activities in support of the efforts to protect the oceans and the marine ecosystems.

World Oceans Day is celebrated across the globe annually every 8 June after the Day was officially declared by the United Nations General Assembly in 2009, a year after it was proposed. Its yearly celebration is to help resolve world's ocean problems.

Sadly, efforts on saving the oceans are still at a low level although World Oceans Day was introduced more than 30 years ago during the Earth Summit in Rio de Janeiro.

Many people, especially in Malaysia, are taking lightly the importance of conserving the environment including the oceans, unaware of the oceans' contribution towards the sustainability of human lives. The oceans supply oxygen for humans' respiratory systems, provide fish and marine lives for food, and help stabilize the weather and climates.

The oceans have been polluted as a result of unsystematic solid waste disposal, inefficient toxic waste management, and rubbish dumping into rivers. Marine lives are in danger because these wastes that have entered the oceans look like food to them.

Plastic pollution in the oceans is another serious issue that may endanger marine lives and even humans as it leads to the emergence of microplastics. Microplastics are formed when larger plastics in the oceans eventually break down into micro-sized particles. They easily enter into marine lives such as fish and may interfere with people's health when they consume these ocean dwellers.

Studies have shown that about 80 percent of plastic in the ocean comes from land and an estimated 15 to 51 trillion pieces of plastic are occupying the oceans' surface and bottom.

Humans may be consuming 5 grams of microplastics in a week, said Associate Professor Dr. Yusof Shuaib Ibrahim, UMT Microplastic Researcher. That is equivalent to a credit card. Such a discovery is worrying.

The ineffectiveness of the World Oceans Day campaign is further evidenced by reports of turtles' death daily.

Recently, a news story has gone viral about a turtle found dead by passers by at Pandak Beach, Chendering, Terengganu, due to inhuman acts. The turtle was discovered with its shell broken as a result of strong hits and its feet tied up. The incident has further strengthened the conclusion that society has not understood the connection between the oceans and humans.

Increasing the public awareness of the importance of environmental conservation, especially the oceans, requires involvement from all parties.

Among the activities UMT has organized were the marine gallery exhibition in conjunction with the INOS Open Day, Beach Clean Up programme, Puppet Story Telling, Blue School Project, Bring Our Turtles Back, and Sea Turtle Conservation Programme.

UMT, Aquaria KLCC Launch Coral Conservation Campaign

Assoc. Prof. Dr. Tan Chun Hong, Faculty of Science and Marine Environment

UMT and Aquaria KLCC have launched the Coral Conservation Campaign in early June to serve as the platform through which both parties will collaborate together towards the conservation of the invaluable coral reef ecosystem.

The coral reef ecosystem is being threatened by multiple local and global threats. With the collaboration in place, both parties aim to address these threats through research, education, and increased public awareness and participation.

Under the second-time collaboration that runs through 2025, Aquaria KLCC has provided UMT with RM200,000 to carry out a restoration programme at Pasir Cina Beach, Bidong Island. The coral reef at the beach was heavily destructed in 2019 by Storm Pabuk, which caused over 60% of reduction in live coral cover.

Since then, the recovery process at the damaged reef has been slow due to a large area of dead coral rubbles. To speed up the recovery process, the Research and Education on Environment for Future Sustainability (REEFS) Research Interest Group at the Faculty of Science and Marine Environment (FSME) is taking the lead to carry out an active restoration activity at this area. The team aims to restore 1000 coral fragments within the project period by using different coral species estimated to cover half a hectare of the damaged reef.

The Coral Conservation Campaign launching was held at the Aquatheater inside Aquaria KLCC. The event was officiated by Dato Simon Foong, Managing Director of Aquaria KLCC. Other guests included Professor Dato' Dr. Mazlan Abdul Ghaffar, UMT Vice Chancellor; Dato' Haji Azahari Haji Othman, Deputy Director of Department of Fisheries; Azmi Abdullah, Director of Tourism Malaysia (Central Region); and Tengku Muhammad Arifin Tengku A. Rahman, Director of Terengganu State Park.

During the launching, a restoration activity and live coral attachment were demonstrated by the divers inside the Aquatheather tank.

Following the launching, a field trip to Bidong Island was arranged to kick-start the restoration programme.

At UMT's Natural Marine Research Station on the island, participants first learned about coral handling and restoration procedures. An in-water session was then conducted, where participants hammered the coral stand, installed the coral attachment base, and attached coral fragments on the base. A total of 100 coral fragments were successfully planted at the site. The remaining 900 coral fragments will be planted periodically throughout the two years.

The campaign is hoped to inspire the public to care for the precious coral reef ecosystem for future sustainability. In fact, volunteers are welcomed to participate in the restoration activity.

The first-time collaboration between UMT and Aquaria KLCC occurred in 2018. The initial partnership led to an establishment of a coral mesocosm system at UMT's AKUATROP hatchery.

UMT Releases Juvenile Horseshoe Crabs in Specially Organized Event

Dr Kalsitinoor Set, Institute of Marine Biotechnology

UMT's Horseshoe Crab Research Group (HCRG) has recently released a total of 1469 juvenile horseshoe crabs to the sea as part of the 'Let's Release Juvenile Horseshoe Crabs' programme.

The programme on 17 June at Telaga Simpul Beach in Kemaman, Terengganu, was organised in conjunction with the International Horseshoe Crab Day, celebrated annually every 20 June by the International Union for Conservation of Nature (IUCN). Its many members include Malaysia, Japan, the United States of America, Indonesia, and India.

The programme was one of the activities for the 2021-2022 UMT Horseshoe Crab Translational Project and was organised to realise the project's third milestone (spawning, hatching, and release of juvenile horseshoe crabs) and fourth milestone (producing 10 trained horseshoe crab guides as products of community-based tourism (CBT) in Kemaman).

Joining the programme were eight agencies from various sectors, including Kemaman Land and District Office, Kuala Kemaman Fishermen Cooperative, Resort World Kijal, Masjid Geliga Rural Library, and Green Plastic Gang.

Also involved in the programme were seven schools around Kemaman, namely SMK Geliga, SMK Banggol, SK Kuala Kemaman, SK Seri Geliga, SMK Mak Lagam, SK Kijal, and SJK(C) Chukai Kemaman. These were the schools to which HCRG previously supplied Horseshoe Crab Egg Kits for them to monitor the egg-hatching process. Uniquely, it was the juvenile horseshoe crabs produced from the kits that were released during the programme.

Horseshoe crabs have existed since 200 million years ago. The four species of the world are *Limulus Polyphemus (L.p) Tachypleus Tridentatus (T.t), Tachypleus Gigas (T.g), and Carcinorcorpius Rotundicauda (C.r)*. The species L.p is only available in North America, but the other three species, *T.t, T.g*, and *C.r*, are found in Malaysia. Two of these species, *T.g.* and *C.r*, can be spotted along the Kemaman waters, especially in Kuala Kemaman.

The existence of horseshoe crabs has allowed the state government to introduce new tourism products, apart from turtles, fireflies, and terrapins, for ecotourism in Kemaman. In line with this, HCRG through the facilities at HBUKK has trained 10 people from the local community as pioneers of the Horseshoe Crab Guides programme, which aims to produce community-based tourism products in Kuala Kemaman.

HCRG is led by Professor Dr Noraznawati Ismail from the Institute of Maritime Biotechnology. Six other members are UMT lecturers from various fields of expertise. The group has been taking responsibility for increasing the number of these unique fossil animals so that they remain in existence along the waters of Kemaman and Malaysia. It is also the group's aim to continue organising the same programme in the future and to have horseshoe crabs introduced as the new ecotourism product in Terengganu.

Call for paper

ICOETI 2023

The International Conference on Ocean Engineering Technology and Informatics 2023

4 - 6 December 2023
Faculty of Ocean Engineering Technology & Informatics
Universiti Malaysia Terengganu

The International Conference on Ocean Engineering Technology and Informatics 2023 (ICOETI 2023) is a sequel to the previous conference of International Postgraduate Ocean Engineering Technology and Informatics 2021 (IPCOETI 2021) organised by the Faculty of Ocean Engineering Technology and Informatics, Universiti Malaysia Terengganu (UMT). This conference aims to provide scholarly platform to participants to share their valuable knowledge and current information with others. This platforms cover all tracks of technology and engineering fields such as maritime, physics and instrumentation, computer science, environmental and mathematics.

Topic

Track 1: Maritime Technology and Engineering
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  - Marine Automation and Control

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- Renewable Technology
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- Manufacturing Technology

Track 3: Computer Science and Engineering
Sub-Track:
- Software Engineering
- Intelligent Systems

Track 4: Environmental Technology and Engineering
Sub-Track:
- Water Quality
- Air Quality
- Water Resources and Hydrology
- Waste Management

Track 5: Engineering Mathematics and Applications
Sub-Track:
- Computational Mathematics
- Marine Data Analytics
- Financial Mathematics

Important Date

Abstract Submission
15 July 2023

Fullpaper Submission
31 October 2023

Abstract Acceptance Notification
30 July 2023

Payment Dateline
31 October 2023

Fees

REGISTRATION FEE	INTERNATIONAL	LOCAL
Oral (Physical) + Abstract	USD 150	RM 450
Oral (Online) + Abstract (For International Presenter Only)	USD 70	-
Publication	USD 250	RM 1000
Participant	USD 60	RM 250

Publication

Scopus

Accepted full paper will be published in Journal of Advanced Research in Applied Sciences and Engineering Technology [*subjected to a reviewing process]

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KEYNOTE SPEAKERS:

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(UNIVERSITAS WINAYA MUKTI)

PROF. DR. IR. BOB FOSTER
(UNIVERSITAS INFORMATIKA AND BISNIS INDONESIA)

PROF. DR. CLEVO WILSON
(QUEENSLAND UNIVERSITY OF TECHNOLOGY)

IMPORTANT DATES:

Abstract Deadline	:15 July 2023
Abstract Acceptance Notification	:15 August 2023
Full Paper Deadline	:15 September 2023
Camera-ready Paper Deadline	: 31 October 2023
Conference Date	:14-15 November 2023

CONFERENCE FEE:

PRESENTER (FACE TO FACE)	
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