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### POST COVID-19 MARINE LIFE STATUS

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051UM 0 R 2020

Explore what happen to coral reefs during lockdown

### TOMSY2020, A SUCCESS

Brief summary on the success of our fully online conference

### LA-NINA AND MONSOON

TOMSY2020

What will happen this year?

INSTITUTE OF OCEANOGRAPHY AND ENVIRONMENT E-Newsletter





# **EDITOR'S NOTE**

We wish that you all are safe and healthy wherever you are at the moment. This has been a challenging year for all of us, but we try our best to remain active and some of the research we involved has help us to understand better about our marine environment during this unique period. Most interesting is the organization of our 2nd TOMSY conference that was conducted fully online, a very challenging yet fulfilling experience for all of us. Thank you to those who join us during the event.



### p.03

INOS-MMS empower industry partnership in conservation

### p.07

Post COVID-19 Marine Life Status at Marine Park Islands of Terengganu

### p.08

Monsoon, will it be any different this year?



### INOS-MMS **EMPOWER INDUSTRY PARTNERSHIP IN** CONSERVATION



On 7th September 2020, Universiti Malaysia Terengganu 14: Life Below Water and SDG (UMT) and MISC Maritime Services (MMS) officiated the strategic cooperation at the launch of the 'UMT-MMS Sea Turtle Conservation Program'. The established relationship supports turtle research and conservation efforts at Chagar Hutang Turtle Sanctuary, Pulau managing port terminals and Redang.

As a research group, SDG 17: Partnership For The Goals are missions Sea Turtle Research Unit (SEATRU) strives to achieve through efforts in understanding sea literacy. MMS or MISC Maritime Services concept of experiential (MMS) is a company under MISC, responsible for marine services, and intends to contributeto marine biodiversity conservation efforts Turtle Sanctuary, Pulau through their program 'Heart of the Ocean'. The presence of corporate support such as MMS has provided a new synergy in efforts to conserve marine life such as sea turtles.

Since 1998. SEATRU-UMT has been actively conducting a flagship program known as the Turtle Volunteer Program, which provides a different and unique volunteering experience through the tourism. Volunteers must pay registration fees to experience the turtle conservation efforts at the Marine Turtle Field Station at the Chagar Hutang Redang. To date, this 25-year long program was supported by more than 4,000 volunteers and is now accepting corporates involvement.

Cooperation with MMS began with direct involvement through financing and experiencing 20 volunteers themselves in the turtle conservation efforts at Chagar Hutang. MMS also contributes to the improvement of facilities programs such as the Turtle at the sanctuary, increased branding and mobilized more outreach activities or turtle awareness outreach programs, hoping that it will increase turtle conservation awareness to society.



Paid volunteer programs such as those implemented at Chagar Hutang have successfully generated turtle conservation management funds by only volunteers' involvement. Paid volunteer Volunteer Program can attract conservation enthusiasts visiting Terengganu, on vacation while engaging in turtle conservation efforts. Such programs can also generate income for the government and indirectly raise awareness in taking care of the marine environment. The success of Universiti Malaysia Terengganu in continuing conservation activities in Chagar Hutang through this paid turtle volunteer program, sees the potential of such programs to be expanded to other turtle landing beaches in Terengganu. In this regard, the impact on the state of Terengganu is huge, if such programs can be implemented turtle species in Terengganu. in other areas throughout nesting beaches in Terengganu.

"Once again, I would like to congratulate MISC Maritime Services (MMS) for initiating the first step in the turtle conservation effort, our natural treasure. We believe MMS will be a leader and example for other corporate companies to start engaging in marine conservation activities." said Prof. Dato' Dr. Nor Aieni Binti Haji Mokhtar, Vice Chancellor of UMT. We are willing to share the results of the conservation project success, the Turtle Volunteer Program, to be translated and implemented on other beaches. Here, UMT is ready to help any party interested in establishing a cooperative relationship, through the **Department of Fisheries** Malaysia, jointly improve the potential of this program to be implemented in other areas in Terengganu, while simultaneously assists in enhancing turtle conservation and ensuring the survival of





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# TOMSY ONLINE CONFERENCE, A SUCCESS!

TOMSY2020 brought together a wide array of scientists from academia, government and industry worldwide, as far as from Venezuela, who were passionate in the field of Ocean and Marine Sciences, in particular. It involved 18 sessions with 101 presentations and six invited speakers on fascinating multi-disciplinary topics, including Coastal and Shelf Seas Dynamics, Biological Oceanography, Ocean Biogeochemistry, Marine Pollution, Marine Endangered Species, and a Special Plenary address on Blue Economy from an industry perspective.

Collectively, the symposium sessions and the numerous plenary speakers highlighted the importance of sustaining a healthy ocean and protecting the marine environment and its resources. Each session is in line with the symposium theme "Enhancing Tropical Marine and Ocean Knowledge for Future Sustainability" as reflected in the Sustainable Development Goals (SDGs) or Agenda 2030, especially SDG 14 that underpins the aim "to conserve and sustainably use the oceans, seas and marine resources for sustainable development." Notably, the conference drew attention to the significance of scientific research for conserving marine ecosystems andtheir biodiversity.

It is hoped that the symposium has inspired participants to contribute more to thebetterment of the marine environment in their own capacity. Even though the contribution may be small, but it is still valuable. Until we meet again in TOMSY2022.

Thank you!

Associate Prof. Dr. Saifullah Arifin Jaaman Chairperson, TOMSY2020



Organizer Secretariat Tropical Ocean and Marine Sciences International Symposium (TOMSY2020) Institute of Oceanography and Environment Universiti Malaysia Terengganu 21030 Kuala Nerus

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## WHAT ELSE IS NEEDED FOR MANGROVE CONSERVATION?

#### By Behara Satyanarayana

The mangrove forests have been treated as destroyable wastelands until recently. However, after witnessing their magnitude of coastal protection during the Indian Ocean tsunami (24 Dec 2004), both government and non-government organizations began massive mangrove plantation projects all over the tropical and subtropical coastlines. In fact, mangrove ecosystems gained a renewed managemental attention only after this tsunami incident and since then, their conservation becomes a priority for many countries, especially in Asia.

Yet one thing is clear: mangroves are highly precious for the scientific community group than for the general public. Since mangrove wetlands do not immediately receive eye-catching attention (like what happens to coral reefs and other scenic spots), they were simply looked down for decades as muddy areas, mosquito breeding grounds and the areas for easy occupation, settlements or conversion to aquaculture/agriculture fields.

Hence, the first and foremost thing is to change people's perceptions of mangrove habitats. Once the public started having a feel-good experience with mangrove forests, its management became efficient and sustainable. For changing the people's viewpoint on mangroves, the concept of ecotourism was already introduced in many countries and is still a good practice where the (non-)locals are educated on mangrove goods and services, including the benefits to our future generations by preserving these wetlands.

In addition, there is a compelling need to raise and promote the ecological, social, cultural and educational benefits of the mangrove ecosystems through social media platforms (e.g. YouTube, Twitter, Facebook, Instagram, Pinterest, etc.) that usually followed by millions of people, especially the youngsters, all over the world. These social media are an excellent source for mangrove photo sharing and easy communication in which any news on mangroves can reach the public and policymakers by storm.



The beauty of the mangrove forests indeed lies in its ecosystem services that can only be identified after spending some time in the woods. So, let people come and appreciate the mangroves for their sustained contributions to mankind. Most recently, a few members of the IUCN Mangrove Specialist Group (MSG) and their associates have highlighted the importance of public perceptions for mangrove conservation. For details, please read "Public Perceptions of Mangrove Forests Matter for Their Conservation" by Dahdouh-Guebas et al. (2020), Frontiers in Marine Science (vol. 7: 603651)

Associate Prof. Dr. Behara Satyanarayana is the head of Mangrove Research Unit (MARU) in INOS.

### POST COVID-19 MARINE LIFE STATUS AT MARINE PARK ISLANDS OF TERENGGANU

By Zainuddin Bachok

The pandemic COVID-19 has created chaos around the world. Since the spread of COVID-19 and the implementation of Movement Control Order (MCO), most human activities that usually take place have now stopped for longer than usual, and this has resulted in a quick and drastic change in the way the human population uses and occupies the marine ecosystem such as coral reef. The outcome is that fewer people are moving around and that pollution linked to society's unctioning has also decreased.

The northeast monsoon season occurs from November until March serves as a buffer period for the marine ecosystem in the marine park to recover from the tourism impact. Nonetheless, the MCO has extended the buffer period from 5 months to 9 months. It is expected that the coral reef ecosystems in the marine park are in better condition due to this prolonged buffer period. Hence, the Marine Park and Resources Management Section, Department of Fisheries Malaysia, in collaboration with Universiti Malaysia Terengganu (UMT) was initiated the project entitled "Post COVID-19 Marine Life Status at Marine Park Islands of Terengganu".



On the other hand, the marine tourism activities in the Malaysian marine park reduced significantly during the MCO, impacting the entrepreneurs and local communities at the islands. Thus, this survey also aims to determine the socio-economy impacts of COVID-19 on local communities and tourism operators. The preliminary finding shows evidence that Covid-19 has positively impacted the coral reef ecosystem at the studied islands. In terms of socioeconomic, most respondents stated that the threats COVID-19 pandemic create an economic shock.

Prof. Dr. Zainudin Bachok is the Head of Coral Reef Group, Institute of Oceanography and Environment (INOS).



### WILL IT BE ANY DIFFERENT THIS YEAR?

### By Mohd Fadzil Akhir

If you're in Terengganu or Kelantan, you're likely experiencing continuous rain this week. Rainy, cloudy and gloomy days will turn down the heat a little as the atmosphere giving ways to the cooler northeast monsoon air to stay here for the next couple of months.





But this year will be different. There is a challenging moment waiting ahead. Uncertainty of the extend of the monsoon rain with the onset of La-Nina season already makes this year's situation very puzzling. We have to prepare for possible flooding seasons while the COVID-19 pandemic already threatens us.

#### Monsoon

Annually starting November, cold surge from the northern Asia mainland spread into the north of South China Sea (SCS) and cold and moisture toward the south. As the moisture reaches the southern part of SCS, the east coast states as the forefront of our Peninsular is ready to receive all the thick clouds. This atmospheric motion will start forming in November and last until March.

However, this rainy period is not continuous. Instead, it spaced out into numbers of cold surges spells. Interestingly, the intensity of the rain, area affected, and the number of surges varies from year to year, making a prediction and understanding the monsoon less straightforward. These changes happen because of many reasons, and scientists refer to this as climate variability.

My most leisurely observation of this monsoon variability is by looking at the rain effect by observing the incoming road to my housing area. The road will always flood during the monsoon, but I can tell that the monsoon is a lot drier for the last two years because I have less trouble cleaning my car tire from the mud.

Averaging rainfall data from the Met Malaysia agrees with my simple observations. Data from the Institute of Oceanography and Environment (INOS) scientific ocean buoy floating offshore of Terengganu waters also reflect the same statement. The El-Nino event in the previous year seems to be the primary reason why monsoon became drier in the past.

El-Nino appears between two to seven years. It form warm conditions in the Pacific Ocean that bring warmer and drier weather conditions to Malaysia and the surrounding region. But this year, the opposite is happening. The other sibling, La-Nina, is now hitting us.

#### La Nina

Usually, La Niña brings much more rain than usual and a more active monsoon in Southeast Asia.

The best example is what happen last September when Kuala Lumpur and Seremban was hit hard by devastating floods. This stormy weather is a typical example of how strong La-Nina will affect our climate.

Although scientists can predict the presence of La-Nina months ahead of time, the intensity can change, and we are not sure if it will become weaker or more robust as it moves into December. A lot of research has gone into understanding the patterns of weather impacts but without any proper conclusion.

Until now, we can only get an initial picture of what global weather could look like under La-Nina's condition but not the detail of the rainfall intensity and how it will evolve.

Recent findings found La-Nina intensified by cooler temperatures monsoon in south Asia to make things even more concerning. The report said this could be related to the reduced aerosols and greenhouse gases due to COVID-19 lockdowns across the globe.

Whether this monsoon might turn out to be the strong one or not, it is the biggest concern as we approach the peak of the monsoon season.



#### COVID-19

Ways to cope with monsoon floods event during this pandemic will be entirely challenging. The approach, action, and delivery might demand a significant departure from the conventional method to address the COVID-19 issue simultaneously and appropriately.

The disease mostly spread on two significant factors; seasonal weather changes (temperature, humidity) and human behavioural patterns. The extreme monsoon event might be the last thing we wish to happen, as it will tend to drive the tides of pandemic spread even stronger.

It was a relief when NADMA mentioned that it had prepared well for the coming floods event if it ever to happen. It is essential to ensure that the preparation will also consider the proper mobilization that reflects practical SOP so that there will not be any COVID-19 increase.

If the La-Nina turns out to be weaker by December, as some scientists predicted, it will be a blessing in disguise as we will expect a mild monsoon, where a regular rainy season might help us stay longer at home.



This article was first published in the New Straits Times.

Associate Prof. Dr. Mohd Fadzil Akhir Director, Institute of Oceanography and Environment (INOS), Universiti Malaysia Terengganu.

### 2020 ISTIREHAT PANJANG EKOSISTEM TERUMBU KARANG

Oleh Hasrizal Bin Shaari



Pelancongan merupakan antara penyumbang terbesar kepada sektor ekonomi negara. Pendapatan negara yang

dijana daripada industri perlancongan mencecah RM86.14 bilion pada tahun 2019. Rentetan daripada kerancakan industri ini, pelbagai promosi telah dijalankan oleh pihak kerajaan bagi menjana lebih banyak pendapatan kepada negara.

Namun seperti perpatah yang biasa kita dengar "disangkakan panas hingga ke petang rupanya hujan di tengahari", momentum kemeriahan industri pelancongan yang kita jangkakan dapat diteruskan pada tahun 2020 secara tiba-tiba menjadi sendu akibat penularan pandemik Covid-19 yang melanda seluruh dunia.

Salah satu komponen industri pelancongan yang sangat terkesan akibat penularan pandemik Covid-19 ialah aktiviti pelancongan di pulau-pulau peranginan terkenal di dalam negara seperti Sipadan, Mabul, Redang, Perhentian dan Tioman. Pulau-pulau peranginan berkenaan diketahui umum menjadi tarikan pelancong dari dalam dan luar negera kerana kaya dengan kepelbagaian biodiversiti terumbu karang.

Secara saintifiknya terumbu karang merupakan organisma marin yang unik kerana mempunyai ciri dwifungsi iaitu sebagai haiwan dan juga tumbuhan. Ciri dwi-fungsi ini terbentuk melalui hubungan simbiosis di antara koloni haiwan kecil seperti buran atau sea-anemone yang terdapat pada kerangka keras kalsium karbonat dan alga simbiotik zooxanthelae yang menjalankan proses fotosintesis.

Kehadiran zooxanthelae memberikan tona warna yang sangat indah dan menarik pada terumbu karang.

Namun tidak seperti tahun-tahun sebelumnya, keindahan terumbu karang tidak dapat dinikmati pada pembukaan musim tahun 2020 apabila beberapa siri perlaksanaan perintah kawalan pergerakan dilaksanakan. Bermula dengan perintah kawalan pergerakan (PKP), diikuti perintah kawalan pergerakan pemulihan (PKPP) dan terbaharu perintah kawalan pergerakan bersyarat (PKPB).

Dari perspektif ekonomi, langkah-langkah kawalan pencegahan yang diambil oleh pihak kerajaan telah memberikan impak yang agak kritikal kepada rantaian industri pelancongan negara khususnya bagi pemain-pemain industri pelancongan setempat.

Namun, dari aspek ekologi, langkah-langkah berkenaan telah memberikan satu ruang istirehat yang panjang kepada ekosistem terumbu karang.

Tempoh istirehat ekosistem terumbu karang khususnya bagi pulau-pulau di pantai timur semenanjung Malaysia menjadi lebih panjang dengan bermulanya musim monsun timur laut atau tengkujuh.

Kebiasaannya monsun timur laut akan berlangsung di antara November dan Februari. Sepanjang berlangsungnya monsun timur laut, hampir seratus peratus penginapan dan hotel di pulau-pulau peranginan di pantai timur semenanjung Malaysia akan menutup operasi mereka.

Melihat kepada tempoh istirehat yang luar biasa panjang ini, adalah dijangkakan sebahagian besar ekosistem terumbu karang di pulau-pulau peranginan negara akan melalui satu fasa pemulihan kendiri.

Melalui kajian lapangan oleh pakar biologi terumbu karang Universiti Malaysia Terengganu (UMT), Dr. Lee Jen Nie, mendapati tempoh PKP telah memberi ruang kepada ekosistem terumbu karang untuk pulih. Menurut beliau sepanjang tempoh PKP, ikan-ikan terumbu karang kembali menjalankan fungsi pembersihan biologi mereka dengan berkesan.

Tanpa kehadiran pelancong bermakna tiada makanan luar yang diberikan kepada ikan-ikan terumbu karang.

Keadaan ini membuatkan ikan-ikan terumbu karang hanya bergantung kepada persekitaran terumbu karang untuk memperolehi makanan yang terdapat di permukaan-permukaan terumbu karang. Secara tidak langsung ianya akan membantu proses pembersihan permukaan terumbu karang secara alami.

Menurut Jen Nie lagi, proses pembersihan secara alami ini turut memberikan peluang kepada alga simbiotik zooxanthelae untuk melakukan proses fotosintesis dengan lebih efisien dan seterusnya mengwujudkan hubungan simbiosis yang lebih baik dengan simbionnya iaitu buran terumbu karang.

Mungkin sebagai masyarakat biasa kita beranggapan bahawa memberi makan kepada ikan-ikan terumbu karang tidak akan mendatangkan sebarang kemudaratan kepada alam sekitar. Namun, terbukti tanggapan sebegitu adalah salah dan dengan jelas ianya boleh memberikan kesan yang negatif kepada ekosistem terumbu karang. Biarlah ikan-ikan terumbu karang menjalankan fungsi mereka dengan berkesan bagi membantu kelestarian dan kesihatan terumbu karang di perairan kita. Sesungguhnya mereka tidak akan pernah lapar tanpa makanan luar yang kita bawa kerana ekosistem itu merupakan rumah mereka sejak dahulu lagi.

Bagi ekosistem terumbu karang, semoga tahun 2020 menjadi tempoh istirehat yang mampu memberikan ruang yang secukupnya untuk proses pemulihan kendiri.

Dan bagi kita sebagai warga alam, seharusnya kita lebih cakna dengan aktivti pelancongan yang lebih mampan demi memastikan warisan terumbu karang yang kita banggakan ini terus kekal sihat dan lestari apabila aktiviti pelancongan kembali aktif kelak.



Artikel ini telah terlebih dahulu terbit di Utusan Malaysia pada Disember 2020.

Penulis merupakan Pengarah Pusat Perkhidmatan Penyelidikan dan Lapangan, dan Felo Penyelidik di Institut Oseanografi dan Sekitaran (INOS).