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CORAL BLEACHING IN MALAYSIA

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CORAL BLEACHING IN MALAYSIA

Corals may look like underwater plants, but surprisingly they are animals that have nested in the ocean floors for over millions of years. Coral reefs play an important role in sustaining carbon dioxide levels in the ocean besides being home to a diverse marine life population. Aside from that, according to Coral Guardian which is a nonprofit organization that works to save and protect the coral ecosystem, coral reefs also act as barriers that absorb excessive elements and wave energy that can harm the shallow water ecosystem. As an avid traveller myself, I enjoy going to the islands in Malaysia and immerse myself in the underwater world. It saddens me to see how the coral loses its vibrant colours over time and observe its skeletal remnants being washed up to shore. What is coral bleaching though you may ask? In accordance with Douglas (2003), the bleaching activity of corals refers to the loss of colour due to symbiosis between a type of algae from the genus *Symbiodinium* and marine benthic animals that are the corals. When a coral experiences bleaching activity, it does not necessarily mean they are lifeless. Corals are complex structural beings that have the ability to survive bleaching, although the chances of their mortality coming are extremely high.

As specified by Douglas (2003) in Marine Pollution Bulletin, there are three main elements that are the cause of the coral bleaching phenomenon. Below in Figure 1 are the three elements which are the external factors that trigger bleaching, the symptoms and the mechanisms.

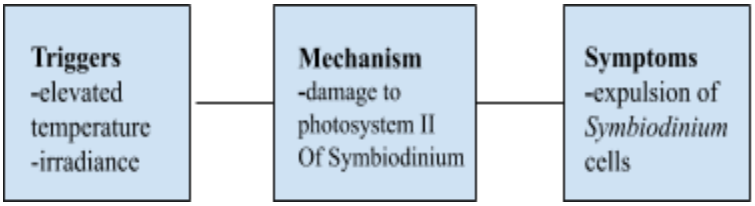

Figure 1: Elements that causes coral bleaching

In this case study, I would like to focus more on the external factor that triggers coral bleaching to take place. This is because the documentary called Chasing Corals on Netflix has taught me how high ocean temperatures have a tremendous impact on the health of coral reefs. Besides that, I will describe in detail the threats that can endanger the coral's well-being and growth in

Malaysia. It is said in The Star Online news platform that the overall health of corals reefs in Malaysia is considered to be fair, but has been gradually decreasing over the last 5 years by Reef Check Malaysia (Rahvinjeet, 2020).

Essentially, one of the external factors that inclines to the coral bleaching phenomenon to happen is the increase in ocean level temperatures. As stated by National Oceanic and Atmospheric Administration (NOAA, n.d.), many corals grow optimally in water temperatures between 73° and 84° Fahrenheit (23°–29° Celsius), but some can even tolerate temperatures as high as 104° Fahrenheit (40° Celsius) for short periods. In accordance to Hancock (n.d.), a slight change in ocean temperature, as little as 2° Fahrenheit can cause corals to undergo heat-stress and release the algae. The rise in ocean level temperatures is well related to global warming and extreme climate change. The ocean works as the world's cooling element by absorbing extravagant amounts of heat that are trapped by the greenhouse gases, thus the surge in ocean temperature. The Great Barrier Reef in Australia which houses the largest coral reef are the main reefs that suffer from high ocean temperature levels. Malaysia's stretch of coral reefs that are said to be in a fair level of health and are not exposed to extreme temperature changes. This is because Malaysia is located slightly above the equator which makes our ocean tropical and allows the coral reef to grow in optimal temperature.

Moving on to the next external factor which is the impacts of tourism. As a tropical country, Malaysia is blessed with numerous beautiful islands around the country and some are even known as one of the finest diving spots in the world which is Sipadan Island located in Semporna, Sabah. With that being said, Malaysia attracts an average of 25 million tourists per year and a huge number of them would spend their vacation at the islands encircling our country. Swimming with fishes and turtles may seem exciting, but stepping on corals and touching marine animals are strictly prohibited. According to Mohamad Saifudin and Nik Norma (2012), the coral reefs in Perhentian Island, Terengganu were facing coral bleaching, making it the location with the highest percentage of coral bleaching out of several listed locations. Despite it being at a critical, dangerous and alarming state, recreational activities at Perhentian Island such as snorkelling and diving continued. This kind of water activities will cause the corals to go through pressure and stress, hence the excretion of algae to take place

making the coral to experience bleaching. The increase of human activity in the ocean namely snorkelling can also lead to water pollution. Uneducated tourists will surely apply layers of eco-unfriendly products such as lotions and sunscreen before jumping into the ocean to prevent burns. Dr Tan Chun Hong, a coral researcher from Universiti Malaysia Terengganu (UMT) stated that body lotion and sunscreens tend to be soluble in water which causes chemicals to be absorbed and accumulated in the corals (Bernama, 2020). If a high amount of chemicals is absorbed by the corals, the chances of the corals to face coral bleaching is high which will eventually impact the coral's growth and DNA formation. Dr Tan Chun Hong also stated that the ingredients in sunscreen that are harmful to coral reefs include Oxybenzone, Benzophenone-1, Benzophenone-8, OD-PABA, 4-Methylbenzylidene camphor, 3-Benzylidene camphor, nano-Titanium dioxide, nano-Zinc oxide, Octinoxate and Octocrylene.

Overall, there are plenty of factors that contribute to coral bleaching mainly the increase of ocean temperature and the increase of human activity in the ocean. If this saddening phenomenon continues to spread globally, millions of marine creatures will lose a place they call home, coastal erosion will occur and extreme coastal currents will be unmanaged. By allowing coral bleaching to happen, the underwater ecosystem will go berserk thus affecting those who rely on marine life to survive on a daily basis. In this world, no ecosystem runs alone, everything is well linked to one another. Therefore, it is crucial for us to spread awareness regarding this upsetting natural phenomenon. Resorts and diving instructors should constantly remind tourists about the do's and don'ts while being in the ocean. In house convenient stores located in resorts and hotels should also provide coral and marine life-friendly products so that the risk of water pollution can gradually decrease over time. Extreme water activity namely jet skiing should be prohibited to ensure that the corals are far from feeling pressured, after all they are living creatures too.

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