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Strategic Communications of Coral Reef Campaign

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ABSTRACT
This study explores the strategic communication efforts involved in coral reef conservation campaigns. Coral reefs, primarily built by hermatypic corals, are crucial to marine ecosystems but are currently threatened by climate change, pollution, and unsustainable human activities. The study identifies key issues such as coral bleaching, illegal fishing practices, and the adverse impacts of tourism on reef health. The research aims to understand the effectiveness of communication strategies used in these campaigns, with specific focus on educational initiatives and policy advocacy. It highlights the role of campaigns in fostering public awareness and supporting sustainable practices to mitigate further reef degradation. The study also discusses the importance of international efforts, such as the United Nations Decade on Ecosystem Restoration, in promoting coral reef preservation. Additionally, it emphasizes the need for comprehensive reef management strategies that include both restoration and proactive conservation measures. The findings underscore the significance of public education and policy interventions in safeguarding coral reef ecosystems for future generations. Through this research, the study contributes to the broader discourse on environmental conservation and the critical role of strategic communication in ecological sustainability.

Keywords: communication, coral reef, campaign

INTRODUCTION

Coral reefs are large underwater structures composed of the skeletons of colonial marine invertebrates called coral. The coral species that build reefs are known as hermatypic, or "hard," corals because they extract calcium carbonate from seawater to create a hard, durable exoskeleton that protects their soft, sac-like bodies. Other species of corals that are not involved in reef building are known as “soft” corals. These types of corals are flexible organisms often resembling plants and trees and include species such as sea fans and sea whips (Ross, 2018). Corals can be found across the world’s ocean, in both shallow and deep water, but reef-building corals are only found in shallow tropical and subtropical waters. This is because the algae found in their tissues need light for photosynthesis and they prefer water temperatures between 70-85°F (22-29°C) (Knowlton, 2018).

According to the GCRMN's Status of Coral Reefs of the World: 2020 report, there has been a steady decrease in hard coral cover since 2010. The worst impacts have occurred in South Asia, Australia, the Pacific, East Asia, the Western Indian Ocean, The Gulf and Gulf of Oman. Since 2010, the number of algae on the world's coral reefs has increased by about 20 per cent, mirroring the decrease in the amount of hard coral over this period. The increase in oceanic carbon dioxide levels poses the biggest threat to reefs. The pH of the ocean decreases, and the water becomes more acidic when carbon dioxide dissolves in it. Despite the immersive ocean's size, too much carbon dioxide can have a significant effect. Ocean water has become 30% more acidic just in the last 200 years, which is faster than any documented shift in ocean chemistry in the previous 50 million years. Additionally, if acidification becomes severe enough, it may potentially disintegrate the current skeletons that support reefs today (Knowlton, 2018).

The decrease in the number of coral reefs is due to the increasingly serious destruction of coral reefs. The degeneration and possibly mass mortality of the corals in the water is known as coral reef devastation. Normally, illegal fishing methods, pollution, irresponsible travel, and other natural occurrences like earthquakes and hurricanes are to blame. Apart from that, another factor is climate change, which is to blame for warming oceans and is thought by experts to be the main factor in the loss of nearly half of the corals on the Great Barrier Reef. Among other causes of the destruction of coral reefs is due to the bleaching of coral reefs. This situation occurs when reef bleaching occurs, when corals lose internal bacteria that give them a bright colour due to severe water conditions. Bleaching events can occur due to pollution and low water. However, the most frequent is the rise in water temperature caused by global warming. Water temperatures often rise as the world gets warmer.

In addition, the coral reef ecosystem is also disturbed due to, illegal fishing methods that use poison and dynamite. Unfortunately, this practice has been widely used in particular to capture species that live on coral reefs using cyanide and other poisons. Although poisons in saltwater can shock fish, they are not specific enough to kill one species of such fish. This is because many fish can metabolize cyanide and only experience its effects for a while. The same is not true for coral polyps, as corals often die in a cloud of poison when cyanide seeps into reef cracks and crevices.

Aside from that, campaigns carried out on coral reefs are often not well received in the community is due to the irresponsible attitude of a handful of individuals. One of the reasons the coral reef campaign failed, was because of the booming tourism industry. This condition is very dangerous for coral reef ecosystems and is one of the main causes of coral reef destruction. Among the factors contributing to the destruction of coral reefs, uncontrolled construction of buildings, irresponsible business operations, increased wastewater emissions and careless tourist behaviours. Besides, irresponsible dropped anchors or unintentional grounding, boats and other recreational vessels can harm coral reefs. Divers, snorkelers, and other sea enthusiasts frequently unintentionally harm the reef while they play and relax by stomping or sitting down on it, or just by touching it and exposing it to their skin oils. The marine ecology is directly impacted by tourism. With a little understanding, such as through campaign, tourists who want to see these fascinating natural masterpieces may significantly reduce the devastation of coral reefs.

LITERATURE REVIEW

Type and Role of Coral Reef Towards Sea Ecosystem

According to scientists, they generally agree there are three main types of different clarifications of coral reefs namely, fringe reefs, barrier reefs, and atolls. Fringing reef are usually growing close to the shorelines of continents and islands. There are small, shallow lagoons separating them from the shore. The most prevalent kind of reef is one that is fringe. Next, barrier reef, are similarly run parallel to the coast, but are divided by larger, deeper lagoons. They can constitute a "barrier" to navigation at their shallowest locations, where they can even touch the surface of the water. Atolls are coral rings that, when found in the midst of the ocean, provide safe lagoons. Atolls typically develop when islands with fringing reefs collapse into the sea or when the surrounding sea level increases (National Oceanic and Atmospheric Administration (NOAA), 2021). Fringing reefs grow near the coastline around islands and continents. They are separated from the shore by narrow, shallow lagoons. Fringing reefs are the most common type of reef. Next is, barrier reefs also parallel the coastline but are separated by deeper, wider lagoons. At their shallowest points, they can reach the water's surface forming a "barrier" to navigation (Coral Reef Alliance, 2021).

Coral reefs play an important role in marine ecosystems. Both warm-water and cold-water corals manufacture calcium carbonate skeletons that accumulate over time to form a three- dimensional matrix known as a reef, which serves as a habitat for several fish species and other species. Many warm-water coral reefs produce enough limestone-like calcium carbonate to create carbonate structures. Significant rates of bioerosion and wave-driven physical erosion can be mitigated by high rates of calcification. Coral reefs and islands are important for tropical beaches. Both are supported by coral reef formation. This is because, tropical coral reef ecosystems support at least 25% of all known marine species, and many more reef species have yet to be explored (Fisher et al., 2015). Although coral reefs make up only 0.1% of the ocean floor, they are found in over 100 countries and territories. Coral reefs

are also important for at least 25% of marine species to be self-sufficient as well as the safety, coastal protection, health, and economic security of hundreds of millions of people.

Impacts and Threats to Coral Reef

There is no denying that coral reefs have various impacts not only on the ecosystem in the ocean, but they also have an impact on humans. Coral reefs provide various benefits to human societies, including food, income, recreation, coastal protection, cultural settings, and a variety of other ecological products and services. Coral reefs offer opportunities for recreation, act as a barrier against erosion and storm damage, and support local economies. Coral reefs are also a source of medicine and fresh food. More than 500 million people depend on coral reefs for shelter, income and food (National Oceanic and Atmospheric Administration (NOAA), 2019). In addition, coral reefs also provide an accurate and verifiable record of climate events that can be scientifically tested over the past million years. Therefore, coral reef research is important to obtain accurate information on changes in terms of growth, changes in coral development patterns and whether they have an impact on humans.

Despite that, coral reefs also receive threats from various sources. Even so, coral reefs also receive threats from various sources. Coral reefs are particularly vulnerable because most coral reefs are found in shallow waters near the coast, which makes them vulnerable to human activities. Among the threats is physical damage to coral reefs. This threat is the main risk of the decline of coral reef species in the ocean. This physical impairment is often caused by unintentional or intentional harm (Evercare Positive Reef, 2021). Environmental stresses such as ocean acidification, climate change, and others pose a threat to coral reef ecosystems and the people who depend on them. Multiple stressors interacting with biological complexity may cause adverse effects on coral reef ecosystems to occur sooner and more severely than previously anticipated. The world's oceans are undergoing major changes. Coral reefs are the most biodiverse marine ecosystems in the world. According to a growing body of scientific research coral reefs are under threat from changing ocean conditions. The lives and livelihoods of hundreds of millions of people who depend on coral reefs for food, shelter from storms and waves and the advantages of coral-based recreation are at great risk as a result of these threats to coral reefs (Burke et al., 2011). Other activities of concern that are also caused by humans include pollution, sedimentation, destructive fishing methods, and climate change that increase ocean temperatures and generate ocean acidification. These threats put stress on corals and can lead to coral bleaching and possibly death. This greatly disturbs this very fragile ecosystem (National Oceanic and Atmospheric Administration (NOAA), 2019). As a result, coral reefs around the world are declining. Local causes such as pollution, overfishing and physical destruction of coral reefs can have a major impact on coral reefs. Anthropogenic changes in ocean temperature and chemistry also drastically affect the distribution, quantity, and lifespan of the entire coral reef ecosystem (Gattuso et al., 2014b; Hoegh-Guldberg et al., 2014).

Impact of Coral Reef Preservation

Coral reefs have experienced a sharp decline especially in the last 3 to 5 years (Hughes et al., 2017, Hughes et al., 2018). It is now obvious that more audacious measures must be taken both

globally and locally to ensure the survival of coral reefs. In particular, coral reef restoration is being used more frequently as a management method to halt the decline in coral cover and improve reef resilience. A major improvement is taking national and international commitments under different multilateral environmental agreements reflecting the increased interest in coral reef restoration. For example, the UN General Assembly designated 2021–2030 as the UN Decade on Ecosystem Restoration, putting "restoring our ecosystems" at the forefront of the 2030 Agenda for Sustainable Development. A resolution to address the sustainable management of coral reefs has also been adopted by the 4th United Nations Environment Assembly in 2019 (Resolution 4/13) which recognizes the importance of restoration in achieving biodiversity objectives (United Nations Environment Assembly (UNEA), 2019).

According to Boström-Einarsson et al., 2020, it is challenging to evaluate and share general best practices due to the lack of long-term monitoring of existing projects because coral restoration projects have a median monitoring duration of 12 months, thus reporting of success focused on a few technical metrics such as coral growth and survival rather than metrics related to ecosystem function and health or socio-cultural and economic outcomes (Hein et al., 2017; Boström-Einarsson et al., 2020). In addition, several agencies such as the National Oceanic and Atmospheric Administration (NOAA) and International Coral Reef Initiative (ICRI) conducts and opens a research paper to study initiatives to preserve coral reefs in a more innovative and productive way in a short time, does not require a lot of manpower and provides accurate results to be recorded. Recent years have seen an explosion in research and development into innovative ways to scale up existing coral reef restoration methods (National Academies of Sciences Engineering and Medicine (NASEM), 2019; Bay et al., 2019, RRAP).

These advancements are essential for the survival of corals. The novelty of this research, however, leaves a gap between what is currently done and what is advised, leaving managers, practitioners, decision-makers, and funding organizations with a lack of guidance about what coral restoration can accomplish.

DISCUSSIONS

How the role, impact, and influence of initiative to protect coral reef affecting the survival of coral reef habitat?

Coral reef conservation through campaigns is seen to have a unique role, impact and influence on the survival of coral reefs. The role of a successful campaign is seen as very important to ensure that coral reefs are still able to survive and survive in the marine ecosystem. The United Nations Environment Assembly in 2019 saw the adoption of Resolution 4/13 on sustainable coral reef management, which called on UNEP and ICRI to more clearly define best practices for coral restoration when necessary to maintain ecosystem services, such as coastal defences. and restoration of fish nurseries. Twenty experts in coral reef restoration from around the world responded by compiling a study to help practitioners, managers and decision makers decide whether and how to use coral reef restoration as a strategy to protect coral reefs at local, regional and global levels (Hein et al., 2020a, UNEP). In addition, anthropogenic disturbances

or disturbances from nature such as earthquakes, various types of volcanic eruptions, tsunamis, and climate change are also one of the factors that coral reef ecosystems are threatened with destruction. This requires the efforts of various parties to prevent it from happening. This restoration effort into an ecotourism approach. According to marine life expert and vice president of the Malaysian Marine Science Association Dr Aazani Mujahid, the tourism industry has changed the face of places like Tioman Island, attracting visitors to help generate income. Through early coral reef conservation campaigns, it can provide early education to visiting divers and tourists about environmental conservation to protect tourism assets and their importance. Next, the campaign through the role of education is also seen to be effective in teaching the community about the importance of coral reefs. The initiative can be implemented with the help of tour guides. Things are seen to be very helpful in educating divers and tourists. This is because tourists who are guided by tour guides are seen to be able to minimize the negative impact on the environment and social tourism through friendly attitudes and behaviours towards the environment. According to Dr. Aazani Mujahid again, he suggested that tour guides fill out tentative tours by educating their customers. In addition, tour guides must also take responsibility for the environment.

In addition, coral reef health is also seen to be deteriorating as a result of various factors such as overfishing, destructive fishing methods, unsustainable tourism, coastal development, pollution and the Global Aquarium Trade (ICRI, 2021). As a result of the damage that is mostly caused by humans, the number of fish and life in the sea is also seen to be decreasing and showing changes. This can be seen from the results of a survey conducted by Reef Check Malaysia and the Malaysian Fisheries Department showing that in 2020 the health of coral reefs is declining, fish and invertebrate populations are low, but human impact and changes are increasing. In addition, the destruction of the coral reef habitat will also affect the number of fish in the sea. This is because the fish's habitat to breed and shelter has also been destroyed. This reduction in fish will also affect the fishing industry and the supply of fish will also decrease. According to the Director General of Fisheries, Ahmad Tarmidzi Ramly, the results of studies and reports from the Food and Agriculture Organization (FAO), in 2010, show that the fishing industry is experiencing a downward trend. Fisheries stocks are also expected to be depleted in 2048 if no mitigation measures are actively taken from now (Halid, 2021).

Therefore, preventive measures should be taken to prevent coral reefs and their habitats from being further destroyed. Among the efforts that can be carried out is to create sustainable tourism. The problem of unsustainable tourism occurs when too many tourists visit and dive near coral reef habitats. These tourist divers touch, step on and pollute the coral reef habitat. When tourists mistakenly touch, contaminate, or break off pieces of the reef, the corals become disturbed. The coral creatures make an effort to fend off the intruders, but doing so also causes coral bleaching, which happens when corals completely become white after expelling the brilliantly coloured algae that inhabit them. Additionally, bleached corals are dead and no longer contribute to coral's biodiversity communities (Cause, 2021). In order to avoid the problem of habitat destruction by humans, awareness should be fostered by responsible parties such as marine park managers. The management of the marine park should provide information on the guidelines and prohibitions that must be followed during diving. The divers must also

be briefed on the prohibited areas for diving. As done in Thailand, they took the initiative by identifying and directing visitors to hazard-resistant areas, matching diver skills with site selection, and informing operators of dive conditions, park administrators can help minimize impacts. Dive operators must actively promote low-impact diving practices to minimize impacts. This requires selecting a dive location that is consistent with the diver's expectations and experience, as well as providing a pre-dive briefing that takes into account the diver's activity and physical limitations as well as the dive site's vulnerability to current impact and strength (Worachananant et al., 2008). Next, in order to avoid the problem of coral reef habitat destruction, the initiative to establish a marine park is seen to be effective in conserving various habitats and marine life. The initiative to establish this marine park was undertaken by the non-governmental organization World Wide Fund for Nature (WWF). The oceans contribute significantly to the global economy, worth a conservative 24 trillion USD, but they are constantly diminishing. Therefore, they invest in the ocean by establishing Marine Protected Areas (MPAs). It has proven to be an effective technique for preserving biodiversity and important maritime habitats. MPAs and networks of Locally Managed Marine Areas (LMMAs) make ecosystems more resilient in the face of climate change and ocean acidification.

The Strategy Communication Used on the Coral Reef Campaign

Every campaign needs a strong strategy to ensure that the campaign that is carried out produces encouraging results and is able to deal with the problems that occur. This also happens in the implementation of coral reef conservation. Ecological restoration strategies have been carried out by the United Nations (UN). The main purpose of the method is that the objective of coral reef restoration has changed from restoring to historical baselines to restoring or preserving important coral reef ecological processes, functions and services throughout the coming decades of climate change. Suggest that the phrase "coral reef restoration" be used to refer to proactive efforts to assist in the restoration of reef structure, function, and important reef species in the face of increasing anthropogenic and climate pressures, fostering reef resilience and the long-term and long-term provision of ecosystem services reef. Reef management strategies should never start with restoring corals; instead, they should be a component of a properly considered framework for ecosystem management (Edwards, 2010).

In addition, another strategy used to provide awareness to the public about coral reefs is to use educational methods. This method is used by the National Oceanic and Atmospheric Administration (NOAA). This strategy involves educators using resources provided by NOAA to teach students about the science and beauty of corals. Through the material, through organisms and ecosystems to teach many scientific concepts including symbiotic relationships, reproductive strategies, food webs, chemistry, biotic and abiotic interactions, human impact and more. Corals can also be used by teachers to discuss environmental responsibility and conservation. Even if the students do not live near coral reefs, students can learn how they can contribute to the preservation of coral reefs at home and abroad. Everyone can contribute to the conservation of coral reefs by doing various small and large actions. This strategy is seen to be effective because early education and materials that are clearly able to be described by the students will attract their interest to explore more deeply the importance of coral reefs.

Next, the non-governmental body, Reef Check Malaysia is also actively conducting campaigns and activities to conserve and preserve coral reefs in Malaysia. The main focus of Reef Check Malaysia is working towards the sustainable management of coral reefs in Malaysia. Reef Check Malaysia bring together stakeholders to collaborate on coral reef monitoring, management, research and conservation and advocacy. Reef Check Malaysia focuses on 4 core programs that complement each other to promote the conservation and management of coral reefs in Malaysia. Among the programs are, ECOACTION, SCIENCE, ADVOCACY, and MANAGEMENT. Under the EcoAction program, they train certified divers how to conduct Reef Check surveys and organize annual surveys of coral reefs around Malaysia. The data collected over time reflects the changing status of coral reefs and indicates measures that can be taken to conserve them. Currently, they monitor over 220 reef sites across Malaysia and have trained over 900 EcoDivers. Next under Science, they raise awareness of the importance of coral reefs and the valuable ecosystem services they provide. They are also part of the Greenfin National Management Team, which is an international program that promotes good diving etiquette. Currently, they have full-time staff in Pulau Tioman, Mersing and Pulau Mantanani who run community programs throughout the year. Finally, under the Management program, without community involvement in the management of marine areas, they will not be successful. One of Reef Check Malaysia's goals is to involve local communities in the management and conservation of their island's resources. Reef Check Malaysia also active on social media such as Instagram, Twitter, Facebook and LinkedIn. This platform is very useful to attract the attention of the community and is also very effective to spread the activities and campaigns carried out by them. The platform is also used to recruit volunteers to help them carry out activities and campaigns organized by Reef Check Malaysia.

Next, a campaign undertaken by the non-profit organization Coral Reef Alliance by leading the way in the science of coral reef conservation. Proactive studies conducted by them have shown that coral reefs are able to successfully adapt to the effects of climate change, provided humans foster the conditions necessary for reef evolution. In addition, sound scientific methods, strategic partnerships and community involvement, are necessary to protect and sustain coral reefs. They do coral reef conservation by initiating, maintaining and analysing scientific research to better understand the evolutionary processes that allow coral reefs to adapt to climate change and the environmental conditions that support those processes. Next, they leveraged the powerful Allen Coral Atlas, as well as other available datasets, to identify reef networks that have a higher potential to adapt to climate change so they can be prioritized in conservation efforts. Coral Reef Alliance also communicates and engages with partners. This is done to incorporate the findings of our scientific research into conservation policy and practice. Finally, they also do regional fieldwork. This fieldwork was undertaken to build regional statistics on coral reef health and water quality, integrate adaptation research into regional conservation initiatives in the Hawaiian Islands and the Mesoamerican region, and inform conservation efforts "on the ground". All the initiatives carried out by the Coral Reef Alliance greatly help coral reefs survive and stay alive through scientific progress. All the progress and joint efforts of these partners are also expected to yield positive results for the survival of coral reefs.

CONCLUSION AND RECOMMENDATION

In conclusion, this study shows that, strategy of communication is vital to the implementation of a campaign. In addition, the community should always be aware and concerned about the importance of coral reefs. Coral reefs also need to be looked after and preserved to ensure the balance of the ecosystem is always maintained. This is because the coral reef ecosystem is very important in the marine ecosystem, especially for fish species. Coral reefs are places of refuge and breeding for fish species, the destruction of coral reefs will affect the balance where fish have lost places to breed and shelter.

For suggestions to ensure the success of the campaign, an organization should find a creative approach to attract the interest of the community to participate in the campaign or activity. Organizations can spread the word about campaigns run through social media platforms such as YouTube. They can upload videos of activities that have been done throughout the campaign. Apart from the YouTube platform, organizations can also upload short videos on TikTok that are useful such as trivia or fun facts related to the organization or campaigns and activities carried out. Organizations should also be creative in presentation, for example putting hashtags or captions that are interesting and up to date. Through this method it can attract the interest of young people to participate in the campaign and activities that are conducted.

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