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INAF - 222

29 June 2022

Ecotourism's Benefits Against the Dangers of Reef and Climate Misconceptions

Over the past few decades, it has become evident that the general public can be kept oblivious and removed from the scientific realities of climate change. This is due to scientific language posing a barrier to the layman's eye that is then exploited by the media or politicians, or even via willful ignorance. The Great Barrier Reef's safety is threatened by misconceptions about the reef itself, climate change, and how these two impact one another. Without a direct relationship between scientists and the general public, the greatest risks to the reef – coral bleaching, degradation, overfishing, habitat loss – will continue to become a reality due to a lack of action.

The Problem With Public Misconceptions

One of the clearest examples of public misinterpretation of scientific findings on the reef is the understanding of the Great Barrier Reef (GBR) as being “resilient”. Research has determined that the coral within the reef is “resilient” in that it can recover from damaging events like bleaching or cyclones, regrowing and ‘bouncing back’ to its healthy state. Many take this analysis to mean that the reef is completely resistant to climate change-induced damage, as it will simply regrow. This is not true, however; coral reef resilience relies on rest and recovery periods in order to return to its healthy condition. As bleachings and intense weather become more and

more frequent with climate change, the reef will become damaged in its already weakened state, rendering it more fragile and incapable of recovery.¹

Misconceptions extend beyond the scope of the coral itself; too often, the public is misled about the science behind climate change and mitigation techniques. One such instance of this is the recent political focus (within the Paris Climate Accords and beyond) on a 2°C temperature increase benchmark for global warming. This objective is treated as a goal, one that most likely will not even be met; in actuality, this is an absolutely final scientific benchmark for the survival of the Earth and the human race, still with catastrophic outcomes. As David Wallace-Wells explains in *The Uninhabitable Earth*, “It is, I promise, worse than you think.”² This would result in mass bleaching across the entire reef, not to mention 50% less available food, the creation of ocean “dead zones” in which there is a severe lack of oxygen in the water, intense sea-level rise, and creation of uninhabitable hot zones in tropics such as Northern Australia. Yet the public remains blissfully unaware of this deadly threat to the reef, marine life, and human life, as the media and politicians publicize the 2°C ‘target’. Given that the Great Barrier Reef Marine Park Authority (GBRMPA) has continuously warned that climate change is the current biggest threat to the Great Barrier Reef, this has direct impacts on the reef’s well-being. As climate change worsens, so do sea levels rise, oceans acidify, coral bleaches, habitats are lost, and extreme weather events like cyclones increase.³

Another way that diction has been used as an effective tool to sway environmental public opinion is through the word “tax”. Prime Minister Gillard worked to put a carbon pricing mechanism into act in 2012, after having received a lot of pushback from the public. The original

¹ Nathan Cook, “Reef Management Strategies and Inshore Reef Restoration,” The Politics of Protecting the Great Barrier Reef (class lecture, Georgetown University and The University of Texas at Austin, Townsville, Queensland, Australia, June 18, 2022).

² David Wallace-Wells, “The Uninhabitable Earth,” *New York Magazine*, July 10, 2017, <https://nymag.com/intelligencer/2017/07/climate-change-earth-too-hot-for-humans.html>.

³ Great Barrier Reef Marine Park Authority, “Great Barrier Reef Outlook Report 2019,” *Great Barrier Reef Outlook Report 2019* § (2019), pp. 161-167, 161.

Clean Energy Future's plan was to start with a fixed price of 23 AUD per tonne of carbon and then transition to a cap-and-trade program, which would ultimately return over half of the generated revenue back into household benefit payments.⁴ Unfortunately, the politicians who were against this system used the label "tax" to demonize it in the eyes of the public. The negative connotation of the word "tax" created a misconception that people would be hurt economically, inciting widespread disapproval and protests. Thus, the opposing politicians successfully used fear and lack of understanding as a wedge between science and the general public to their benefit. It is estimated that if the carbon pricing mechanism had remained in place, both 2020 carbon emissions and electricity prices would have been lower than they were without the tax, and there would have been increased investments in green energy as well.⁵

It may seem as though, that a lack of public awareness is not critical to the saving of the reef, given that scientists and politicians have a more specific and nuanced understanding of the Great Barrier Reef's state. However, it is the public who interacts most with the reef, both politically and physically. In terms of reef management, public interaction comes from all levels; volunteers apply to be public servants in the GBRMPA, citizens vote for the local, Queensland, and national officials on the reef (which is especially significant given Australia's compulsory voting)⁶, and average Australians are the ones participating in most of its everyday usage. Additionally, the Reef is too large for any one authority to monitor at one time. It is the people who are out fishing, snorkeling, boating, swimming, shipping, and more. When they do this while unaware or misinformed about the threats plaguing the reef, they are often less inclined to follow guidelines or regulations that have been put in place to mitigate these threats. This is

⁴ Center For Climate and Energy Solutions, "Australia's Carbon Pricing Mechanism", December 2011, pp. 2-4, https://www.c2es.org/wp-content/uploads/2011/12/Australia_Pricing_Mechanism.pdf

⁵ Matt Grudnoff, "The Carbon Pricing Mechanism under the Gillard Government", The Australia Institute, August 2020, pp. 3-5, <https://australiainstitute.org.au/wp-content/uploads/2020/12/Carbon-price-10-years-on-web.pdf>

⁶ Fred Nucifora, "Orientation to the State of the Great Barrier Reef," The Politics of Protecting the Great Barrier Reef (class lecture, Georgetown University and The University of Texas at Austin, Townsville, Queensland, Australia, May 31, 2022).

especially problematic, given that about 64% of those living in Australian reef-adjacent areas classify the GBR as in “good” condition,⁷ which is neither accurate nor particularly specific. Thus, it is critical that Australians learn more about and are exposed to the true state of the reef, which can be challenging given that political authorities are often biased and scientific sources are often inaccessible.

Current Strategies and Solutions

In looking for a way to bridge the gap between various perspectives, it is important to take into account who will be affected, how the change will be implemented, and what lasting effects will leave a sustainable imprint on the greater scale. One main contributor to public knowledge about the GBR is tourism; this is particularly helpful because tourism continuously brings in new ideas and channels for spreading further connections. The Queensland Government Department of Education and Science defines ecotourism as activities and experiences that promote education, protection, and appreciation for natural and cultural values.⁸ There is a particular emphasis on not only decreasing negative human impacts but also increasing sustainable efforts to support the local community and its relationship with different groups. Not only is the Great Barrier Reef already a popular tourist destination and a strong driver of the Australian economy, but it also gives scientists the opportunity to work directly with individuals participating in activities in or around the reef. The GBRMPA started the Eye on the Reef Rapid Monitoring Program in 1997 to allow everyday citizens visiting the reef to get a sense of what scientists protecting the reef actually do day to day. The activity involves identifying coral and marine species at the reef to assess the health of the ecosystem, and the

⁷ David Green et al., “Understanding Public Perceptions of the Great Barrier Reef and Its Management” (Townsville, QLD: CRC Reef Research Centre, 1999).

⁸ Queensland Government Department of Environment and Science, “What is Ecotourism?”, August 9, 2021, <https://parks.des.qld.gov.au/management/ecotourism/about>

collected information is logged into a database accessible to anyone.⁹ Because scientific research is often communicated in dense scientific journals with complex language (that requires a certain level of prior knowledge to understand), this method of participant fieldwork eliminates the barrier of academic writing while still helping people learn. Also, people tend to be more willing to participate in hands-on activities, and the excitement that accompanies recreational activities does not come off as “traditional” learning. The direct relationship between the public and scientists produces better communication of the truth without a biased third party getting involved to act on ulterior motives.

Another way for the general public to participate in “citizen science” is through restoration projects. Reef Ecological, a Townsville environmental research and consulting group conducts workshops and volunteer opportunities for educating people about sustainable solutions.¹⁰ Increased chemical runoff from neighboring industries results in eutrophication, and the macroalgae needs to be regularly removed from the coral. The team brings groups out to local reefs and teaches them how to remove the macroalgae, allowing people to directly learn about reef health and methods of conservation. Scientists benefit from citizen science practices because they are able to exponentially increase impact, such as having more “eyes” to collect data or more hands at work on physical projects. Outreach and spreading information is also easier when more tourists and locals are involved, as outsiders might feel more inclined to participate if they heard about it from their peers. The reef benefits because more of the population is aware of its problems and hopefully willing to take into account how humans’ actions and choices impact the ecosystem.

⁹ Great Barrier Reef Marine Park Authority, “Eye on the Reef”, 2022, <https://www.gbrmpa.gov.au/our-work/eye-on-the-reef>

¹⁰ Nathan Cook, Reef Ecologic, The Politics of Protecting the Great Barrier Reef (class lecture, Georgetown University and The University of Texas at Austin, Townsville, Queensland, Australia, June 18, 2022).

Australia's Department of Agriculture, Water, and the Environment is currently working to improve the reef's ecosystems and connecting social initiatives through the Billion Dollar Reef Protection Package. Between 2021 to 2030, the government plans to invest one billion dollars, following in the footsteps of the successful post-2014 two billion-dollar funding allocation. About 7.5% of this funding (\$74.4 million) is designated for "Strengthening Partnerships and Stewardship"; this includes implementing local involvement projects, community-based marine debris clean-ups, citizen science Reef projects, and increasing education and awareness.¹¹ These types of projects are particularly valuable because they leave lasting impacts on the general public who are involved. Encouraging people to get involved as well as providing more opportunities for learning about the science can correct misconceptions and decrease ignorance, ultimately creating a stronger global community that is willing and prepared to face the Reef's challenges.

Connection to the United States

Similar to Australia, the United States has issues surrounding the lack of general public knowledge about climate change and politicians spreading misinformation. A survey conducted by the Yale Project on Climate Change Communication found that only a little over half (57%) of American adults correctly understand what the greenhouse effect is; the other half either do not fully understand and cannot explain the process, believes in incorrect information, or simply does not know about the environmental issue and its contributing factors.¹² This could be due to politicians using their power to spread misinformation and gain influence over supporters of their political ideology. Unfortunately, this can easily be done through social media, as a recent study

¹¹ Department of Agriculture, Water, and Environment, "Billion Dollar Reef Protection Package", <https://www.awe.gov.au/parks-heritage/great-barrier-reef/billion-dollar-reef-protection-package>

¹² Anthony Leiserowitz et al., "Americans' Knowledge of Climate Change", (Yale University, New Haven, CT: Yale Project on Climate Change Communication, 2010), https://climatecommunication.yale.edu/wp-content/uploads/2016/02/2010_10_Americans%E2%80%99-Knowledge-of-Climate-Change.pdf

found that over half of the top 500 most retweeted posts mentioning “fake news” were related to the idea that climate change is either not caused by humans or even happening at all.¹³ Twitter is easily accessible and concise, so politicians have an advantage over scientists in reaching their target audience. Additionally, while the United States might not have a major world-renowned natural site that ties the country’s environmental focus together like the Great Barrier Reef, it still depends on tourism for educating people about the environment. Over the years, the US National Parks Service has worked on over 170 citizen science projects to “preserve natural and cultural resources and to provide enjoyment and education for visitors”.¹⁴

Conclusion

Misconceptions about the GBR, climate change, and the intersections between them are far from harmless. A public unaware of or misinformed about the dangers plaguing the reef is one that actively contributes to its destruction. Whether it is via direct action, such as illegal fishing, or indirect action such as voting for candidates that perpetuate ineffective protection policies, a citizen base that acts in this way furthers the degradation of the environment. Different programs and communities are striving to decrease the divide between science and the public through educational tourism and citizen science projects, though there are always areas for improvement.

¹³Ahmed Al-Rawi et al., “Twitter’s Fake News Discourses Around Climate Change and Global Warming”, *Frontiers in Communication*, November 22, 2021, <https://www.frontiersin.org/articles/10.3389/fcomm.2021.729818/full>

¹⁴ U.S. General Services Administration, “National Park Service (NPS)”, <https://www.citizenscience.gov/catalog/nps/#>

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