



Climate Justice and the Oceans: A Call-to-Action for our people, coral reefs, and the climate

Executive Summary

The Philippines plays a critical role in spearheading the global discussion on climate change and its impacts on the oceans and coastal communities. It is an archipelagic state with more than half of its population dependent directly or indirectly on a healthy marine ecosystem. The entire Philippine archipelago and its territorial waters are at the apex of the Coral Triangle (CT) – the region with the highest marine biodiversity in the world¹, with a coastline measuring 37,008 km; longer than China (14,500 km), US (19,924 km) and Japan (29,751 km).²

It is the global epicenter and cradle of marine biodiversity - a potential 'Noah's Ark' where marine life continues to persist, despite warmer and more acidic ocean conditions. It has the second largest coral reef area in the world (26,000 km²), with the most extensive mangrove (2,472 km²) and seagrass (978 km²) areas.³ Over 500 species of corals (12 endemic), 3053 fish species (2724 are marine), 43 species of true mangroves, 16 species of seagrasses, over 800 seaweed species.⁴ Philippine coastal and marine ecosystems – coral reefs, seagrass and mangroves (excluding the continental shelf) contribute approximately US\$ 966.6 B (PhP 15.269 T) to the Philippine economy.²

Philippine coral reefs are already suffering from man-made threats, such as overfishing and destructive fishing, and coastal development.⁴ Mangrove areas continue to diminish due to cutting and mangrove conversion.⁵ Moreover, Increasing CO₂ in the atmosphere drives the rise in atmospheric temperatures (global warming), resulting to extreme weather events, changes in rainfall patterns, warming oceans which then lead to mass coral bleaching and sea level rise (from ice melt and expansion). Increase in CO₂ in the atmosphere also means higher dissolution

¹ Carpenter K.E. and Springer V.G. 2005. The center of the center of marine shore fish biodiversity: The Philippine Islands. *Environ. Biol. Fishes* 72: 467-480

² Azanza R.V. et al. 2017 Valuing and Managing the Philippines' marine resources toward a prosperous ocean-based blue economy. *Public Policy* 18:1-26.

³ Burke L. et al. 2012. *Reefs at Risk Revisited in the Coral Triangle*. Washington DC: World Resource Institute

⁴ Philippine Coral Triangle Initiative-National Coordinating Committee (CTI-NCC).2012. "State of the Coral Triangle Report Highlights (Executive Summary)." CTINCC. http://www.cti.pawb.gov.ph/publications/Phi%20SCTR_web%20copy.pdf.

⁵ Primavera, J. H. and J. M. A. Esteban. 2008. "A Review of Mangrove Rehabilitation in the Philippines: Successes, Failures and Future Prospects." *Wetlands Ecology and Management* 16, no.5: 345-58



of carbon dioxide in the oceans, causing ocean acidification. The combined effects of human activities on marine coastal ecosystems and impacts of climate change, will cause significant degradation and impede or further delay natural recovery. Highly degraded marine coastal ecosystems would be compromised in delivering essential ecosystem goods and services.

A recent nationwide coral reef survey in the Philippines from 2015-2017 covering 166 coral sampling stations (108 Luzon, 31 Visayas and 27 Mindanao) in 31 provinces reveals that Philippine coral reefs are in a bad state. None of these coral stations were classified in the excellent category (i.e. >44% hard coral cover or HCC). Ninety percent (90%) of these stations (i.e. 154 of 166) were either “poor” (<22% HCC, 74 stations) or “fair” (>22-33% HCC, 80 stations).⁶

Ironically, the Philippines, a developing country that contributes the least to climate change, is the fifth⁷ most vulnerable country to its impacts. Least appreciated and undervalued are the socio-economic impacts of elevated sea surface temperatures (SSTs) on coastal ecosystems and the communities that depend on these. For example, anomalously high SSTs due to global warming and El Niño Southern Oscillation (ENSO) events have caused mass coral bleaching events in the Philippines in 1997-1998⁸, 2010 and 2015-2017⁹. These coral bleaching events which lead to mass coral mortality have profound implications to the viability of coral reef ecosystems and near-shore fisheries. Mass coral mortality due to bleaching events compromises the structural complexity of coral reefs which makes it less suitable to support the diverse assemblage of marine organisms that are dependent on coral reefs as a source of food and shelter. A degraded coral reef has lesser natural capacity to protect coastal communities from storm-generated waves. There is also high dependence on coral reefs for livelihood, with at least 30% of municipal fisheries coming from coral reefs.

⁶ Licuanan AM et al. 2017. Initial findings of the Nationwide Assessment of Philippine coral reefs. *Phil. J. Sci.* 146(2): 179-187. Synoptic Investigations of Human Impacts on Nearshore Environments (SHINE): Coral Reefs Project, a component of the DOST-funded the National Assessment of Coral Reef Environments (NACRE) program that focuses on reef benthos.

⁷ Germanwatch, GLOBAL CLIMATE RISK INDEX 2017: Who Suffers Most From Extreme Weather Events? Weather-related Loss Events in 2015 and 1996 to 2015, available at <https://germanwatch.org/de/download/16411.pdf> (last accessed 19 January 2018).

⁸ Arceo HO. et al. 2001. Coral bleaching in Philippine reefs: Coincident evidences with mesoscale thermal anomalies. *Bull. Mar. Sci.* 69(2):579-593

⁹ Philippine Coral Bleaching Watch (PCBW), unpublished data.



Climate change and rising CO₂ in the atmosphere aggravates the existing impacts of the current crisis of the Philippine coastal and marine ecosystems such as; overfishing, destructive fishing, pollution, and unsustainable utilization of resources such as reclamation, and large-scale mining. Additionally, other services from a healthy marine ecosystem such as tourism, biological integrity of key discovered and yet to be discovered marine species, among others are also adversely affected.

At the forefront of these climate impacts are fisherfolk and coastal communities, who are very much dependent on our marine ecosystem. This portion of the population comprises 55.3 million people or 60 percent of the total Filipino population and remains among the most marginalized sectors in the Philippines or the “the poorest of the poor”. This sector is not only naturally more vulnerable to extreme weather conditions, and stronger and more frequent super typhoons but also to sea level rise, ocean acidification, coral bleaching, loss of critical habitats and biodiversity--which will lead to disruption of livelihoods, and food insecurity among others.

As the increase in temperature is attributed to the increase in carbon dioxide in the atmosphere, it is reasonable to point to the fossil fuel industry as a major driver of this disaster. Greenpeace identified these companies as ‘Carbon Majors’, which should be held accountable and liable¹⁰.

Recent findings reveal that nearly two-thirds of total industrial CO₂ and CH₄ emissions can be traced to 90 industrial carbon producers - drawing attention to their potential climate responsibilities. Emissions traced to these 90 carbon producers contributed ~57% of the observed rise in atmospheric CO₂, ~42–50% of the rise in global mean surface temperature (GMST), and ~26–32% of global sea level (GSL) rise over the historical period¹¹.

If these carbon majors run their business as usual, ignoring science and the global call of communities, this will lead to more cases of coral bleaching. Further negative impacts such as the dislocation of communities, disruption of livelihoods, threats to food security, and collapse of marine ecosystems, among others, can be expected.

¹⁰ [Greenpeace. 2017. Who is responsible for increasing the risk of climate change? https://secured-static.greenpeace.org/seasia/ph/PageFiles/105758/CJ_Briefer_Carbon_Majors_Backgrounder_Update_14Feb2017.pdf](https://secured-static.greenpeace.org/seasia/ph/PageFiles/105758/CJ_Briefer_Carbon_Majors_Backgrounder_Update_14Feb2017.pdf)

¹¹ [3] Ekwurzel, B., Boneham, J., Dalton, M.W. et al. Climatic Change (2017) 144: 579. <https://doi.org/10.1007/s10584-017-1978-0>



In spite of all these threats on coral reef ecosystems, and the plants and animals associated with it, the oceans protect us from the impacts of global warming. Over 90% of the excess heat trapped by greenhouse gases has been stored in the oceans¹². Man-made pressure is pushing ocean ecosystems to their limits. It may not be able to take on the heat indefinitely. We have to start protecting our oceans. It is home to millions of amazing plants and animals. Healthier oceans with plenty of marine life, means a healthier atmosphere, more food, and greater safety from extreme weather. Achieving healthier oceans means rebuilding marine species populations and their diversity.

Climate change and rising CO₂ affects us all but is making the fisherfolk, one of the most vulnerable sectors, even more vulnerable. Our reefs are 'feeling the heat', and there's no way it can survive if the carbon majors and big polluters' acts go unabated. Time is of the essence and we are running for our own survival. ***“Any notion, that the climate crisis can be fixed by continued ocean CO₂ uptake is not only wrong, it is also very dangerous, as it underestimates the CO₂ cuts needed to keep our planet - and our ocean - safe and livable”***¹³. Governments must be more ambitious in their goals, going beyond achieving their UNFCCC targets. Big polluters must be held and made accountable for fueling catastrophic climate change and ocean acidification, to prevent them from causing further damage to the planet and the people who live in it.

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¹² <http://www.oceanscientists.org/index.php/topics/ocean-warming>

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<https://www.greenpeace.org/archive-international/Global/international/briefings/climate/COP23/Oceans-Climate-Briefing.pdf>