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STRATEGIC STUDIES PROGRAM

COLLABORATION AMID CONFLICT

Exploring Science Diplomacy Towards Enhanced Marine Conservation and Protection

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In July 2024, the Strategic Studies Program of the University of the Philippines Center for Integrative Studies (UP CIDS SSP) and the Foreign Services Institute of the Department of Foreign Affairs (DFA FSI) held the first installation of its maritime security roundtable discussions. The discussion series aims to pool scientific information that will aid policymakers in creating science-backed policies.

Moderated by Dr. Deo Onda of the UP Marine Science Institute (MSI), the first roundtable discussion featured presentations from two distinguished marine scientists: Dr. Al Licuanan of De La Salle University (DLSU) Manila and Dr. Charina Repollo of the UP MSI, who highlighted the rich marine biodiversity in the region.

The roundtable discussion pointed out gaps that can be filled in terms of data sharing, conservation efforts, and marine scientific research initiatives in the highly contested waters of the South China Sea. Amid the conflicting maritime claims of six claimant states over different parts of the South China Sea, it is also in their best interest to collaborate in preserving the sea's rich marine biodiversity.

SOUTH CHINA SEA: ITS SPLENDOR AND POWER

When we see news about the continuing tensions between the Philippines and China in the West Philippine Sea, what we often see are images of ramming of coast guard vessels, gray zone operations by China, or intimidation of fishermen by Chinese militias. What is drowned out by these altercations is the economic impetus and promise of the contested waters.

Geographically, the South China Sea is located west of the Pacific Ocean and borders the mainland of Southeast Asia in the north and east, Taiwan and the Philippines in the west, and Brunei, Malaysia, and Borneo in the south.[1] It spans almost 3.7 million square kilometers in area, exhibiting a "lake-like" feature with narrow ingress and egress, making it ecologically fragile.[2]

The South China Sea has a rich repository of resources, from corals and coral reefs to fishes, oil, and natural gas. According to the Center for Strategic and International Studies (CSIS), the South China Sea has one of the highest levels of marine biodiversity worldwide, with over 6,500 marine species.[3] Around 571 coral species are found in the South China Sea, supporting 3,790 fish species.[4] The abundance of various fish inhabiting or traversing (for migratory fishes like tuna) the South China Sea makes the area a central hub for commercial fishing.[5] In terms of oil and natural gas, most of the discovered natural gas and oil fields are in the uncontested areas of the sea, near the coastlines.[6] In a recent study published by the US Energy Information Administration in March 2024,[7] "approximately 3.6 billion barrels (b) of petroleum and other liquids and 40.3 trillion cubic feet (Tcf) of natural

gas in proved and probable reserves are in the South China Sea, according to Rystad." This number does not include those that are still undiscovered. Cited by the US Energy Information Administration, the 2023 US Geological Survey revealed that there could be 2.4 to 9.2 billion more barrels of petroleum and other liquids and around 62 to 216 Tcf of natural gas.[8] This number does not represent the entirety, as some areas are not yet surveyed.

It is also strategically located between the Pacific and Indian Oceans, making it vital for the global economy and international maritime trade.[9] It carries one-third of global trade, or almost $5.3 trillion worth of maritime trade, in this region,[10] making it the second busiest sea route in the world.[11] Because of its strategic location and rich natural resources, the South China Sea is one of the most controversial and contested bodies of water. The intensifying geopolitical tension between China and the United States exacerbates maritime disputes among several countries, leaving the problem of degrading the marine environment to worsen.

In 2023, the Center for Strategic and International Studies released its comprehensive report on the marine damages caused by human activities in the South China Sea.[12] In late 2023 to early 2024, the Philippine Coast Guard publicized information about the destruction of coral reefs in Scarborough Shoal[13] and the harvesting of giant clams.[14] This added fuel to the already tense situation between the Philippines and China. The poaching of giant clams near the Pag-asa and Kalayaan Islands was an issue of both maritime claims and marine biodiversity. However, the harmful environmental effects of giant clam poaching do not get enough attention internationally.

Based on Octa Research's Tugon ng Masa poll conducted in November 2024, 84 percent of Filipino people support the government's actions in asserting our maritime rights in the West Philippine Sea.[15] In 2023, Octa Research's survey showed that 70 percent of Filipinos want a diplomatic and peaceful resolution of the maritime dispute, while only 19 percent of Filipinos want to shelve the issue for joint economic development of the area.[16]

This raises a critical question: How well do the Filipino people and policymakers grasp the consequences of coral reef destruction, overfishing, dredging, and the construction of artificial islands on marine biodiversity? Moreover, how do we go beyond the tension and the politics of jurisdiction and maritime claims and navigate our way toward diplomatic cooperation in the name of preserving the ecosystem of the South China Sea? Dr. Deo Onda[17] pointed out that understanding the ecological dynamics in the South China Sea may present opportunities beyond politics and draw more attention to cooperation toward environmental protection and conservation.[18]

Dr. Ben Malayang III argues that beyond the tension in the South China Sea, it must be the various claimants' concern to preserve the resources and ecosystem in the South China Sea.[19] Its devastation will create a more irreversible effect on humans, causing a great toll on the region's economic, political, and even sociocultural aspects.[20]

THE WEST PHILIPPINE SEA: A SLICE OF A CAKE

The West Philippine Sea is just a part of the entire South China Sea. In 2012, then-President Benigno Aquino III released Administrative Order 12 that declares that the "western part of the archipelago are hereby named as the West Philippine Sea."[21] This declaration included the Luzon Sea, and "waters around, within, and adjacent to the Kalayaan Island Group and Bajo de Masinloc, also known as Scarborough Shoal" as part of the WPS.[22] In 2016, the Permanent Court of Arbitration released a favorable arbitral award to the Philippines over some parts of the contested Spratly Islands, one of the three islands in the South China Sea.[23] The PCA's decision states that the Philippines has sovereign rights over the Second Thomas Shoal (or the Ayungin Shoal) and the Mischief Reef, as these low-tide elevations are within the 200 nautical mile exclusive economic zone of the country.[24] The decision also clarifies that China's 10-dash line is not legal as it does not align with the 1982 United Nations Convention on the Law of the Sea (UNCLOS).[25]

The importance of knowing what the West Philippine Sea offers in terms of natural resources and its current state is equivalent to making sense of the 2016 arbitral award as the ruling affirms our "sovereign rights for the purpose of exploring, exploiting, conserving, and managing the natural resources (living and nonliving), of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone."[26] Our rightful claim to the West Philippine Sea, which the international community acknowledges, is not just political; it is also economic. We are asserting our claims to the resources that can be utilized, explored, and

developed by our country for its own good. However, the challenge for the Philippines is understanding how much we know about what is underneath.

The West Philippine Sea features seven islands, three reefs above sea level, one submerged reef, and several unoccupied maritime features, which are yet to be surveyed.[27] The Kalayaan Island Group makes up 40 percent of the entire Philippine maritime area, which is very important to the ecological, economic, and cultural heritage of the country.[28] These maritime features we are talking about are coral reefs, or an accumulation of coral skeletons for over 2,000 to 10,000 years.[29] These reefs are not just mere "territories" in between countries; these reefs are habitats for fish and other marine organisms that are not so privy to politics.[30] Hence, if we look at the WPS from the perspective of what is under it and the science of connectivity or fluidity of the oceans, we will see that the "territories" we are claiming are parts of the same giant reef (or atoll) and are connected physically and by the current.[31] Hence, these reefs must be studied and preserved from the perspective of the whole picture and not just by parts of it. The claimant states that the South China Sea must recognize that the sea is a complex ecosystem, and our policies and initiatives in conserving it must have a level of coordination.

The Kalayaan Island Group comprises 34.5 percent of the total coral reef of the Philippines, and around 530 reef fish species are found in our waters.[32] According to the Global Reef Monitoring Network, as cited by Dr. Licuanan[33] in his presentation, the Philippines has the third-largest coral reef cover in the world and one of the most diverse in terms of coral species in the world (even more diverse compared to Australia's Great Barrier Reef).[34]

In a recent study conducted by Dr. Fred Santiañez and team,[35] as shared by Dr. Repollo,[36] there are a recorded 639 taxa of seaweeds in the WPS. One of the biggest breakthroughs in this research is the discovery of the *Griffithsia* species that contains *griffithsin*, a fighting agent against HIV.[37]

It is not surprising that more and more discoveries can be made on the abundance of resources in the WPS. The importance of marine scientific research becomes more apparent in order to come closer to the full potential of our maritime assets. Yet we fall ultimately short in monitoring and preserving our corals and reefs. Contrary to the richness of our coral ecosystem, there are no data on a reef site in the country with more than 15 years of continued monitoring.[38]

SEA OF THORNS: CHALLENGES IN THE PROTECTION AND CONSERVATION OF THE SOUTH CHINA SEA AND THE WEST PHILIPPINE SEA

This lack of data is a stumbling block in pushing for more marine scientific research in our backyard. Though there have been efforts for coral and fisheries research in the West Philippine Sea since 1993 (led by the UP MSI), funded by various government agencies and international institutions, there is still room to push for continuous support for longer-term monitoring that is not restricted by budgetary issues and not confined by security agenda.

In May 2024, the Philippine Ecosystem and National Capital Accounting System (PENCAS) was passed into law.[39] This law opens opportunities for monitoring and data collection on our natural resources to aid in the policymaking of different agencies. However, until now, there has still been no clear implementation of rules and regulations in the law.

On the other hand, data sharing with our neighboring countries is also not as fruitful. Apart from the fact that we do not have enough data to share, the political aspect of the matter comes into play. The aggressive acts of China toward the Philippines and other claimants in the South China Sea intimidate and threaten scientists who pursue further research. An example is when a team from the UP MSI, funded by the DENR Biodiversity Management Bureau (DOST-BMB), had to postpone surveys in other maritime features due to China's new regulation allowing the Chinese Coast Guard to detain foreigners deemed to be trespassing on Chinese territory.[40] China's use of marine scientific research as a cover for intelligence and incursion also does not sit well with other countries like Japan.[41] Dr. Licuanan noted that there are no ongoing research efforts in the entire South China Sea.[42]

Apart from the issue of data and monitoring, other areas of concern must be addressed to protect WPS' marine biodiversity. These include the decline in fish diversity over the past decades, water pollution mainly characterized by plastic pollution, coral bleaching, excessive and exploitative economic activity in the area, and the overarching concern of climate change that is

felt through rising sea temperatures and frequent and more devastating typhoons.[43]

AREAS OF COOPERATION: RECOMMENDATIONS

What our distinguished scientists presented in the roundtable discussion opens the question of how willing the various states are to set aside political tensions and competing economic interests in the name of saving the marine ecosystem of the South China Sea. As we continue to assert our rightful claims in the West Philippine Sea, we must also appreciate the region as an ecosystem supporting the coastal population immediately around it to take a step back, find a middle ground, and build trust on the basis of marine scientific research.

The discussion opens the perspective of using marine science and environmental protection as a language of diplomacy. But for the Philippines to be able to do this, it must reevaluate how it gives due attention to scientific research and development in its maritime domains. The first thing we can look at is the budget allocation for relevant government agencies like the DOST, the Department of Environment and Natural Resources (DENR), the Bureau of Fisheries and Aquatic Resources (BFAR), and state universities and colleges (SUCs) to encourage continuous monitoring, accounting, and discovery of our marine resources. This research can also aid the government in properly harnessing the potential of its blue economy.

The Philippines is no stranger to forging joint exploration of natural resources under the Joint Oceanographic Marine Scientific Research Exploration, specifically with Vietnam. Before the UNCLOS came into force in 1994, Southeast Asian countries, led by Indonesia, held workshops or informal forums of experts and other stakeholders to discuss possible ways of managing potential conflicts in the region. [44]In 1991, the Joint Bandung Statement was released, laying down encouragement for "rational utilization of living resources, to protect and preserve the marine environment, and to conduct marine scientific research." [45]This statement served as a framework for bilateral cooperation between the Philippines and Vietnam.[46] Our country can explore more joint marine scientific research with other countries, even with China. Although very complex and tricky at this point, we still have to recognize China's vital role in regional economic development. There will always be inherent resistance from different parties, even in research, as research serves the political and economic interests of a country. However, starting from somewhere or exploring the possibilities of science diplomacy is an option we should not shy away from.

In this regard, we should also develop a national maritime consciousness. Dr. Onda describes this as educating the population on how interconnected we are to the ocean.[47] This is especially true for the Philippines as an archipelagic state. Apart from formal education and opening more opportunities for professionals and academicians, one way to go about an informed population is through the promotion of citizen science. Dr. Licuanan shares his team's effort to teach coastal communities how to identify corals in their areas.[48] This initiative can help monitor and identify the habitats and species of corals nationwide.

The message from the scientific community is unmistakable: the alarming decline of marine biodiversity in the West Philippine Sea demands immediate and proactive intervention from our government. This issue transcends mere security and military implications; it encapsulates profound economic, environmental, and ecological challenges that affect us all. The path to resolving this crisis begins at home. The country and nation must engage in deep reflection to understand our identity, our values, and our position in the face of such adversity. Only by unearthing our collective consciousness can we foster the urgency and commitment required to restore the vibrant life of our seas and secure a sustainable future for generations to come.

ENDNOTES

1 Eugene C. LaFond, "South China Sea." *Encyclopaedia Britannica,* 18 January 2025, https://www.britannica.com/place/South-China-Sea.

2 This information is from Dr. Ben Malayang III's presentation in the FSI Law of the Sea Academy for ASEAN Diplomats last 17 September 2024. His presentation is entitled "Science Diplomacy to Strengthen and Sustain Human-Ecological Security in the South China Sea."

3 Monica Sato et al., "Deep Blue Scars: Environmental Threats to the South China Sea," accessed 22 July 2025, https://features.csis.org/environmental-threats-to-the-south-china-sea/#group-section-I-Life-in-the-South-China-Sea-bLRSGbbm0d.

4 Sato et al.

5 Sato et al.

6 US Energy Information Administration, "Regional Analysis Brief: South China Sea." 21 March 2024. https://www.eia.gov/international/content/analysis/regions_of_interest/South_China_Sea/south_china_sea.pdf.

7 US Energy Information Administration.

8 US Energy Information Administration.

9 Oleksandra Mamchii, "Strategic Importance of the South China Sea," Best *Diplomats | Diplomatic Conferences | New York* (blog), 14 December 2024, https://bestdiplomats.org/why-is-the-south-china-sea-important/.

10 Mamchii.

11 This information is from Dr. Ben Malayang III's presentation in the FSI Law of the Sea Academy for ASEAN Diplomats last 17 September 2024. His presentation is entitled, "Science Diplomacy to Strengthen and Sustain Human-Ecological Security in the South China Sea."

12 Sato et al., "Deep Blue Scars."

13 Jel Santos, "DENR Laments Destruction of Coral Reefs in WPS," *Manila Bulletin,* 23 September 2023, https://mb.com.ph/2023/9/23/denr-laments-destruction-of-coral-reefs-in-wps-1.

14 Frances Mangosing, "PCG Bares Photos of China's Harvest of Marine Species," *Philippine Daily Inquirer,* 21 May 2024, https://globalnation.inquirer.net/236871/pcg-bares-photos-of-chinas-harvest-of-marine-species.

15 Liz Lagniton, "Filipinos Strongly Back Government Efforts in West Philippine Sea Dispute, According to Latest Survey," *Maritime Fairtrade,* 21 January 2025, https://maritimefairtrade.org/filipinos-strongly-back-government-efforts-in-west-philippine-sea-dispute-according-to-latest-survey/.

16 Giselle Ombay, "Octa: 70% of Pinoys Want to Assert PH's Territorial Rights via Diplomacy, Peaceful Means," *GMA News Online,* 13 August 2023, https://www.gmanetwork.com/news/topstories/nation/878737/octa-70-of-pinoys-want-to-assert-ph-s-territorial-rights-via-diplomacy-peaceful-means/story/.

17 Dr. Deo Florence Onda is an associate professor at the University of the Philippine Marine Science Institute (UP MSI). He is notably one of the youngest faculty members, and his academic background is distinguished by an interuniversity Doctor of Philosophy (PhD) in Oceanography, specializing in microbial oceanography from the Université Laval in Quebec City. He has a post-doctorate fellowship at the Alfred Wegener Institute in Germany. Dr. Onda made history by joining Victor Vescovo's Caladan oceanic expedition to the Emden Reef, the deepest point in the Philippine Trench and the third deepest in the world.

18 Deo Onda, "Under the Sea: Marine Life in the South China Sea | A Roundtable Discussion," unpublished proceedings of the first CIDS-FSI RTD series, 16 July 2024.

19 Ben S. Malayang III, "Why Not Use Science Diplomacy in the South China Sea?" *Rappler,* 16 November 2024, https://www.rappler.com/voices/thought-leaders/opinion-why-not-use-science-diplomacy-south-china-sea/.

20 Malayang.

21 Office of the President, Naming the West Philippine Sea of the Republic of the Philippines, and for Other Purposes, Admin. Ord. No. 29," 5 September 2012, https://lawphil.net/executive/ao/ao2012/ao_29_2012.html.

22 Office of the President.

23 "PCA Press Release: The South China Sea Arbitration (the Republic of the Philippines v. The People's Republic of China) | PCA-CPA," accessed 22 July 2025. https://pca-cpa.org/en/news/pca-press-release-the-south-china-sea-arbitration-the-republic-of-the-philippines-v-the-peoples-republic-of-china/.

24 Lifted from Ret. Amb. Gilberto Asuque's presentation in the FSI Law of the Sea Academy for ASEAN Diplomats last September 17, 2024, entitled: "Dispute Settlement Mechanisms (DSM) Under the United Nations Convention on the Law of the Sea (UNCLOS)"

25 Asuque.

26 Lifted from Prof. Jay Batongbacal's presentation in the FSI Law of the Sea Academy for ASEAN Diplomats last September 18, 2024, entitled: "Introduction to UNCLOS, Part II."

27 Charina Repollo, "Under the Sea: Marine Life in the South China Sea | A Roundtable Discussion," unpublished proceedings of the first CIDS-FSI RTD series, 16 July 2024.

28 Repollo.

29 Wilfredo Licuanan, "Under the Sea: Marine Life in the South China Sea | A Roundtable Discussion," unpublished proceedings of the first CIDS-FSI RTD series, 16 July 2024.

30 Onda, "Under the Sea."

31 Licuanan, "Under the Sea."

32 Repollo, "Under the Sea."

33 Dr. Wilfredo Licuanan, or as we call him Sir Al, is a distinguished full professor and university fellow at De La Salle University and serves as an adjunct professor also at the UP Marine Science Institute here in UP Diliman. He is also a California Academy of Sciences fellow and directs the DLSU Brother Alfred Shields Ocean Research Center.

34 Licuanan, "Under the Sea."

35 Allan Mauro Marfal, "Balik Scientist Names 6 Seaweed Genera, Holds Record by a Filipino Scientist," Department of Science and Technology Science and Technology Information Institute, 7 September 2022, https://stii.dost.gov.ph/1565-balik-scientist-names-6-seaweed-genera-holds-record-by-a-filipino-scientist.

36 Dr. Charina Lynn Repollo is an Assistant Professor and the Deputy Director for Research at the UP Marine Science Institute here in UP Diliman. She earned her PhD in Oceanography, specializing in physical oceanography, from the University of Hawaii at Manoa in 2016.

37 Repollo, "Under the Sea."

38 Licuanan, "Under the Sea."

39 Philippine Ecosystem and Natural Capital Accounting System (PENCAS) Act, RA No. 11995 (22 May 2024), https://lawphil.net/statutes/repacts/ra2024/ra_11995_2024.html.

40 Repollo, "Under the Sea."

41 Kyoichi Sasazawa, "China's Escalating Unauthorized Marine Research in East Asia and Its Political Motivations," *The Geopolitics*, 25 September 2024, https://thegeopolitics.com/chinas-escalating-unauthorized-marine-research-in-east-asia-and-its-political-motivations/.

42 Licuanan, "Under the Sea."

43 Repollo, "Under the Sea."

44 I A Satyawan, "The Diplomacy of Scientific Research in the South China Sea: The Case of Join to [sic] Oceanographic Marine Scientific Research Expedition Between Vietnam and the Philippines," *IOP Conference Series: Earth Environmental Science* 129 (2018): 012024, https://doi.org/10.1088/1755-1315/129/1/012024.

45 Satyawan, 3.

46 Satyawan.

47 Onda, "Under the Sea."

48 Licuanan, "Under the Sea."

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