

**Oceans in COP negotiations: a critical analysis of progress
and prospects**



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1. INTRODUCTION

The Conference of the Parties (COP) serves as a decision-making entity of the United Nations Framework Convention on Climate Change (UNFCCC), a global treaty established in 1992 to tackle the issue of global warming (UNFCCC, 2022). COP was formed to unite 198 member nations to negotiate and execute strategies to reduce greenhouse gas emissions, adapt to climate change impacts, and finance climate actions (UNFCCC, 2022). These meetings are held annually, with each session being hosted by a different country (UNFCCC, 2022). The key objective of COP is to assess progress towards climate objectives, establish new targets, and ensure responsibility through frameworks like the Paris Agreement (UNFCCC, 2022). COP seeks to attain global climate stability by limiting global temperature increases to 1.5°C above pre-industrial levels, as detailed in the Paris Agreement (IPCC, 2019). Figures 1 show a timeline of the total emissions worldwide progressively increasing. Indicating that emissions continue to rise despite the agreements set by the Paris Agreement.

This report evaluates the degree to which earlier COP meetings have recognised the significance of the ocean, highlighting its shortcomings, successes, and prospects following COP 29. The critique concentrates on COPs (15, 21, 25–28) to track the evolution of policies, employing frameworks such as Representative Concentration Pathways (RCPs) to anticipate future risks. Case study examples, including the CDP's data on shipping emissions, will demonstrate the disparities between corporate commitments and actual accountability.

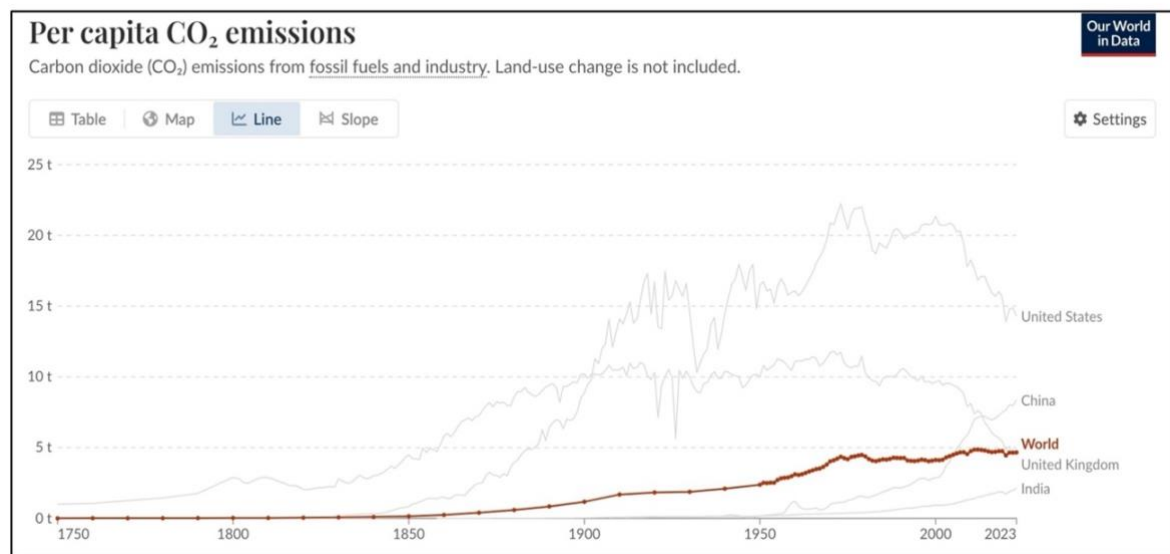


Figure 1. Showing the total carbon emissions Per Capita (Ritchie, 2023).

The oceans, covering 71% of the planet, are essential for climate stability as Earth's largest carbon sink and thermal buffer. They regulate global temperatures and harbour 80% of all species whilst supporting the livelihoods of 3 billion individuals (United Nations, 2022). Despite their critical role in combating climate change, oceans are often overlooked in COP discussions, focusing on land ecosystems and energy transitions. COP25 acknowledges the significance of the oceans and the necessity of maintaining the integrity of the ocean in the face of climate change, however, there has been no achievement in convincing UNFCCC parties to incorporate the vital function of the ocean in climate change mitigation and adaptation within a COP decision until COP26 (Lennan and Morgera, 2022).

A lack of consistent focus and financial support for marine ecosystems reflects a larger governance issue, exemplified by the tragedy of the commons, where shared resources are overused and poorly managed due to a lack of ownership and oversight (Hardin, 1968). Governance is the framework by which organisations are directed and controlled, ensuring accountability, transparency, and ethical decision-making to achieve sustainable and equitable outcomes (CGIU, 2022). Effective governance and increased investment in ocean conservation are crucial for sustaining these vital ecosystems and their role in climate regulation (OECD, 2025).

In contrast to terrestrial ecosystems, oceans suffer from a lack of centralised governance, which leads to unclear jurisdiction and gaps in the enforcement of contemporary resource issues. Examples of this include:

Overfishing has led to 34% of global fish stocks being overexploited, with international waters functioning as unregulated spaces due to the insufficient enforcement of the UN Convention on the Law of the Sea (UNCLOS) (FAO, 2024). Similarly, companies engaged in deep-sea mining exploit regulatory loopholes to extract polymetallic nodules, causing significant damage to seabed ecosystems (IUCN, 2022).

Since the Industrial Revolution, the ocean has absorbed 90% of surplus heat and 30% of human-caused carbon emissions, making it a significant carbon sink that helps maintain economic stability and regulate the global climate (IPCC, 2019). Through products and services including tourism, fishing, and coastal protection, it generates \$2.5 trillion US yearly, sustaining millions of livelihoods and protecting coastal communities from extreme weather occurrences (WWF, 2020). Only 1% of global climate investment goes toward ocean-based climate solutions, notwithstanding their significance (OECD, 2024). More funding for ocean-related initiatives might maintain economic resources, protect biodiversity, and improve climate resilience. Although the Paris Agreement (COP21) acknowledged oceans as vital ecosystems, but did not establish any legally enforceable targets, and COP results have frequently concentrated on mitigation on land (Visual Code, 2015).

2. Historical analysis of COP and oceans

This section offers a critical analysis of how ocean-related issues have been addressed in major UN Climate Change Conferences, looking at both achievements and shortcomings. It emphasises systemic obstacles like the political focus on land-based solutions, fragmented governance, and competing economic interests that have impeded the effective incorporation of marine ecosystems into international climate strategies.

2.1 COP 15

COP 15 occurred in Copenhagen, Denmark, from December 7 to December 19, 2009 (IISD, 2023). COP15 aimed to establish a binding agreement to follow the Kyoto Protocol, but it resulted in the non-binding Copenhagen Accord. The accord focused heavily on REDD+ (Reducing Emissions from Deforestation and Forest Degradation), which secured \$3.5 billion in pledges for forest conservation (Nakhooda and Norman, 2014). COP 15 acknowledged the aim to limit the increase in global average temperature to below 2°C and emphasised the necessity of a review in 2015 to explore a potential target of a maximum temperature rise of 1.5°C based on new scientific insights. It identified the importance of intensified efforts on adaptation to diminish vulnerability and enhance resilience in developing countries, particularly small island developing states and regions in Africa (European Environment Agency, 2016). However, there was no mention of blue carbon (carbon stored in coastal ecosystems like mangroves, seagrasses, and salt marshes). Blue Carbon refers to a concept introduced in 2009 to highlight the loss of marine and coastal ecosystems and the importance of preserving and restoring them to combat climate change (Lovelock and Duarte, 2019).

This exclusion of oceans happened because the main focus is usually on terrestrial environments (Polidoro, 2024). Despite their lack of political clout, coastal governments like Indonesia contended that mangroves were just as important for sequestering carbon (Mar, 2023). Marine solutions were further marginalised since blue carbon was thought to be more complicated to measure and verify than forest carbon (Kari and Boettcher, 2024). Nonetheless, the UNFCCC goals 3 and 8 acknowledged the importance of the seas in the climate system (United Nations, 2010). According to some, almost all objectives are related to oceans and coastal habitats since they are incorporated into the global biodiversity framework (Scott, 2021). However, these efforts only acknowledged the role of importance of oceans with no forward action.

2.2 COP 21

COP 21 took place in Paris, France, from November 30th to December 12th, 2015, and was pivotal in establishing the Paris Agreement, which aims to limit global warming to well below 2°C compared to pre-industrial levels (British Embassy Havana, 2015). The Agreement requires nations to revise their Nationally Determined Contributions (NDCS) to strive for a 1.5°C target (UNFCCC, 2015). COP 21 also acknowledged the vital role of oceans in climate regulation, increasing focus on protecting marine environments, particularly blue carbon ecosystems like mangroves, seagrasses, and salt marshes, to enhance ocean resilience (UNFCCC, 2015).

Although COP 21 excluded blue carbon programs and marine emissions from shipping (Ecologist, 2017), it stressed the need to protect ecosystems, especially oceans, from shipping impacts. Moreover, the Paris Agreement lacks legally binding emission targets (Visual Code, 2015). It faces challenges in regulating the global shipping industry, which hinders consensus on maritime emissions (Seatrade Maritime, 2015). Regulation was expected to be managed by the International Maritime Organisation (IMO) (The Maritime Executive, 2015). Figure 2 shows that shipping still contributes significantly to global greenhouse gas emissions (European Commission, 2024). This regulatory gap undermines the Agreement's objectives and highlights the need to integrate marine emissions into future climate accords (U.S. Department of Transportation, 2023).

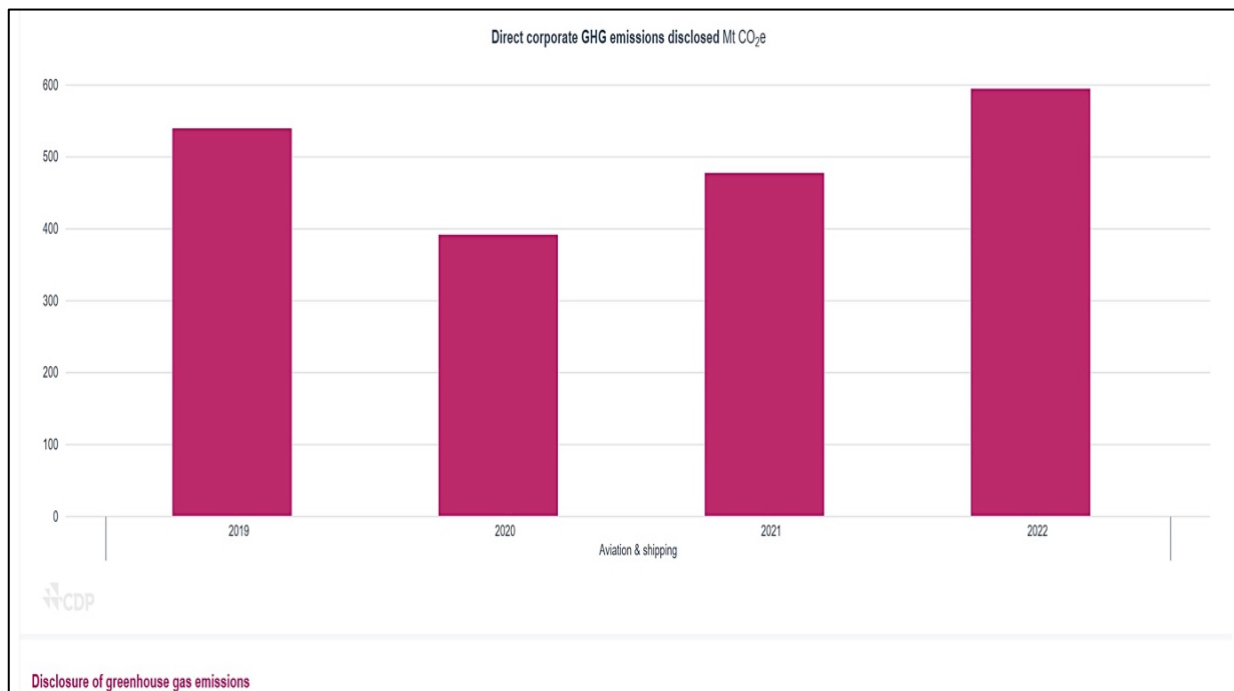


Figure 2. Showing the direct Corporate GHG emissions for Aviation & Shipping disclosed (Corporate Disclosure Project (CDP), 2022)

Island States (SIDS) were crucial in the COP21 talks and the execution of the Paris Agreement (Ourbak and Magnan, 2017). Islands that face the harsh effects of climate change severely took the lead in announcing plans to reduce greenhouse gas emissions to meet a long-term temperature goal. COP21 did not, however, adequately fund developing countries' transition to a low-carbon economy and climate change adaptation (Bookings, 2015). For poor nations to confront the consequences of climate change and make sustainable progress, funding support is essential (UNDP, 2023). This COP paved the way for future discussions relating to the oceans, but the absence of enforceable commitments highlighted the ongoing disregard for marine ecosystems within global climate policies.

2.3 COP 25

COP 25, also known as the 'Blue COP,' took place in Madrid, Spain, from December 2 to December 13, 2019 (Evans and Gabbatiss, 2019). It is recognised for its emphasis on finalising the Paris Agreement, especially the regulations governing carbon markets and international collaboration under Article 6 (UNFCCC, 2023). The meeting

developed the Blue COP concept by showcasing ORRAA's efforts to finance ocean-related climate risks (Global Climate Action, 2019). Ocean-based climate solutions such as carbon capture, sustainable fishing, and renewable marine energy were finally highlighted (United Nations, 2019; IPCC, 2019). To improve emission reduction efforts, address climate change, and offer technical assistance, COP 25 also included a dedicated Ocean Day, an event highlighting marine conservation and sustainable ocean management (IISD, 2022)

Despite its achievements, COP 25 had several significant challenges. Notably, the conference delayed the completion of the regulations for international carbon markets as stipulated in Article 6 of the Paris Agreement, due to ongoing disputes concerning essential methodologies and accountability standards (Hood, 2019). Since several countries did not commit to emission reduction objectives, the lack of ambition in addressing climate change was questioned (Dooley, 2019). Furthermore, COP 25 failed to get sufficient finance and enforcement measures to promote ocean-based climate solutions (such as carbon sequestration, sustainable fisheries, and marine renewable energy mentioned above), despite emphasising their significance (Anais, 2019). Ocean-based climate solutions were, therefore, less successful, impeding attempts to safeguard marine ecosystems due to the difficulty of establishing particular binding agreements for carbon markets, as well as the absence of adequate finance and enforcement mechanisms (Wood and Ashford, 2023).

2.4 COP 26 and 27

COP 26 saw the introduction of the Glasgow Climate Pact, which aimed to improve climate resilience, reduce greenhouse gas emissions, and secure necessary finance. The COP 26 meeting held in November 2021 in Glasgow saw reaffirmation of the \$100 billion yearly climate funding promise and the commitment to phase down unabated coal power (Harvey, 2021). A Loss and Damage Fund for at-risk nations was established at COP 27, which took place in Sharm el-Sheikh, Egypt, in November 2022. The agreement to keep temperature increases to 1.5°C was also upheld, businesses and institutions were held to a higher standard of accountability, and financial aid for

developing countries was made easier (Meriläinen, 2022). The ocean was also seen by COP27 as an alternative solution for climate change and an essential resource for adaptation and mitigation (IAEA, 2022). Scientists convened to talk about blue carbon and how it may be used to achieve the goals outlined in the Paris Agreement. Along with the necessity of maintaining vegetated coastal habitats such as salt marshes, mangroves, and seagrass meadows, the need for research and development in this field was also emphasised (Global Climate Action, 2022).

COP 26 and COP 27 encountered several difficulties despite their achievements. The final COP 26 agreement failed to win significant emission reduction commitments and merely called for a phase-down of coal, not a phase-out (Mackey and Hales, 2021). Additionally, the summit failed to obtain the required financial commitments to assist developing countries with their ocean-based climate projects (King's College London, 2021). Critically, the pH of the ocean has risen by around 30% in the past 200 years after remaining constant for more than 800,000 years, a problem that COP 26 neglected to address (Scott, 2021). Increased atmospheric CO₂ dissolves in seawater to form carbonic acid, which releases hydrogen ions and lowers ocean pH, a process known as ocean acidification (NOAA, 2025). Despite establishing a Loss and Damage Fund, COP 27 failed to substantially cut emissions from fossil fuels, casting doubt on the 1.5°C target (Mathis, 2022). Decision-making on climate change was hampered by emerging geopolitical issues, especially the Russia-Ukraine conflict (UCL, 2022).

Despite the critical need for action, COP 26 and COP 27 continued to fall short of supplying full, tangible support for ocean conservation. To prevent further damage and loss to ocean ecosystems, coastal habitats, and marine biodiversity highlights the ongoing struggle to prioritise ocean health in climate discussions. Coordinated global action is essential to address threats like pollution, overfishing, and climate change (Public, 2024).

2.5 COP 28

COP 28 was held in Dubai, United Arab Emirates, from November 30th to December 13th, 2023 (UNFCCC, 2024). The conference emphasised the need for deep emissions cuts and scaled-up finance to keep the global temperature limit of 1.5°C within reach (UNFCCC, 2024). Key outcomes included a call for governments to accelerate the transition away from fossil fuels to renewable energy sources like wind and solar power. COP 28 also highlighted the importance of a just and equitable energy transition, fixing climate finance, and focusing on people's lives and livelihoods (Global Climate Action, 2023). COP 28 highlighted the importance of blue carbon in national climate action, with countries like the United Kingdom showcasing efforts to restore and protect coastal habitats such as salt marshes, seagrass, and mangroves (Devlin, Bremner and Parker, 2023). Importantly, the summit also addressed adaptation and assistance for the most vulnerable nations, making sure they have the resources they need to deal with the effects of climate change (Baker, 2023). This is important as low-lying nations and countries feel the brunt of sea level rise (IPCC, 2019).

However, despite promising initiatives, COP 28 failed to set concrete commitments for ocean preservation. This oversight underscores a recurring issue of insufficient focus on ocean-based solutions and a lack of clear milestones to ensure their implementation (Ocean and Climate Platform, 2023). This lack of decisive action and specific targets hinders significant progress in protecting marine ecosystems and addressing ocean acidification (through rising pH levels), highlighting the urgent need for stronger commitments and investments in ocean conservation (Marine Conservation Institute, 2024).

2.6 COP 29

At COP29 in November 2024 in Baku, Azerbaijan, labelled as the finance COP for its focus on climate finance (Tumi, 2024). Significant emphasis was placed on ocean-based carbon capture, specifically through maintaining and restoring salt marshes and mangroves in national climate plans. This focus spurred greater protection of blue

carbon ecosystems to mitigate climate change (UN Ocean & Climate Dialogue, 2024). The Ocean and Climate Platform launched “Unpacking Ocean Finance for Climate Action” to help countries integrate ocean funding by establishing open guidelines, incorporating ocean targets in Nationally Determined Contributions, and enhancing ocean priorities in the New Collective Quantified Goal (NCQG). Prioritising ocean responses in the Loss & Damage Fund and strengthening the ocean’s role in the Global Goal of Adaptation (ORRAA, 2024). World leaders and experts then stressed the urgent need to embed ocean and coastal zone management in climate action plans to ensure sustainability and resilience (Sutherland, 2024). Additionally, the Coastal Tourist Breakthrough was introduced to highlight the industry's commitment to reducing emissions by 2030 and attracting investments in sustainable tourism (Sutherland, 2024).

Despite some advancements at the summit, ocean-related concerns were nevertheless treated in a disjointed and low-priority manner once again. COP 29 had many issues with protecting the oceans. With only one day dedicated to ocean action, the ocean, which is the planet's largest carbon sink, was mainly disregarded (Merchant, 2024). The summit did not raise enough climate money for ocean-based alternatives, and the continued expansion of fossil fuels seriously harmed marine ecosystems (Perez, 2024). Furthermore, the lack of decisive action to switch from fossil fuels to renewables and the vast number of lobbyists for fossil fuels hindered ocean conservation efforts (Steen, 2024). These problems show how difficult it is to prioritise ocean health within the larger climate agenda.

3. CRITICAL CHALLENGES FACING THE OCEANS

As identified, oceans have long been an overlooked aspect of COP discussions, despite their vital role in climate regulation and carbon sequestration. While initiatives such as the Coral Reef Breakthrough aimed to integrate ocean-related strategies, they often lacked adequate funding and accountability, reflecting the reluctance of representatives to address complex issues in ocean governance. This underrepresentation is further exacerbated by the overwhelming presence of fossil fuel

representatives, who outnumber ocean advocates by 10 to 1, shifting the focus away from blue carbon solutions like mangrove restoration (Schindler Murray et al., 2023).

The COP 15 draft agreement, which acknowledges the ocean's role in climate change for the first time, hardly mentions it despite the concerns of overfishing, climate change, and acidification (Michael, 2022). This section discusses the current and projected future issues oceans will face if these conferences avoid taking stronger action to protect the oceans.

3.1 Weak Governance and Fragmented Regulation

Inefficient governance structures continue to enable the exploitation and contamination of marine ecosystems. This includes:

Lack of Enforcement: For example, the High Seas Treaty (2023), designed to protect 30% of international waters by 2030, remains unratified by major fishing nations like China and Russia (Urbina, 2019).

Jurisdictional Gaps: Only 1% of the high seas are regulated, enabling illegal fishing, deep-sea mining, and waste dumping (Roberts, 2012).

The absence of a binding, centralised authority over the oceans creates a regulatory gap. Flags of convenience enable ships to evade responsibility, with 20% of global fishing being unlawful (Urbina, 2019). Marine governance is delegated to bodies like the IMO, which lacks enforcement capabilities and relies on governments that often lack resources (IMO, 2022). Solutions include strengthening Multilateral Agreements like the High Seas Treaty, expanding the International Seabed Authority's role in overseeing deep-sea mining (United Nations, 2023), and using satellite monitoring platforms like Global Fishing Watch to track illegal activities in real-time (Paolo et al., 2024). Effective governance is essential to prevent resource depletion, promote sustainability, and protect the ocean's role in climate regulation (Roberts, 2012).

3.2 Ocean Acidification

Recognising ocean acidification during COP conferences is vital as it underscores the pressing necessity for worldwide efforts to safeguard marine ecosystems and maintain the sustainability of ocean resources (Williamson, 2017). With that being said, allowing acidification to increase the effects includes:

pH Decrease: Since the Industrial Revolution, the acidity of the oceans has risen by 30%, resulting in a pH shift from 8.2 to 8.1 (IPCC, 2019). Declining ocean pH affects species with niche pH zones, particularly calcifying organisms like molluscs and corals, making it harder for them to maintain their shells and skeletal structures (Fabry et al., 2008)

Effect on Calcifying Organisms: Coral reefs, oysters, and plankton are threatened by the breakdown of their calcium carbonate structures, with 60% of coral reefs predicted to be endangered by 2030 (Gattuso, Hoegh-Guldberg and Pörtner, 2014). Figure 3 illustrates the Great Barrier Reef's vulnerability to climate change and local pressures.

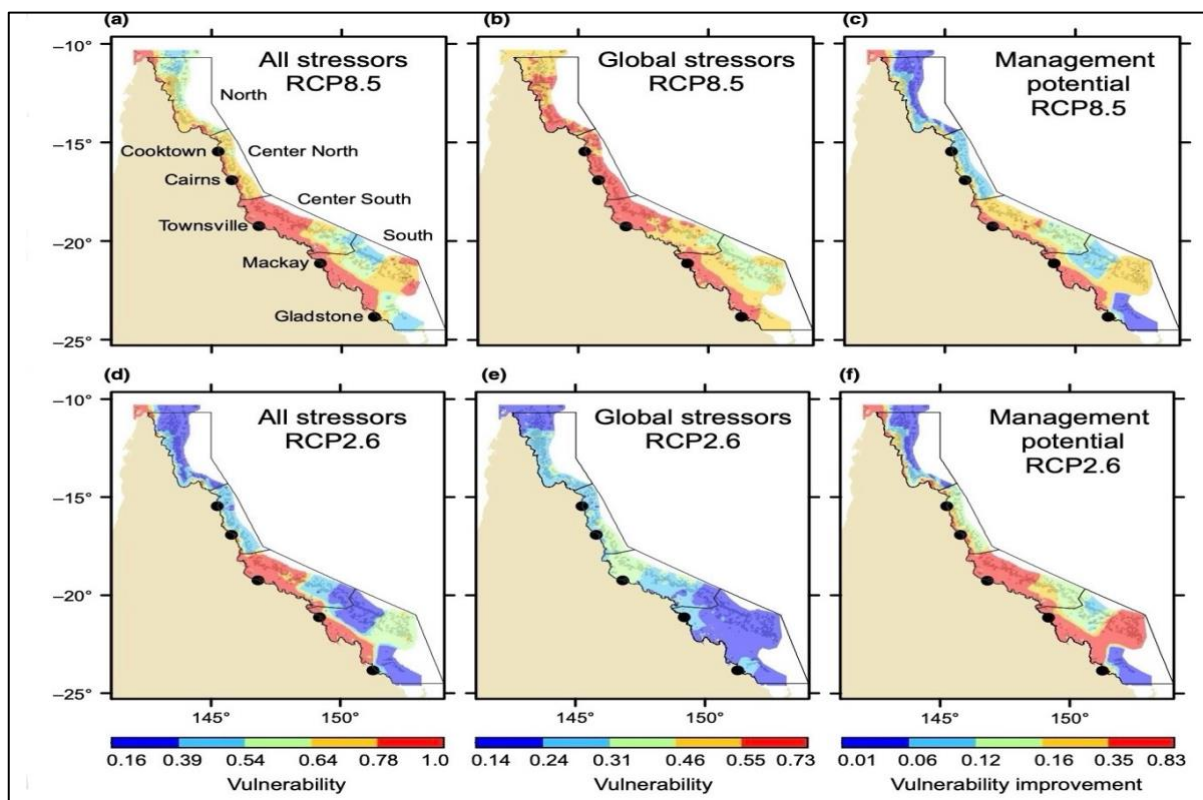


Figure 3. Shows the Representative Concentration Pathways RCP) and the management potential (Wolff et al., 2018)

This oversight reflects a broader challenge in integrating ocean science within climate policy. One potential solution is to include acidification in Nationally Determined Contributions (NDCS) following the European Union's 2023 directive to incorporate ocean pH thresholds in climate commitments (European Commission, 2020). Also, enhancing Blue Carbon programs to safeguard seagrass meadows, which capture CO₂ at a rate 35 times greater than rainforests, can aid in reducing these challenges (Choudhary, 2024).

3.3 Ocean Pollution: Plastic and Chemical Contamination

Contamination caused by plastic waste, fertiliser runoff from farms, and industrial byproducts is choking marine habitats. Mitigating ocean pollution is crucial for safeguarding marine ecosystems, public health, and the global climate, and COP conferences should tackle this problem to guarantee sustainable management of the oceans (United Nations, 2022). Ocean pollution has severe ecological consequences, including the influx of more than 11 million tons of plastic into marine environments each year, a figure projected to triple by 2040 (UNESCO, 2023). Additionally, nutrient runoff from fertilisers has contributed to the formation of hypoxic zones, such as the 4,298-square-mile dead zone in the Gulf of Mexico, where oxygen depletion disrupts marine life (National Oceanic and Atmospheric Administration, 2024).

COP frameworks focus on reducing emissions but overlook how pollution affects ocean resilience. The Glasgow Climate Pact (COP26) did not address plastic waste despite its link to microplastic-related carbon cycle disruptions (CIEEM, 2021). Pollution worsens climate impacts as dying coral reefs and plankton reduce CO₂ absorption. Solutions include binding targets under the UN Global Plastic Treaty (2024), similar to the Montreal Protocol's success. The effectiveness of the Montreal Protocol was due to a strong scientific agreement, collaboration from industries, and enforceable trade limitations, which facilitated easy implementation (Gonzalez, 2015). On the other hand, ocean governance encounters more significant obstacles because of its transboundary characteristics, a variety of pollution sources, and less robust enforcement systems (Gonzalez, 2015). These challenges make it more difficult to apply binding targets under

the UN Global Plastic Treaty than it was under the well-organised framework of the Montreal Protocol. Regulating agrochemicals by enforcing the Helsinki Convention to reduce Baltic Sea eutrophication can also help (HELCOM, 2023).

3.4 Biodiversity Loss and Habitat Destruction

Overfishing, habitat destruction, and climate change are pushing marine species toward extinction. COP conferences must take stronger action to protect and sustainably manage marine resources (Marine Stewardship Council, 2024). Since 1950, the decline of species has been severe, with 90% of large predatory fish, such as tuna and sharks, disappearing due to overfishing and habitat degradation (Roberts, 2012). Additionally, habitat loss remains a critical concern, as 50% of mangroves and 30% of seagrass beds have been destroyed, eliminating vital carbon sinks that play a key role in mitigating climate change (Bach et al., 2019). Addressing these issues requires more decisive commitments to conservation and marine ecosystem restoration

The decline in biodiversity reduces the oceans' capacity to cope with and adjust to climate change. Solutions include increasing Marine Protected Areas (MPAs) to cover 30% of the oceans by 2030, as supported by the Global Biodiversity Framework (COP15). The governance of ocean resources remains a formidable challenge due to the complex, transboundary nature of marine ecosystems and the diverse interests of stakeholders. On the one hand, Hardin (1968) argued for top-down state control to manage common resources, emphasising that without centralised intervention, overexploitation is inevitable. Meanwhile, Ostrom (1990) demonstrated that community-driven, polycentric governance could effectively manage common-pool resources, as illustrated by indigenous practices such as the Māori-led coastal conservation efforts in New Zealand (Reihana et al., 2023). While COP conferences strive to establish global frameworks for marine sustainability, enforcing these measures on such a vast and multifaceted resource remains challenging. A hybrid approach that integrates local, grassroots initiatives with robust international policies may therefore be the most appropriate way forward. As seen with the Montreal Protocol succeeding by setting clear, enforceable

targets and promoting readily available alternatives, offering a model that, if adapted with stakeholder engagement, could improve ocean governance.

3.5 Funding

Securing adequate financial resources is one of the most critical challenges in ocean conservation. However, addressing the financial aspects of ocean conservation has been largely overlooked at the conferences. This lack of financial support hinders efforts to mitigate overfishing, climate change, and acidification, which are crucial for maintaining ocean resilience (Michael, 2022). Figure 4. Identifies the current economic position of oceans and how low it is compared to other global issues. To address these financial challenges, several strategies need to be implemented:

Strengthen International Commitments: Establishing binding financial targets under global agreements like the UN Global Plastic Treaty can ensure consistent funding for ocean conservation efforts, similar to the Montreal Protocol's success (CIEEM, 2021).

Public-Private Partnerships: Encouraging collaborations between governments, the private sector, and non-governmental organisations can mobilise additional resources and expertise to address ocean conservation challenges effectively (ORRAA, 2024).

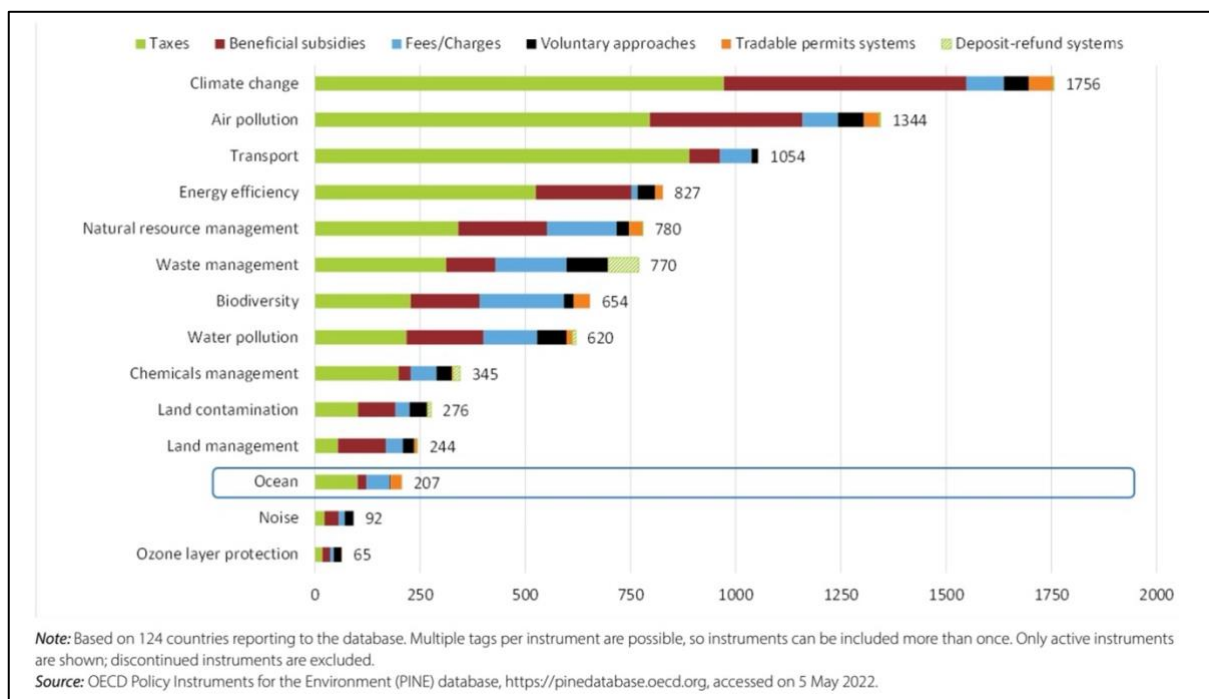


Figure 4. Showing current economic status related to oceans (OECD, 2022)

After COP 29, addressing ocean conservation challenges remains uncertain. Though there were advancements, like the Unpacking Ocean Finance for Climate Action report and focus on blue carbon ecosystems, overall progress was limited. The conferences failed to secure enough climate funding for ocean-based alternatives and lacked decisive action to transition from fossil fuels to renewables. The continued development of fossil fuels hindered significant progress. Effective governance and financial commitments are vital, but the overall attitude toward ocean protection suggests these issues may persist. Figure 5. Shows that if companies set absolute targets, global emissions can be reduced, therefore reducing the great threat to the oceans. A need for combined actions and seriousness globally to improve governance over the ocean is required to achieve such targets.

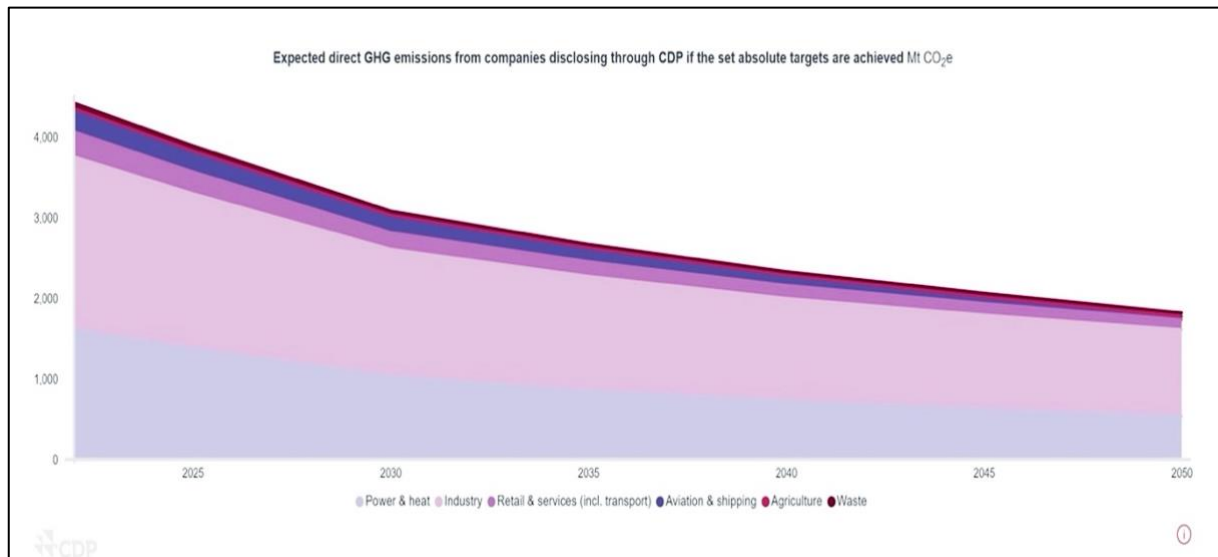


Figure 5. Showing the expected direction of GHS emissions from the CDP if they set absolute targets to lower emissions (CDP, 2024)

4. CONCLUSION

The ongoing disregard for ocean-related issues during COP negotiations illustrates not just a policy gap but also the complex nature of managing a shared global resource. Although successive COP meetings have gradually recognised the crucial importance of marine ecosystems as significant carbon sinks and reservoirs of biodiversity, the overall progress remains disjointed, stalled by ineffective transboundary

governance, inadequate funding, and an excessive focus on land-based climate strategies. The example of the Montreal Protocol, with its distinct, well-defined targets and enforceable compliance measures, as an example of what can be achieved, presents a persuasive yet not entirely adequate model. Unlike the straightforward focus and relatively simple alternatives it offered, ocean governance faces numerous challenges: ocean acidification, overfishing, pollution from plastics and chemicals, and habitat loss, all of which are aggravated by jurisdictional uncertainties and a lack of central oversight.

Additionally, the contrast between top-down regulatory systems and bottom-up, community-based efforts highlights an important tension in environmental governance. Indigenous methods like the Māori-led coastal stewardship in New Zealand show that locally rooted, polycentric strategies can foster resilience and innovation in the management of natural resources. However, without strong structural backing from international policies and financial support, these initiatives often remain sidelined on the global platform. In the end, closing these gaps requires a hybrid governance model that combines the clarity and enforcement of international treaties with the flexibility and contextual awareness of grassroots initiatives. Only by implementing such integrative approaches can the diverse challenges of ocean conservation be effectively tackled, ensuring that oceans continue to stabilise the climate, support biodiversity, and assist vulnerable coastal populations.

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6. APPENDIX

The Role of Oceans in COP Negotiations: Past, Present, and Future

Key Policies, COP 29 Outcomes, and Future Prospects

An outline of how COP meetings have traditionally tackled ocean-related issues is given in this summary sheet, which also emphasises the growing importance of oceans in global climate governance. Even though there has been progress, governance may be disjointed, and requires more cooperation. The oceans maintain livelihoods, support biodiversity, and regulate the climate, making it essential to life on Earth. However, acidification, rising temperatures, and sea level rise are all results of climate change brought on by greenhouse gas emissions. Future prospects are centred on equity, innovation, and international cooperation. COP 28 which took place in Dubai, was centred on strengthening international cooperation to safeguard marine biodiversity, promote blue carbon ecosystems, and aid in the BBNJ Treaty's ratification.

COP 15 & 21

COP 25 & 26

COP 27

COP 28

COP 15 & 21

- COP15-** Finally acknowledged ocean's roles and makes mention to oceans in UNFCCC target 3&8.
- COP 21-** Introduction to NDC's with more recondition for oceans and **THE PARIS AGREEMENT!!**

COP 25 & 26

- COP 25-** Mandated the first ocean climate dialogue. Oceans mentioned in the UNFCCC again. The Chile-Madrid Time for Action was created-The release of the IPCC.
- HELD OCEAN DAY!**
- COP 26-** Developed **BLUE ZONE**.-Ocean and climate dialogue continued.-Created the **Glasgow Climate Pact**.

COP 27

- Ocean dialogue continues with more **"ambition."**
- loss & damages funding addressed.
- Agreed on the need for more research into blue carbon.
- Reminded the nation to focus on the Paris Agreement.
- Discussed ocean-based solutions such as sustainable fisheries, reducing shipment emissions.

COP 28

- Addressed marine conservation & importance.
- Acknowledged ocean acidification, threats and mitigations.
- Discussed the need for a sustainable **blue economy**.
- Developed the **Ocean Break Through Initiative**

Agreements	Purpose	Relevance to oceans
Paris Agreement	Limit warming to 1.5°C	Resilience and adaptation to the coast
Chile- Madrid Time for Action	Boost an effort to combat climate change by reducing emissions.	Recognises the oceans importance
Ocean Risk & Resilience Action Alliance	Encourages creative financing for climate risk based on the ocean.	Finances will be set to mitigate ocean-based issues
Glasgow Climate Pact	To reduce subsidies for fossil fuels. Calls for nations to match their pledges to the Paris Agreement. Draw attention to cut emissions.	Acknowledges the impact climate has on oceans, therefore, reducing the impacts, with attempts to make the climate less hostile too the oceans.
Ocean Break Through Initiative	Urges maritime sector investment and action.	It draws attention to quicken ocean action.

COP 29 Key Outcomes and Future Prospects

Outcomes:

- Increased support for blue carbon habitats like mangroves in NDC's.
- Establishing the Commonwealth Ocean Finance Working Group for sustainable funding.
- Promoting the BBNJ treaty. Also known as the High Seas treaty, protects the ocean and marine life.
- Commonwealth Blue Charter- they committed to taking the lead in ocean management and conservation.

Future Prospects:

- Creating a worldwide framework for fair ocean management and improving ocean governance.
- Policy Implementation
- Scaling up sustainable marine renewable energy.
- Producing a global framework to monitor and mitigate acidification
- Improve collaboration across all parties and stakeholders.
- Implementing more ocean finance inniatives, allowing for private investors.

Discussion

- What trends did you detect?
- Do you think allowing countries to determine their own ocean strategies leads to more effective governance?
- What measures can be set to ensure that national agreements that were created to address ocean- based issues such as acidification effectively enforced.?
- What lessons can be learned from COP decisions to shape future policies?
- What mindset do you think the World leaders have in regard to the oceans?

SWOT FRAMEWORK TO EVALUATE GLOBAL AND LOCAL STRATEGIES TO COMBAT OCEAN ACIDIFICATION

A1.

SUMMARY OF GROUP DISCUSSION

Trends: Attendees noted that discussions about oceanic concerns at COP meetings frequently seem superficial. A "Blue Zone" is sometimes created to encourage dialogue and demonstrate commitment, but the focus on ocean issues varies. This pattern appears to be significantly shaped by the priorities of the hosting nation and how directly marine matters affect national interests.

National versus Collaborative Governance: It was acknowledged that allowing each country to define its ocean strategies presents a trade-off. On one hand, localised strategies enable nations to customise their policies based on specific coastal and economic conditions, on the other hand, due to the inherently transboundary nature of ocean challenges, this form of decentralisation may result in governance that is disjointed. In the end, effective ocean management seems to require greater cooperation across borders rather than isolated national initiatives.

Enforcing National Agreements: The conversation underscored the challenges involved in implementing regulations over a vast and ever-changing resource like the ocean. Attendees drew parallels between this issue and the complexities of enforcing worldwide emission goals. While no definitive solution was suggested, there was agreement on the necessity for enhanced monitoring, technological advancements, and greater international dedication to guarantee that agreements targeting concerns like acidification are successfully put into action.

Insights from COP Outcomes: A few key points surfaced about future policy approaches. One key takeaway is the necessity of basing decisions on solid scientific research and including educational efforts to enhance awareness both locally and worldwide. While discussions at COP are frequently characterised by feelings of disappointment and postponement, utilising these experiences could reinforce future policies by promoting enhanced transparency and accountability.

The mindset of world leaders: The mindset of global leaders regarding ocean-related issues shows considerable variation. Leaders from countries that are directly impacted by marine challenges, such as small island nations dealing with rising sea levels, often place greater emphasis on ocean governance. Conversely, in larger, more industrialised countries where ocean-related concerns may be considered less pressing compared to other national issues, there is a lower sense of urgency. This difference in priorities indicates that any successful global framework for ocean governance must tackle substantial disparities in resources and capabilities.

The discussion illustrated a shifting policy environment in which ocean-related concerns are increasingly acknowledged, though issues like disjointed governance, enforcement difficulties, and low public awareness continue to prevail. Consequently, future decisions and policies from COP must focus on fostering a more unified and cooperative strategy to guarantee that the ocean is managed as an essential global commons. There was an intention to carry out a SWOT analysis to evaluate local and global strategies to combat ocean acidification, however, there was not enough time.

The discussion highlighted the report's main point by showing that ocean-related problems are frequently regarded as mere symbolic issues, often overlooked due to national priorities and disjointed governance. This conversation emphasises the critical requirement for a more cohesive and enforceable international framework, one that transcends occasional focus and erratic national approaches and aims for authentic, cooperative ocean conservation within COP discussions.