

SWP Comment

NO. 24 JUNE 2026

Ambiguity in Ocean Governance

The Advisory Opinion of the International Tribunal for the Law of the Sea on Climate Change

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In January 2027, the first Conference of the Parties to the new United Nations High Seas Treaty will take place. The meeting is expected to address key conflicts between marine conservation and ocean use in the context of climate change. The 2024 advisory opinion of the International Tribunal for the Law of the Sea (ITLOS) on climate change is therefore once again attracting attention. Many observers had expected the opinion to clarify the relationship between ocean protection and utilisation in climate policy. Such clarification is particularly important in relation to emerging marine carbon dioxide removal (mCDR) technologies, which seek to enhance oceanic carbon drawdown in order to mitigate climate change. ITLOS confirmed that states are obliged to protect the ocean from pollution caused by atmospheric CO₂. However, it left open the question of whether mCDR should be regarded as marine pollution or as a contribution to marine environmental protection. This ambiguity could be mobilised politically to either promote or restrict mCDR. International organisations, EU institutions, and national authorities should therefore prepare for competing interpretations of the advisory opinion that may shape future climate and ocean governance.

The protection of the ocean remains a political priority for the international community. This is illustrated by the rapid ratification of the United Nations Agreement on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement), which was signed in 2023 and entered into force on 17 January 2026. The first Conference of the Parties (COP1) has already been scheduled for January 2027. At the same time, growing recognition of the interdependence between ocean and

climate policy has emerged. This awareness is not limited to the risks that climate change poses to the marine environment, such as ocean acidification and coral bleaching. It is also increasingly recognised that the ocean can contribute to tackling climate change.

However, when it comes to the role of the ocean in climate policy, a tension often exists between the sovereign right of states to use maritime resources within their exclusive economic zones and the international obligation to protect the ocean as



a global commons from pollution (see SWP-Aktuell 20/2023). In May 2024, ITLOS issued its highly anticipated advisory opinion on climate change. Many had hoped that the opinion would clarify the balance between the paradigms of ocean protection and ocean use in the context of climate change.

Requested by the Commission of Small Island States on Climate Change and International Law (COSIS), the advisory opinion was intended to provide clarification regarding states' climate-related obligations under the United Nations Convention on the Law of the Sea (UNCLOS). More than 40 states, international organisations, and non-governmental organisations submitted written statements, while many others participated in oral hearings. ITLOS clarified that states are responsible for protecting the ocean from pollution caused by atmospheric CO₂. However, significant questions concerning mCDR remained unresolved, particularly whether such approaches constitute marine pollution or a contribution to marine environmental protection.

With its ambiguous wording, the ITLOS opinion leaves considerable scope for interpretation in ongoing governance processes relating to mCDR, such as those taking place within international treaty bodies and national regulatory authorities. Germany and the European Union (EU) should therefore anticipate that the opinion will serve as a reference point for divergent interests and policy strategies.

Balancing ocean protection and use

In recent years, the role of the ocean in climate policy has moved up both international and German political agendas. Although the ocean was long viewed primarily as a victim of acidification and warming, it is increasingly being seen as part of the solution to the climate crisis. The need to actively remove CO₂ from the atmosphere has become a central topic of debate, particularly since achieving net-zero greenhouse gas emissions became a central

objective of climate policy. Various carbon dioxide removal (CDR) approaches are currently being researched and developed worldwide, including in Germany.

The ocean plays a crucial role in regulating the global climate because it naturally absorbs approximately 25–30 per cent of anthropogenic CO₂ emissions. Human intervention may further increase this removal potential. As the technical and socio-political costs of land-based CDR approaches become increasingly apparent, the ocean may offer new opportunities, especially as long-term strategies for carbon removal and storage continue to evolve in Germany, the EU, and globally.

Proposals for enhancing the ocean's role as a carbon sink range from expanding sea-grass meadows to geochemical approaches. The latter seek to increase ocean alkalinity through the addition of substances such as ground limestone or olivine, which react with seawater and bind CO₂. At the same time, marine conservation remains a key political issue at the national, European, and international levels. There is a strong coalition of stakeholders pushing to prioritise this issue.

Obligations under UNCLOS

One of the most important conclusions of the ITLOS advisory opinion is that anthropogenic greenhouse gas emissions released into the atmosphere constitute marine pollution as defined in UNCLOS (para. 179 of the advisory opinion). In reaching this conclusion, the Tribunal broke down the definition of marine pollution set out in Article 1 of UNCLOS into its three constituent parts and stated that: (1) there must be a substance or energy; (2) this substance or energy must be introduced by humans, directly or indirectly, into the marine environment; and (3) such introduction must result or be likely to result in deleterious effects. It was further noted in the ITLOS opinion that, although the three criteria must be understood as cumulative, the definition of marine pollution in

UNCLOS is otherwise “general in that it encompasses whatever satisfies these criteria” (para. 161).

This finding means that Article 194 of UNCLOS applies, which requires states to take all necessary measures to prevent, reduce, and control marine pollution, irrespective of its source. The Tribunal emphasised that Article 194 grants each state discretion in determining which measures are necessary.

Certain passages of the opinion suggest that ITLOS views “marine geoengineering” approaches (an umbrella term that includes all types of mCDR) not primarily as instruments for combating climate-related pollution but as activities that may themselves generate pollution. The Tribunal noted: “Article 195 of the Convention requires States, in taking measures to prevent, reduce and control pollution of the marine environment, not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another” (para. 231). The advisory opinion goes on to state: “Marine geoengineering would be contrary to article 195 if it has the consequence of transforming one type of pollution into another” (para. 231).

Activities such as ocean fertilisation would likely meet the three criteria for marine pollution established by ITLOS: (1) there is a substance (e.g. iron); (2) it is introduced into the marine environment through human activities; and (3) it could have harmful effects, such as algal blooms or nutrient depletion. The same may apply to various other mCDR approaches, such as increasing the alkalinity of the ocean. Consequently, states that deploy or authorise such technologies could potentially be in violation of UNCLOS.

At the same time, other parts of the advisory opinion may be interpreted as recognising mCDR as a means of protecting and preserving the marine environment. Article 192 of UNCLOS obliges states to protect and preserve the marine environment. According to ITLOS, this obligation is broad and encompasses all forms of harm or threats

to the marine environment, including those arising from climate change (paras. 385 and 388). In this regard, the statement reads:

“Where the marine environment has been degraded, the Tribunal is of the view that the term ‘preservation’ may include restoring marine habitats and ecosystems” (para. 386). Because some mCDR approaches could support those aims – for example by restoring seagrass ecosystems or mitigating ocean acidification – they may be considered permissible. The advisory opinion therefore remains ambiguous. It can be used to interpret certain marine CDR activities both as a source of marine pollution and as a means of protecting the seas.

Implications for climate and ocean governance

This ambiguity is likely to influence numerous ongoing climate and ocean policy processes in Germany, the EU, and internationally. Following the entry into force of the BBNJ Agreement in January 2026, future regulation of mCDR will likely be subject to stricter environmental requirements. The BBNJ stipulates that activities which may cause significant pollution or harmful environmental changes on the high seas can only be authorised following comprehensive environmental impact assessments. Interpretations of the ITLOS opinion that classify mCDR as pollution could be used to justify such assessments for all mCDR projects. Conversely, interpretations emphasising restoration and conservation functions could be invoked to argue against stringent assessment requirements.

The opinion may also shape international debates regarding the incorporation of ocean carbon cycles into Nationally Determined Contributions (NDCs), national emissions inventories, and blue-carbon credit trading under the Paris Agreement. By confirming states’ obligations to reduce marine pollution caused by greenhouse gases while leaving open whether certain mCDR approaches contribute to that ob-



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ISSN (Print) 1861-1761
ISSN (Online) 2747-5107
DOI: 10.18449/2026C24

(English version of SWP-Aktuell 26/2026)

jective, the opinion may strengthen arguments for including ocean-based carbon removal within climate governance frameworks. At the same time, it may encourage demands for more rigorous standards concerning monitoring, reporting, and verification, as well as stronger biodiversity safeguards.

At the EU level, the Carbon Removal Certification Framework was adopted in 2024, and methodologies for certifying both land-based and marine CDR are currently under development. If mCDR technologies are to be integrated into EU climate policy, policymakers will need to address the legal and regulatory questions raised by the ITLOS opinion.

At the national level, Germany has emphasised the importance of CDR in its overall climate strategy and has initiated discussions on a long-term carbon removal strategy to counterbalance its residual emissions. Amendments to legislation governing marine field trials have recently expanded opportunities for testing mCDR technologies in German waters. Future permitting procedures will need to determine whether specific mCDR activities should be classified as pollution or as measures supporting climate and marine protection.

Strategically navigating ambiguity

Germany and the EU should prepare for different actors to invoke the ITLOS advisory opinion in support of different objectives. Some states and interest groups are likely to use the opinion to justify precautionary regulation and stricter environmental requirements for mCDR. Others may interpret it as support for accelerating technological development and integrating mCDR into climate policy. These debates are already visible in discussions about the planned Intergovernmental Panel on Climate Change (IPCC) methodology report on CDR approaches. These debates show

that different coalitions are already forming around the question of how mCDR should be assessed and regulated.

During the negotiations, Belgium, Germany, France, Austria, Palau, and Switzerland opposed the inclusion of a separate chapter on marine CDR processes in the report. They pointed to unresolved issues regarding effectiveness, scalability, environmental impacts, and legal admissibility. In contrast, some other countries – led by Saudi Arabia – called for all CDR technologies recognised by experts, including marine approaches, to be given equal consideration. mCDR is increasingly becoming a contested field of political and regulatory negotiation in which coalitions of states mobilise competing interpretations of scientific evidence and international legal obligations. Germany and the EU should therefore clarify at an early stage which interpretation they intend to support with in future international climate and ocean governance processes.

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