

Before the Senate of Canada Standing Committee on Fisheries and Oceans

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Thank you, Chair Manning, Deputy Chair Busson, and distinguished Members of the Standing Committee on Fisheries and Oceans, for the opportunity to participate in today's hearing.

My name is Romany Webb. I am a Research Scholar at Columbia Law School and the Deputy Director of the Sabin Center for Climate Change Law. I recently had the honor of serving on a U.S. National Academies of Sciences committee charged with developing a research strategy for ocean carbon dioxide removal (CDR). After a multi-year review, the committee determined that "ocean CDR approaches could ... contribute to a portfolio of climate response strategies needed to limit climate change and surface ocean acidification over coming decades and centuries."¹ Importantly however, the committee emphasized that ocean CDR is at best a complement to, and not a substitute for, emissions reductions which must continue to be the primary focus of climate change mitigation efforts.²

A variety of ocean CDR approaches have been proposed. While several appear to hold great potential for large-scale, durable carbon storage, further research is needed to fully evaluate their efficacy and environmental and other impacts. Canada is emerging as a hub of research activity, with in-ocean field trials already occurring off both the east and west coasts.³

As an example of research occurring in Canada, the Sabin Center has been partnering with Ocean Networks Canada and other research institutions on the "Solid Carbon" project, which is investigating the potential for sub-seabed carbon storage in ocean basalts.⁴ Through that project and other work, the Sabin Center has researched the governance of ocean CDR, both at the international level and domestically in Canada (and several other countries).⁵ In both contexts, we have found existing governance regimes to be under-developed and recommended reforms designed to facilitate needed ocean CDR research while ensuring it occurs in a scientifically valid, safe, responsible, and just way.

One key governance challenge in the ocean CDR space is fragmentation. Due to the shared nature of the ocean, a large body of international law has been developed to govern ocean-based activities.

¹ National Academies of Sciences, Engineering, and Medicine, A Research Strategy for Ocean-based Carbon Dioxide Removal and Sequestration 239 (2022), <http://doi.org/10.17226/26278>.

² *Id.* at 239-240.

³ Ocean Visions, *mCDR Field Trials Map*, <https://oceanvisions.org/mcdr-field-trial-map/> (last visited Nov. 26, 2024).

⁴ Ocean Networks Canada, *Solid Carbon*, <https://solidcarbon.ca/> (last visited Nov. 26, 2024).

⁵ See e.g., Romany M. Webb & Michael B. Gerrard, *The Legal Framework for Offshore Carbon Capture and Storage in Canada* (2021), https://scholarship.law.columbia.edu/faculty_scholarship/2744/; Romany M. Webb, *International Governance of Ocean-Based Carbon Dioxide Removal: Recent Developments and Future Directions* (2024), https://scholarship.law.columbia.edu/sabin_climate_change/216/.

Depending on where they occur, those activities may also be subject to regional, national, and/or subnational laws.

At the international level, there are currently no binding international agreements that specifically and comprehensively address ocean CDR. The agreements that make up the global climate change regime—the United Nations Framework Convention on Climate Change and the Paris Agreement—implicitly support the use of ocean CDR as a climate change mitigation strategy. They do not, however, establish detailed rules governing the conduct of ocean CDR projects.

The parties to other international agreements—most notably the 1972 London Convention and 1996 London Protocol—have attempted to develop such rules. In the mid-2000s, the parties to the London Protocol agreed to a series of amendments addressing sub-seabed carbon dioxide storage, but those amendments have only partially entered into force. Another amendment, which was adopted in 2013 but is also yet to enter into force, is intended to establish a governance framework for certain marine geoengineering activities. Only one ocean CDR technique—ocean fertilization—is currently covered by the 2013 amendment. The parties have discussed expanding the 2013 amendment to cover other techniques, including ocean alkalinity enhancement and biomass sinking, but that has not yet occurred.

Further work is needed to develop an effective international governance regime for ocean CDR. Canada is well placed to advance the development of such a regime. Canada already co-chairs a committee, established under the London Convention and Protocol, to address legal issues associated with ocean CDR. Moreover, given its experience with early field trials, Canada can help to inform the international community about the state of the science with respect to ocean CDR and the potential risks and benefits associated with expanding research.

The field trials and other scientific research should also inform Canada's domestic regulation of ocean CDR. In 2023, I co-edited a book, *Ocean Carbon Dioxide Removal for Climate Mitigation: The Legal Framework*, which analyzed the domestic laws governing ocean CDR activities in Canada and six other countries.⁶ The analysis revealed that ocean carbon dioxide removal projects in Canadian waters may be subject to numerous environmental laws, which impose overlapping permit and other requirements, and thus may hinder further ocean CDR activity. There may be benefits to establishing a new legal framework that specifically, and comprehensively, addresses ocean CDR. Short of that, existing laws may need to be amended. For example, while Canada is a party to the London Protocol and has implemented it domestically via the Canadian Environmental Protection Act, that Act does not incorporate certain provisions of the Protocol dealing with sub-seabed carbon dioxide storage.

To sum up: while ocean CDR has the potential to help mitigate climate change, further research is needed to fully evaluate different techniques. Establishing effective governance frameworks, at both the international and domestic levels, is essential to facilitate needed research while ensuring it occurs in a scientifically valid, safe, responsible and just way.

Thank you again for the opportunity to speak to you today. I look forward to answering the Committee's questions.

⁶ David L. VanderZwaag et al., *Canada, in Ocean Carbon Dioxide Removal for Climate Mitigation: The Legal Framework* 86 (Romany M. Webb et al. eds., 2023).