



October 6, 2025

Chair Liane M. Randolph
California Air Resources Board
1001 I St.
Sacramento, CA 95814

Submitted electronically via the web at
<https://ww2.arb.ca.gov/public-comments/information-solicitation-advise-implementation-carbon-capture-removal-utilization>

Re: Information Solicitation to Advise Implementation of the Carbon Capture, Removal, Utilization, and Storage Program: Senate Bill 905

Honorable Chair Randolph:

Biofuelwatch¹ is an international organization that works to increase public understanding and civic engagement on the land-use implications of climate policy. We have a particular focus on the environmental harms and social inequities of large-scale industrial bioenergy projects, and we work extensively on addressing the negative ecological and social outcomes of policy and actions that are justified as being beneficial to the global climate, yet carry with them risks and threats to public health and natural resources. We also work to illuminate and increase public awareness of the environmental and human rights harms of speculative climate intervention technologies, namely those that are broadly classed under the umbrella of **geoengineering**².

This letter is provided as additional feedback on the Information Solicitation of the California Air Resource Board (CARB) to Advise Implementation of Senate Bill 905³.

Offering comment at this juncture is best understood in the context of comment⁴ that our organization provided on the Public Workshop on Carbon Capture, Removal, Utilization and Storage Program (SB 905) (here to referred to as the Workshop)⁵ that

¹ <http://www.biofuelwatch.org.uk/>

² <https://www.geoengineeringmonitor.org/what-is-geoengineering>

³ https://ww2.arb.ca.gov/sites/default/files/2025-08/905_solicitation_Aug2025_0.pdf

⁴ <https://ww2.arb.ca.gov/form/public-comments/submissions/22891>

⁵ <https://ww2.arb.ca.gov/events/public-workshop-carbon-capture-removal-utilization-and-storage-program-sb-905>

was hosted by CARB on February 27, 2025 to ostensibly also meet informational and public engagement needs for the implementation of SB 905⁶.

The content of this letter could be considered ‘extra feedback’ under the rubric of the current solicitation as it addresses matters regarding marine geoengineering technologies that were not included in SB 905, but that CARB had incorporated into the February 2025 public workshop that our organization commented on previously.

Our additional feedback is in regards to Marine Carbon Dioxide Removal (mCDR) projects which, as stated above, were not in any way whatsoever mentioned or described in SB 905, and have thus been inappropriately promoted by CARB under the frame of SB 905.

We strongly urge the Board to develop Program permitting rules that prohibit the deployment of speculative mCDR technologies. Methods such as ocean alkalinity enhancement, nutrient fertilization, and artificial upwelling are intended to enhance or accelerate natural biological or chemical processes that sequester carbon in the ocean⁷, thereby changing the ocean’s chemistry, circulation, and/or biology⁸. However, such large-scale manipulation of the ocean environment has great potential to cause unpredictable and far-reaching ecological and social harms—including disastrous impacts to marine food webs and fisheries⁹. And there is no evidence yet that mCDR could provide additional and verifiable CO₂ sequestration¹⁰, allow predictability of potentially adverse effects, or allow governability (i.e. ability to be regulated) in managing its harms¹¹.

As noted in a 2024 position statement on marine geoengineering by Climate Action Network International—a global network of 1,900+ civil society organizations:

The increased momentum behind marine geoengineering belies the fact that **there is no evidence that it can be scaled up to provide safe, effective, and durable guaranteed removal of atmospheric CO₂ with neutral or positive outcomes for the ocean environment.**

⁶ https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB905

⁷ Bach, L. et al., Implementation of marine CO₂ removal for climate mitigation: The challenges of additionality, predictability, and governability, 12 Elem Sci Anth (2024); Lebling, K. et al., Toward Responsible and Informed Ocean-Based Carbon Dioxide Removal, World Resources Institute (2022)

⁸ CDR methods include Ocean Alkalinity Enhancement (increasing seawater pH and alkalinity); Direct Ocean Removal (splitting seawater into an acid and a base using electricity); Macroalgae Cultivation (growing macroalgae purposefully to capture CO₂ from the surface ocean); Nutrient Fertilization (adding nutrients to the surface ocean to spur phytoplankton growth); Artificial Upwelling (pumping seawater from the subsurface to the surface ocean); and Artificial Downwelling (pumping surface water into the deep ocean in higher latitudes)

⁹ <https://www.geoengineeringmonitor.org/>

¹⁰ Oschlies et al., Perspectives and challenges of marine carbon dioxide removal, 6 Frontiers in Climate (2025).

¹¹ Bach, L. et al., Implementation of marine CO₂ removal for climate mitigation: The challenges of additionality, predictability, and governability, 12 Elem Sci Anth (2024)

Many technologies remain in the early stages of testing and verification and a host of questions remain regarding how the deployment of marine geoengineering technologies would be governed, and how emission reductions would be monitored and verified. At the same time, no standards currently exist to assess the efficacy of any of these approaches and we do not know enough about the risks or benefits¹².

Given the nascence of the methods, the risks they carry, questions of efficacy, and the simple fact that marine geoengineering is not included under the frame of SB 905, mCDR must not be included as a part of CCUS rule-making processes. We are adamant in our opposition to the advancement of mCDR in the guise of offsetting California's carbon emissions while instead locking in local pollution through prolonging the life of carbon intensive fossil fuel and bioenergy infrastructure.

Conclusion

Our organization remains attentive to these discussions. We will remain engaged. Thank you for your attention to these comments and we anticipate greater discussion in the future regarding the concerns we have described in this letter.

Sincerely,



Gary Graham Hughes

Co-Director / Americas Program Coordinator – Biofuelwatch

Email: garyhughes.bfw@gmail.com / Mobile: +1-707-223-5434

¹²<https://climatenetwork.org/wp-content/uploads/2024/12/CAN-Position-on-Marine-Geoengineering-.docx.pdf>