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**AB-1086 Marine Carbon Initiative.** (2025-2026)

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CALIFORNIA LEGISLATURE— 2025–2026 REGULAR SESSION

**ASSEMBLY BILL**

**NO. 1086**

**Introduced by Assembly Member Muratsuchi**

**February 20, 2025**

An act to add Section 39619.10 to the Health and Safety Code, relating to air resources.

**LEGISLATIVE COUNSEL'S DIGEST**

AB 1086, as amended, Muratsuchi. Marine Carbon Initiative.

Existing law requires the State Air Resources Board to establish a Carbon Capture, Removal, Utilization, and Storage Program to capture, remove, and store carbon dioxide, as provided. Existing law requires the state board to develop a centralized public database to track the deployment of specified carbon capture, utilization, and storage technology or equipment and carbon dioxide removal activities that use technologies or engineered strategies to remove carbon dioxide from the atmosphere, as specified, and the development of carbon dioxide capture, removal, or sequestration projects throughout the state.

This bill would require the state board to establish the Marine Carbon Initiative and would set forth the objectives of the initiative, including advancing the body of research and scientific understanding of marine carbon dioxide removal and sequestration. The bill would require the initiative to include the Marine Carbon Council (council) and the Marine Carbon Research Program (program). The bill would require the state board, on or before July 1, 2027, to establish the council to advance the science and understanding of marine carbon dioxide removal and sequestration methods and technologies. The bill would require the council to consist of 7 members chosen by the state board who would be selected on or before August 1, 2027, and would specify the selection process for, and the qualifications of, the council. The bill would require the council, by July 1, 2028, to report to the state board with recommendations on marine carbon dioxide removal and sequestration, as specified. The bill would require the state board, on or before August 1, 2028, to establish the program, and would require the state board to administer the program in consultation with the council. The bill would require the program to award grants on a competitive basis, and other financial incentives the state board may designate, for eligible marine carbon dioxide removal and sequestration projects, as specified. The bill would require the council, on or before January 1, 2029, and biennially thereafter, to submit a report to the Legislature

that, at minimum, summarizes the findings and progress of the council in its work, as provided. The bill would require, upon appropriation by the Legislature, the sum of \$2,000,000 to be allocated to the state board annually for no less than 7 years to fund the program.

Vote: majority Appropriation: no Fiscal Committee: yes Local Program: no

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## THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

### SECTION 1. The Legislature finds and declares all of the following:

(a) Climate change poses a severe threat to California's people, places, resources, and institutions that is already manifesting in the form of extreme heat, wildfires, drought, species loss, and other disruptions to the state's environment and ecosystems.

(b) Leading climate experts, including the United Nations' Intergovernmental Panel on Climate Change (IPCC), have found that deep reductions in carbon dioxide and other greenhouse gases in the coming decades will be necessary to prevent catastrophic global warming in excess of 1.5 and 2 degrees Celsius and restore ecosystem functions.

(c) The IPCC advised as of 2022: "The deployment of carbon dioxide removals to counterbalance hard-to-abate residual emissions is unavoidable if net zero...emissions are to be achieved."

(d) More than 25 percent of the carbon emitted into the atmosphere is ultimately absorbed by the ocean, which holds around 42 times as much carbon as the atmosphere.

(e) Carbon already emitted into the atmosphere or absorbed in the oceans ~~can~~ *may potentially* be removed or sequestered long term through a variety of conventional and novel methods generally referred to as marine carbon dioxide removal.

(f) Though many marine carbon dioxide removal methods are still in the research phase, estimates indicate that, if scaled, marine carbon dioxide removal could remove billions of tons of carbon per year from the atmosphere and hydrosphere by approximately the year 2050.

(g) Further research is needed to fully evaluate the efficacy and safety of marine carbon dioxide removal methods, which requires, in many cases, responsible in-ocean research and field trials.

(h) Marine carbon dioxide removal may play a crucial role in helping the state to meet its commitment to achieving a just and equitable transition to carbon neutrality by 2045 (Executive Order No. B-55-18).

(i) Section 39741.1 of the Health and Safety Code affirmed the state's commitment to the adoption of safe and effective carbon removal and capture technologies.

(j) It is in the state's interest to evaluate the safety, efficacy, and benefits of marine carbon dioxide removal to enable the eventual deployment of those technologies at scale in California, promoting coastal resiliency and economic development.

### SEC. 2. Section 39619.10 is added to the Health and Safety Code, to read:

#### 39619.10. (a) For purposes of this section, the following definitions apply:

(1) "Marine Carbon Council" or "council" means the entity established pursuant to subdivision (c).

(2) "Marine carbon dioxide removal" means an intentional intervention in the marine environment that results in the net removal of carbon dioxide from the upper hydrosphere or atmosphere as measured on a life-cycle basis, taking into account all greenhouse ~~gasses~~ *gases* measured in carbon dioxide equivalents.

(3) "Marine carbon dioxide sequestration" means an intentional intervention in the marine environment that results in the durable storage of carbon dioxide in the ocean, excluding any mechanical injection of carbon dioxide into the seabed.

(4) "Marine Carbon Research Program" or "program" means the program established pursuant to subdivision (f).

(b) (1) The state board shall establish the Marine Carbon Initiative consisting of both of the following:

(A) The Marine Carbon Council.

(B) The Marine Carbon Research Program.

(2) The objectives of the Marine Carbon Initiative shall include all of the following:

(A) Advancing the body of research and scientific understanding of marine carbon dioxide removal and sequestration, particularly by enabling in-ocean testing, field trials, and pilot programs.

(B) Evaluating the environmental and ecosystem ~~responses, and social and economic impacts, of~~ *responses to* marine carbon dioxide removal and ~~sequestration to coastal communities within California.~~ *sequestration, ranging from nutrient changes to wildlife impacts, and evaluating the extent of the net benefit of implementing each marine carbon dioxide removal and sequestration project.*

(C) Understanding the labor, logistics, and supply chain ~~implications~~ *implications, as well as the social and economic impacts*, of marine carbon dioxide removal and sequestration in California.

(D) Producing recommendations for the potential commercial deployment of safe and effective marine carbon dioxide removal and sequestration in the state.

(c) (1) The state board shall establish, on or before July 1, 2027, the Marine Carbon Council to advance the science and understanding of marine carbon dioxide removal and sequestration methods and technologies, consistent with the terms and objectives of this section.

(2) In addition to the objectives set forth in paragraph (2) of subdivision (b), the council's objectives shall include evaluating all of the following:

(A) Best practices for measuring, reporting, and verifying marine carbon dioxide removal and sequestration methods and technologies.

(B) The sustainability of marine carbon dioxide removal and sequestration projects through life-cycle assessment.

(C) Potential commercialization pathways for marine carbon dioxide removal and sequestration in California.

(3) (A) The council shall consist of seven members chosen by the state board. Council members shall be selected on or before August 1, 2027, in accordance with this paragraph.

(B) The state board shall issue a public call for nominations for council members and select the council members from among those nominated through this public process.

(C) The state board shall ensure council members are drawn from various sectors and represent different areas of expertise relevant to marine carbon dioxide removal and ~~sequestration,~~ *sequestration and environmental science*, including representatives from industry, universities, federal laboratories, or nonprofit organizations with specialized knowledge.

(D) The state board shall consider the following qualifications for council membership:

(i) Expertise in marine carbon removal and sequestration chemistry and biology.

(ii) Expertise in ocean ecosystem marine ecology.

(iii) Demonstrated commitment to conservation and restoration of marine ecosystems through background, work experience, community engagement, or other activities the state board deems relevant.

(iv) Demonstrated commitment to advancing scientific understanding of nascent technologies through background, work experience, community engagement, or other activities the state board deems relevant.

(E) The state board shall ensure the council includes members representing a balance of geographic interests in California by ensuring that no more than any three members reside in the same county.

(F) The state board, in selecting council members pursuant to this subdivision, shall, to the extent practicable, ensure a fair and balanced apportionment of sectors and areas of expertise.

(G) If the state board sees sufficient cause for removing or replacing a council member or if a council member sends a formal resignation request to the state board, the state board shall issue a public call for nominations within 60 days of the date the member leaves the council.

(d) By July 1, 2028, the council shall report to the state board with recommendations on all of the following:

(1) Identification of gaps in scientific understanding of marine carbon dioxide removal, including, but not limited to, all of the following:

(A) Ocean alkalinity enhancement.

(B) Electrochemical engineering approaches.

(C) Macroalgae cultivation.

(D) Nutrient fertilization.

(E) Artificial upwelling and downwelling.

(F) Coastal marine ecosystems as a natural climate solution.

(G) Other marine carbon dioxide removal approaches the state board considers appropriate.

(2) Identification of gaps in scientific understanding of marine carbon dioxide sequestration, including, but not limited to, all of the following:

(A) Mineralization.

(B) Biomass sinking.

(C) Other marine carbon dioxide sequestration approaches the state board considers appropriate.

(3) Identification and coordination with credible efforts underway or planned to establish the necessary knowledge to close the gaps in scientific understanding identified by the council.

(4) Provision of approaches and recommendations to establish the necessary knowledge to close the gaps in scientific understanding identified by the council.

(5) Provision of expert advice as requested from state agencies or officials on the topic of marine carbon dioxide removal and sequestration.

(6) Identification of opportunities for partnerships among state and federal agencies, academia, industry, and other members of the marine carbon dioxide removal and sequestration community in support of the program.

(7) Evaluation and provision of recommendations for the potential establishment of marine carbon research hubs or facilities in California and potential pathways to enable those hubs or facilities to administer certain aspects of marine carbon dioxide removal or sequestration research projects.

*(8) Metrics for evaluating impacts to marine ecosystems and resources and recommendations for the limited scale at which the methods and technologies described in paragraphs (1) and (2) could be tested to produce results sufficient to evaluate those metrics.*

*(9) Evaluation of potential impact to existing ocean uses, including, but not limited to, fishing, aquaculture, and recreation.*

~~(10)~~

*(10) Provision of support ~~for~~ for, and limitations of, the program.*

~~(11)~~

*(11) Provision of support and limitations with respect to the advancement of research and demonstration of marine carbon dioxide removal and sequestration methods and technologies as requested by the state board.*

(e) In developing the recommendations pursuant to subdivision (d), the council may do any of the following:

(1) Seek input and coordinate with relevant federal, state, and local governmental agencies.

(2) Seek input from public and private universities.

(3) Identify support from public and private funding to advance and support marine carbon dioxide removal and sequestration field studies and other research methods.

(f) (1) On or before August 1, 2028, the state board shall establish the Marine Carbon Research Program as described in this subdivision. The state board shall administer the program in consultation with the council.

(2) The program shall award grants on a competitive basis, and other financial incentives the state board may designate, for eligible marine carbon dioxide removal and sequestration projects.

(3) Eligible marine carbon dioxide removal and sequestration projects shall have at least one partner organization based in California, or a contractor or staff member who resides in California.

(4) In implementing the program, the state board shall do all of the following:

(A) In addition to any other authorized method of providing moneys to participants, consider and adopt the use of financial incentives.

(B) Direct the council to establish guidelines or other standards for the program, including guidelines to balance environmental and community impacts and priorities with the needs of eligible projects under the program.

(C) Consult with the State Water Resources Control Board, the Department of Fish and Wildlife, the State Lands Commission, local air quality management districts and local air pollution control districts, regional water quality control boards, and other relevant local, state, or federal agencies, to ensure program moneys support achieving the state's climate targets, to the extent feasible.

(D) Make reasonable efforts to ensure the program is implemented in a manner consistent with the objectives set forth in Section 39740.

(E) Ensure that projects that receive funding or financial incentives under the program provide publicly available annual updates to the council summarizing their research, in accordance with any format or other requirements established by the state board or council.

(g) The state board shall share information with relevant state agencies that would have permitting authority over marine carbon research projects that receive funding pursuant to the program. The information shall include what was learned from the research done by the council.

(h) The state board shall coordinate with other state departments and agencies to ensure an integrated approach to implementation of the ~~program~~, *initiative*, including all of the following:

(1) The California Coastal Commission.

(2) The Department of Fish and Wildlife.

(3) The Natural Resources Agency.

(4) The Ocean Protection Council.

(5) The State Lands Commission.

(6) The State Water Resources Control Board and regional water quality control boards.

(i) (1) On or before January 1, 2029, and biennially thereafter, the council shall submit a report to the Legislature that, at minimum, summarizes the findings and progress of the council in its work, including the work completed under the program.

(2) A report to be submitted pursuant to paragraph (1) shall be submitted in compliance with Section 9795 of the Government Code.

(j) Upon appropriation by the Legislature, the sum of two million dollars (\$2,000,000) shall be allocated to the state board annually for no less than seven years to fund the program.

(k) This section does not limit or otherwise alter the authority of the state board, including, without limitation, the acceptance or inclusion of marine carbon dioxide removal and sequestration projects under the Carbon Capture, Removal, Utilization, and Storage Program established pursuant to Section 39741.1.