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119TH CONGRESS
2D SESSION

S. 3910

To support marine carbon dioxide removal activities, and for other purposes.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 25, 2026

Mr. SCHATZ (for himself and Ms. MURKOWSKI) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

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A BILL

To support marine carbon dioxide removal activities, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the ''Removing and Sequestering Carbon Unleashed in the Environment and Oceans Act'' or the ''ReSCUE Oceans Act''.

(b) TABLE OF CONTENTS.—The table of contents for this Act is as follows:

Sec. 1. Short title; table of contents.
Sec. 2. Definitions.
Sec. 3. Purposes.

Sec. 4. Rule of construction.
Sec. 5. Research security.

TITLE I—MATTERS RELATING TO THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Sec. 101. Establishment of program for advancing marine carbon dioxide removal.
Sec. 102. Monitoring of marine carbon dioxide removal.
Sec. 103. Research areas for marine carbon dioxide removal.
Sec. 104. Interagency working group for marine carbon dioxide removal.
Sec. 105. Biennial report on marine carbon dioxide removal.
Sec. 106. Authorization of appropriations.

TITLE II—MATTERS RELATING TO THE NATIONAL SCIENCE FOUNDATION

Sec. 201. Researching marine carbon dioxide removal.

TITLE III—MATTERS RELATING TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Sec. 301. Measuring marine carbon dioxide removal from space.

TITLE IV—MATTERS RELATING TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

Sec. 401. Validating marine carbon dioxide removal.

SEC. 2. DEFINITIONS.

In this Act:

(1) CARBON REMOVAL CREDIT.—The term ''carbon removal credit'' means 1 metric tonne of carbon dioxide or equivalent (tCOe) that—

(A) is removed through marine carbon dioxide removal and durably stored;

(B) is unique, registered, and validated; and

(C) may be traded on a voluntary carbon market and retired after purchase.

(2) COASTAL WATERS.—The term ''coastal waters'' has the meaning given the term in section

304 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1453).

(3) CONTIGUOUS ZONE.—The term ''contiguous zone'' has the meaning given the term in section 502 of the Federal Water Pollution Control Act (33 U.S.C. 1362).

(4) EXCLUSIVE ECONOMIC ZONE.—The term ''exclusive economic zone'' has the meaning given the term in section 3532 of the Maritime Security and Fisheries Enforcement Act (16 U.S.C. 8001).

(5) INDIAN.—The term ''Indian'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(6) INDIAN TRIBE.—The term ''Indian Tribe'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(7) INDIAN TRIBAL GOVERNMENT.—The term ''Indian Tribal government'' means the recognized governing body of any Indian Tribe or Alaska Native tribe, band, nation, pueblo, village, community, component band, or component reservation, individually identified (including parenthetically) in the list published most recently as of the date of the enactment

of this Act pursuant to section 104 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 5131).

(8) INTERAGENCY WORKING GROUP.—The term ''interagency working group'' means the interagency working group established under section 104.

(9) INTERNAL WATERS.—The term ''internal waters'' means the waters shoreward of the baseline of the territorial seas, which is normally the mean low water line along the coast of the United States.

(10) MARINE CARBON DIOXIDE REMOVAL.—The term ''marine carbon dioxide removal'' means an intentional intervention in the marine environment that results in the net removal of carbon dioxide from the atmosphere as measured on a life-cycle basis, taking into account all greenhouse gasses measured in carbon dioxide equivalents.

(11) NATIONAL SEA GRANT COLLEGE PROGRAM.—The term ''national sea grant college program'' means the program maintained under section 204(a) of the National Sea Grant College Program Act (33 U.S.C. 1123(a)).

(12) NATIVE AMERICAN.—The term ''Native American'' means—

(A) an Indian; or

(B) a Native Hawaiian.

(13) NATIVE HAWAIIAN.—The term ''Native Hawaiian'' has the meaning given the term in section 6207 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7517).

(14) NATIVE HAWAIIAN ORGANIZATION.—The term ''Native Hawaiian organization''—

(A) has the meaning given the term in section 6207 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7517); and

(B) includes the Office of Hawaiian Affairs and the Department of Hawaiian Home Lands.

(15) PROGRAM.—The term ''Program'' means the program established and maintained under section 101.

(16) PROTOCOL.—The term ''protocol'' means a systematic approach for generating a carbon removal credit that follows a transparent and thorough science-based methodology—

(A) for the development of projects to remove greenhouse gas emissions or sequester carbon; and

(B) for demonstrating how to measure, monitor, report, and verify the removal of

greenhouse gas emissions or carbon sequestration by projects described in subparagraph (A).

(17) REGIONAL OCEAN PARTNERSHIP.—The term ''Regional Ocean Partnership'' means a Regional Ocean Partnership designated under section 10102(b)(3) of the James M. Inhofe National Defense Authorization Act for Fiscal Year 2023 (16 U.S.C. 1468(b)(3)).

(18) RELEVANT CONGRESSIONAL COMMITTEES.—The term ''relevant congressional committees'' means—

(A) the Committee on Commerce, Science, and Transportation of the Senate;

(B) the Committee on Energy and Natural Resources of the Senate;

(C) the Committee on Indian Affairs of the Senate;

(D) the Committee on Natural Resources of the House of Representatives; and

(E) the Committee on Science, Space, and Technology of the House of Representatives.

(19) SECRETARY.—The term ''Secretary'' means the Secretary of Commerce.

(20) STANDARD.—The term ''standard'' means a broad principle or set of criteria established to en-

sure the credibility and integrity of a carbon removal credit or marine carbon dioxide removal by providing guidance on measurement, monitoring, reporting, and verification of greenhouse gas removals.

(21) STATE.—The term ''State'' means any of the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

(22) TERRITORIAL SEAS.—The term ''territorial seas'' has the meaning given the term in section 502 of the Federal Water Pollution Control Act (33 U.S.C. 1362).

(23) TRIBAL LANDS.—The term ''Tribal lands'' has the meaning given the term in section 905(a) of the Consolidated Appropriations Act, 2021 (47 U.S.C. 1705(a)).

(24) TRIBAL ORGANIZATION.—The term ''Tribal organization'' has the meaning given the term in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

(25) VOLUNTARY CARBON MARKET.—The term ''voluntary carbon market'' means a voluntary mar-

ket through which carbon removal credits may be bought or sold.

SEC. 3. PURPOSES.

The purposes of this Act are—

(1) to support research, development, and field trials of safe and responsible marine carbon dioxide removal;

(2) to ensure robust monitoring and protection of coastal and marine ecosystems;

(3) to coordinate Federal actions on marine carbon dioxide removal; and

(4) to support meaningful engagement with affected coastal communities and engagement and consultation, as appropriate, with Indian Tribes, Tribal organizations, and Native Hawaiian organizations, regarding marine carbon dioxide removal research, monitoring, and demonstration activities.

SEC. 4. RULE OF CONSTRUCTION.

Nothing in this Act shall be construed in derogation of applicable law regulating or restricting the use of the contiguous zone, the territorial seas, the exclusive economic zone of the United States, or coastal waters other than internal waters.

SEC. 5. RESEARCH SECURITY.

The activities authorized under this Act shall be carried out in a manner consistent with subtitle D of title VI of the Research and Development, Competition, and Innovation Act (42 U.S.C. 19231 et seq.).

TITLE I—MATTERS RELATING TO THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SEC. 101. ESTABLISHMENT OF PROGRAM FOR ADVANCING MARINE CARBON DIOXIDE REMOVAL.

(a) IN GENERAL.—The Secretary, through the National Oceanic and Atmospheric Administration and in consultation with the interagency working group, shall establish, not later than 90 days after the date of the enactment of this Act, and maintain a Program to support and conduct activities to advance science and integrate traditional ecological knowledge (to the maximum extent practicable), and understanding of marine carbon dioxide removal consistent with the objectives and focal areas described in subsection (b).

(b) OBJECTIVES AND FOCAL AREAS.—

(1) OBJECTIVES.—In carrying out the Program, the Secretary shall seek to—

(A) generate, through research, development, and field trials, the necessary knowledge,

theoretical basis, and empirical evidence to evaluate—

(i) the efficacy of marine carbon dioxide removal, including measurability, durability, magnitude, and additionality;

(ii) environmental and ecosystem responses to marine carbon dioxide removal; and

(iii) the social, cultural and economic impacts, including on public health and safety, of marine carbon dioxide removal to affected coastal communities; and

(B) apply the knowledge described in subparagraph (A) to—

(i) develop best practices for how marine carbon dioxide removal efficacy is measured, monitored, reported, and verified;

(ii) establish a methodology for defining actionable thresholds of environmental and ecosystem impacts for the utilization of marine carbon dioxide removal technologies;

(iii) evaluate and recommend marine carbon dioxide removal approaches that

could be safe and effective for larger-scale utilization for climate mitigation, considering potential positive and negative climate, environmental, and social outcomes;

(iv) evaluate the sustainability of marine carbon dioxide removal approaches, including resource requirements, life-cycle efficiency, and carbon storage capability sufficient to demonstrate net carbon removal on a carbon dioxide equivalent basis, scalability, and potential for cost reductions;

(v) analyze viable commercialization pathways and requisite enabling conditions for safe and effective marine carbon dioxide removal; and

(vi) as necessary or appropriate, support the implementation of this Act.

(2) FOCAL AREAS.—In carrying out the Program, the Secretary shall support and conduct activities to advance the science and understanding of—

(A) ocean alkalinity enhancement;

(B) electrochemical engineering approaches;

(C) macroalgae cultivation;

(D) nutrient fertilization;

(E) artificial upwelling and downwelling;

(F) carbon storage properties of both natural and manipulated coastal and estuarine ecosystems for the purposes of ecologically based marine carbon dioxide removal; and

(G) other marine carbon dioxide removal approaches as the Secretary considers appropriate.

(c) GRANTS.—

(1) IN GENERAL.—In carrying out the Program, the Secretary shall award grants, on a competitive basis, to fund research in accordance with the objectives described in subsection (b)(1) and the Federal research plan described in section 104.

(2) CODE OF CONDUCT.—The Secretary shall require grantees under this subsection conducting activities in the field to abide by the code of conduct established under section 104.

(3) FUNDING FOR ENGAGEMENT AND CONSULTATION.—The Secretary shall award not less than $10,000 in grant funding to support engagement and consultation activities, including—

(A) consultation or engagement, as appropriate, with Indian Tribes and Native Hawaiian organizations; and

(B) engagement with affected coastal communities.

(d) ADDITIONAL AUTHORITY.—The Secretary may enter into contracts, public-private partnerships, cooperative agreements, or other financial agreements in furtherance of this Act.

(e) DATA MANAGEMENT.—

(1) STRATEGIES.—The Secretary, in cooperation with such partners as the Secretary considers relevant, including Indian Tribes and Native Hawaiian organizations, shall develop and implement data management strategies to ensure all non-proprietary data collected pursuant to this Act are—

(A) properly stewarded for the long-term; and

(B) findable, accessible, interoperable, and reusable.

(2) IMPLEMENTATION; PRESERVATION AND CURATION.—The Secretary shall—

(A) ensure management of data collected under this Act is implemented in accordance with—

(i) chapter 35 of title 44, United States Code; and

(ii) the Foundations for Evidence-Based Policymaking Act of 2018 (Public Law 115–435; 132 Stat. 5529) and the amendments made by that Act; and

(B) preserve and curate such data in accordance with chapter 31 of title 44, United States Code (commonly known as the ''Federal Records Act of 1950''), in order to maximize use of such data.

(3) TRIBAL CONTROL.—

(A) IN GENERAL.—Nothing in this section shall be construed to—

(i) require any Indian Tribe, Tribal organization, or Native Hawaiian organization to share or publish data; or

(ii) affect an Indian Tribe's authority to determine how its data is collected, used, stored, or shared.

(B) REQUIRED CONSENT.—Information submitted by, or obtained from, an Indian Tribe, Tribal organization, or Native Hawaiian organization pursuant to this section, shall not be published without the consent of such Indian

Tribe, Tribal organization, or Native Hawaiian organization.

(C) FREEDOM OF INFORMATION ACT.—Records, methodologies, or other information or data submitted by an Indian Tribe, Tribal organization, or Native Hawaiian organization, shall be exempt from disclosure under subsection (b)(3)(B) of section 552 of title 5, United States Code, unless otherwise waived or consented to by the Indian Tribe, Tribal organization, or Native Hawaiian organization.

(f) INTERNATIONAL COORDINATION.—In carrying out this section, the Secretary shall coordinate with the Secretary of State and appropriate international entities.

SEC. 102. MONITORING OF MARINE CARBON DIOXIDE REMOVAL.

(a) IN GENERAL.—For field activities conducted as part of the Program, the Secretary shall, to the maximum extent practicable, provide or otherwise develop the instrumentation, infrastructure, and personnel for efficient and rigorous monitoring to—

(1) understand and minimize negative ecosystem, community, cultural, and economic impacts related to marine carbon dioxide removal, including impacts to Native American communities; and

(2) maximize co-benefits of marine carbon dioxide removal for communities and ecosystems.

(b) MONITORING GOALS.—In carrying out subsection (a), the Secretary shall—

(1) use monitoring assets to achieve the objectives described in section 101(b)(1);

(2) support compliance with applicable environmental law;

(3) support rigorous, science-based approaches for the research, development, and trialing of technologies for marine carbon dioxide removal;

(4) incorporate traditional ecological knowledge;

(5) develop and improve technologies for monitoring, modeling, analyzing, remediating, or mitigating impacts from marine carbon dioxide removal;

(6) study ecosystem responses to marine carbon dioxide removal technology; and

(7) collect data to inform the development of uniform standards and protocols for marine carbon dioxide removal, including—

(A) the amount of carbon dioxide removed from the ocean and the atmosphere attributable to marine carbon dioxide removal;

(B) the duration of carbon sequestration and risk of reversal of sequestration, as applicable;

(C) the total energetic requirements of all processes and activities associated with the capture and storage of carbon dioxide and associated carbon dioxide release; and

(D) other metrics the Secretary considers necessary or advisable, including those developed through consultation with Indian Tribes and Native Hawaiian organizations.

(c) TECHNICAL ASSISTANCE.—To support the development of reliable, fair, and efficient voluntary carbon markets and best practices, the Secretary, in consultation with the Secretary of the Treasury and the Secretary of Energy, may provide technical assistance to promote consistency, reliability, effectiveness, efficiency, and transparency, including through protocol documents and details relating to—

(1) calculations;

(2) sampling methodologies;

(3) accounting principles;

(4) systems for measurement, monitoring, reporting, and verification; and

(5) methods to account for additionality, durability and duration of carbon storage, leakage, and, as appropriate, avoidance of double counting.

(d) PUBLIC-PRIVATE-ACADEMIC PARTNERSHIPS.—The Secretary may examine and develop models for public-private-academic partnerships to efficiently monitor marine carbon dioxide removal, including with respect to—

(1) data sharing and standardization;

(2) cost sharing;

(3) in-kind contributions; and

(4) contracts and grants for third-party monitoring activities.

(e) CONTRACTS.—In carrying out this section, the Secretary may enter into contracts the Secretary considers necessary or advisable.

(f) UNLIMITED RIGHT DATA.—

(1) IN GENERAL.—Subject to contracts protecting confidential proprietary data, the Secretary shall make monitoring data collected, and protocols created, under this section available to the public at no-cost and with no restrictions on copying, publishing, distributing, citing, adapting, or otherwise using such data or protocols.

(2) LIMITATION.—

(A) IN GENERAL.—The Secretary may enter into cooperative research and development agreements that restrict data sharing and ensure protection of intellectual property for such users of research areas designated or established under section 103 as the Secretary considers appropriate.

(B) REQUIRED PERMISSION TO SHARE.—The Secretary may not share or otherwise disclose the monitoring data of any Indian Tribe, Tribal organization, or Native Hawaiian organization without the express permission of the Indian Tribe, Tribal organization or Native Hawaiian organization.

SEC. 103. RESEARCH AREAS FOR MARINE CARBON DIOXIDE REMOVAL.

(a) IN GENERAL.—In carrying out the Program, the Secretary may—

(1) designate Federally administered, funded, or supported oceanic, coastal, estuarine, riverine, or terrestrial areas, including Tribal lands, with the consent of the Indian Tribe, for research related to one or more marine carbon dioxide removal approaches; or

(2) award grants to eligible entities to establish such areas for such research.

(b) PURPOSE.—The purpose of the research areas designated or established under this section shall be to enable—

(1) the basic and applied science needed to achieve the objectives described in section 101(b)(1), including through—

(A) bench-scale, mesocosm, and wet lab experiments; and

(B) field trials, other field research, and demonstration projects;

(2) coordinated permitting and compliance with applicable environmental law and risk mitigation;

(3) meaningful consultation with Indian Tribes or Native Hawaiian organizations;

(4) sensing networks that can reliably return accurate observations across a wide field of variables in support of the monitoring goals set forth in section 102(b);

(5) a community of practice among Federal and non-Federal researchers, entrepreneurs, Indian Tribes, Tribal organizations, Native Hawaiian organizations, and other stakeholders;

(6) the incubation or acceleration of businesses that can safely utilize—

(A) marine carbon dioxide removal technologies; or

(B) technologies to measure, monitor, report, or verify approaches; and

(7) long-term community engagement and participation in marine carbon dioxide removal activities.

(c) INVENTORY.—Not later than 180 days after the date of the enactment of this Act, the Secretary shall—

(1) conduct an inventory of existing Federal facilities and oceanic, coastal, estuarine, riverine, or terrestrial areas that may be suitable for designation as Federally administered research areas under this section;

(2) submit the inventory to the interagency working group for review;

(3) following submittal of the inventory under paragraph (2), publish the inventory to the Federal Register for public comment; and

(4) use such public comments to inform the selection of research areas.

(d) GRANTS.—

(1) ELIGIBLE ENTITIES.—For purposes of grants under this section, an eligible entity is any of the following:

(A) An institution of higher education (as defined in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001)) or a tribally controlled college or university (as defined in section 2 of the Tribally Controlled Colleges and Universities Assistance Act of 1978 (25 U.S.C. 1801)).

(B) A State or local government or an Indian Tribal government.

(C) An Indian Tribe.

(D) A Tribal organization or a Native Hawaiian organization.

(E) A consortium of entities, including—

(i) a consortium of entities described in any of subparagraphs (A) through (D); or

(ii) a consortium of private or public entities that have demonstrated the capacity to conduct the research described in this section, including a National Laboratory (as defined in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801)).

(2) APPLICATIONS.—An eligible entity seeking a grant under this section shall submit to the Secretary an application at such time, in such manner, and containing such information as the Secretary may require.

(3) PRIVATE SECTOR INVESTMENT.—In awarding grants under this section, the Secretary shall seek to leverage private sector investment, to the extent possible.

(e) SUITABILITY ASSESSMENT.—

(1) IN GENERAL.—The Secretary shall assess the suitability of each research area under consideration for designation or establishment under this section.

(2) DATA; TOOLS; CONSIDERATIONS.—In carrying out paragraph (1), the Secretary—

(A) shall use relevant scientific, social, traditional ecological knowledge, and economic data, including baseline environmental data and any assessments of baseline environmental data; and

(B) may—

(i) develop and employ marine spatial planning tools; and

(ii) consider non-contiguous areas that are near or adjacent to one another and connected by ecological or oceanographic factors.

(3) FACTORS.—In carrying out paragraph (1), the Secretary may assess the following:

(A) Matters relating to oceanographic and ecological characteristics, including—

(i) proximity and access to geologic storage formations;

(ii) impacts to coastal and marine ecosystems, biodiversity, protected species, and the habitat of such species;

(iii) proximity and impacts to existing protected areas, such as marine monuments and sanctuaries, and Tribal and Native Hawaiian cultural sites; and

(iv) bathymetry, ocean circulation, and carbon chemistry baselines.

(B) Matters relating to human uses and communities, including—

(i) current and possible future human uses of the research area and the areas in reasonable proximity to the research area;

(ii) availability of existing sensor networks, technology, infrastructure, and land-based facilities;

(iii) where appropriate, potential co-location with existing infrastructure such as desalination plants, ships, moorings, and renewable energy; and

(iv) potential socioeconomic, sociocultural, and direct and indirect impacts (including access to subsistence and traditional resources) on affected coastal communities, including Indians, Native Hawaiians, Indian Tribes, and Native Hawaiian organizations.

(C) Potential downstream impacts beyond the research area.

(D) Such other factors as the Secretary considers appropriate, in consultation with—

(i) States, Indian Tribes, and Native Hawaiian organizations that are in reasonable proximity to the research area; or

(ii) the interagency working group.

(f) TERMS AND CONDITIONS.—

(1) IN GENERAL.—For each research area designated or established under this section, and sub-

ject to subsection (i), the Secretary shall develop terms and conditions by which all users of the research area shall abide.

(2) ELEMENTS.—At a minimum, the terms and conditions developed under this subsection shall include—

(A) a requirement for any user of the research area to abide by the code of conduct established under section 104;

(B) stewardship, management, and conservation measures that incorporate local knowledge, including traditional ecological knowledge, to the greatest extent practicable;

(C) a requirement for the user to develop and follow a plan to—

(i) mitigate risks and conflicts regarding local ecological conditions, biological sensitivities, protected resources (including cultural resources), and commercial and human uses;

(ii) monitor ecosystem responses within, and in reasonable proximity to, the research area;

(iii) address potential environmental degradation resulting from activities at the research area; and

(iv) following the expiration of a research area, remove—

(I) the user's fixtures, furnishings, equipment; and

(II) any improvements made to the research area;

(D) clear, objective thresholds of environmental harm that require the immediate cessation of a user's activities at the research area;

(E) the user's consent for—

(i) remote monitoring of the user's activities and the impacts of those activities on the environment; and

(ii) regular and unannounced inspections of the user's activities by the advisory board for the research area appointed under subsection (j);

(F) a requirement that the user will comply with all applicable law and policies; and

(G) additional terms and conditions as the Secretary considers necessary or appropriate in furtherance of this Act.

(g) DURATION.—

(1) IN GENERAL.—The duration of research areas designated or established under this section shall be determined as provided in this subsection.

(2) RESEARCH AREAS ADMINISTERED BY A FEDERAL AGENCY.—

(A) REASSESSMENT.—Not less frequently than once every 5 years, the Secretary shall reassess each research area administered by a Federal agency to ensure that the research area advances the purpose set forth in subsection (b), the research area is suitable under subsection (e), and users of the research area are in compliance with applicable terms and conditions developed under subsection (f).

(B) TERMINATION OF ACTIVITIES.—If, pursuant to a reassessment carried out with respect to a research area under subparagraph (A), the Secretary finds that the research area does not advance the purpose set forth in subsection (b), the research area is not suitable under subsection (e), or users of the research area are noncompliant with applicable terms and conditions developed under subsection (f),

the Federal agency administering the research area shall—

(i) terminate activities at the research area; and

(ii)(I) close down operations at the research area pursuant to applicable terms and conditions; or

(II) remediate the research area to comport with subsections (b), (e), and (f).

(3) RESEARCH AREAS ADMINISTERED BY AN ELIGIBLE ENTITY.—

(A) INITIAL PERIOD.—An eligible entity administering a research area under this Act may carry out activities at the research area for an initial period of 5 years.

(B) REASSESSMENT.—Before the conclusion of an initial period for a research area described in subparagraph (A), the Secretary shall reassess the research area to ensure that the research area advances the purpose set forth in subsection (b), the research area is suitable under subsection (e), and users of the research are in compliance with applicable terms and conditions developed under subsection (f).

(C) ADDITIONAL PERIOD.—If, pursuant to a reassessment carried out with respect to a research area under subparagraph (B), the Secretary finds that the research area advances the purpose set forth in subsection (b), the research area is suitable under subsection (e), and users of the research area are in compliance with applicable terms and conditions developed under subsection (f), the Secretary may authorize the eligible entity administering the research area to carry out activities at the research area for a single, additional period of 5 years.

(D) TERMINATION OF ACTIVITIES.—If, pursuant to a reassessment carried out with respect to a research area under subparagraph (B), the Secretary finds that the research area does not advance the purpose set forth in subsection (b), the research area is not suitable under subsection (e), or users of the research area are noncompliant with applicable terms and conditions developed under subsection (f), the eligible entity administering the research area shall—

(i) terminate activities at the research area; and

(ii)(I) close down operations at the research area pursuant to applicable terms and conditions; or

(II) remediate the research area to comport with subsections (b), (e), and (f).

(E) REESTABLISHMENT.—In order to allow for continuity of operations, not later than 1 year prior to the conclusion of an additional 5-year period for a research area authorized under subparagraph (C), the eligible entity administering the research area may reapply for the establishment of the research area under this section.

(h) COMMUNITY BENEFITS.—For each research area designated or established under this section, and subject to subsection (i), the Secretary shall develop, to the maximum extent possible, opportunities to deliver benefits to communities with interest in the research area, such as—

(1) community benefit agreements;

(2) workforce development opportunities;

(3) mitigation measures;

(4) public education or tribally controlled school efforts; and

(5) other socioeconomic or educational benefit schemes.

(i) ENGAGEMENT OR CONSULTATION; PARTNERSHIPS.—In carrying out subsections (f) and (h), the Secretary—

(1) shall engage or consult, as appropriate, regarding the terms and conditions and community benefits described in such subsections with—

(A) State and local governments and Indian Tribes near or adjacent to the research area;

(B) members of communities near or adjacent to the research area, including relevant recreational and commercial users, academic institutions, Native American individuals, Indian Tribes, Tribal organizations, Native Hawaiian organizations, and nongovernmental organizations; and

(C) other stakeholders as the Secretary considers necessary to ensure full and fair engagement with potentially impacted community members; and

(2) may leverage existing partnerships and assets to support meaningful public participation, including—

(A) the national sea grant college program;

(B) Regional Ocean Partnerships; and

(C) the Regional Collaboration Network.

(j) ADVISORY BOARDS.—

(1) IN GENERAL.—Except as provided in paragraph (3), the Secretary shall appoint an advisory board to support oversight of each research area designated or established under this section, consisting of—

(A) one or more representatives of each Federal agency participating in activities at the research area;

(B) one or more representatives of each State, county, or Indian Tribe adjacent to the research area;

(C) one or more members from each community adjacent to the research area;

(D) one or more representatives of the users of the research area; and

(E) additional members as the Secretary considers appropriate.

(2) DUTIES.—

(A) IN GENERAL.—A board appointed under this subsection shall—

(i) monitor the delivery of community benefits, compliance with the applicable terms and conditions, and, as necessary or

advisable, inspections of activities at the research area;

(ii) meet regularly with the Secretary to provide advice and guidance for the management, conservation, and stewardship of the research area;

(iii) provide advice and recommendations to the Secretary on whether a proposed use or user of the research area should be allowed; and

(iv) take other actions to support the safe, effective, orderly, and lawful operation of the research area at the discretion of the Secretary.

(B) ADDITIONAL DUTIES.—Upon the request of a board appointed under this subsection, the Secretary may assign additional duties to the board as the Secretary considers appropriate.

(3) SPECIAL RULE FOR REGIONAL OCEAN PARTNERSHIPS.—At the discretion of the Secretary or upon the request of a State or local government or Indian Tribal government, the Secretary may request that the Regional Ocean Partnership in which the research area is located carry out the duties de-

scribed in paragraph (2) instead of appointing a board as provided in paragraph (1).

SEC. 104. INTERAGENCY WORKING GROUP FOR MARINE CARBON DIOXIDE REMOVAL.

(a) IN GENERAL.—There is established an interagency working group for marine carbon dioxide removal under the subcommittee on Ocean Science and Technology of the National Science and Technology Council.

(b) MEMBERSHIP.—The interagency working group shall be composed of one or more representatives from each of the following:

(1) The Army Corps of Engineers.

(2) The National Oceanic and Atmospheric Administration.

(3) The National Institute of Standards and Technology.

(4) The Department of Energy (including at least one representative from the Office of Indian Energy).

(5) The Bureau of Ocean Energy Management.

(6) The Bureau of Safety and Environmental Enforcement.

(7) The United States Fish and Wildlife Service.

(8) The United States Geological Survey.

(9) The Bureau of Indian Affairs.

(10) The Department of State.

(11) The Environmental Protection Agency.

(12) The National Aeronautics and Space Administration.

(13) The National Science Foundation.

(14) The Smithsonian Institution.

(15) The Office of Naval Research.

(16) The Department of the Navy.

(17) The Coast Guard.

(18) The Department of Agriculture.

(19) The Council on Environmental Quality.

(20) The Office of Science and Technology Policy.

(c) CO-CHAIRS.—One or more representatives from the National Oceanic and Atmospheric Administration and one or more representatives from the Department of Energy shall serve as co-chairs of the interagency working group.

(d) MEETINGS.—The interagency working group shall meet not less frequently than once each year, at the call of the co-chairs.

(e) DUTIES.—The interagency working group shall—

(1) not later than 90 days after the date of the enactment of this Act, establish a plan to coordinate

Federal research on marine carbon dioxide removal in accordance with subsection (f);

(2) not later than 1 year after the date of the enactment of this Act—

(A) establish a code of conduct in accordance with subsection (g); and

(B) standardize the implementation of that code of conduct;

(3) coordinate efforts among Federal agencies to support compliance with existing law;

(4) support research and development of safe and effective marine carbon dioxide removal;

(5) coordinate Federal funding opportunities in a manner that avoids duplication of funding and research efforts and maximizes funding for marine carbon dioxide removal;

(6) as appropriate, provide recommendations to—

(A) support the transition from research to operations of safe and effective marine carbon dioxide removal; and

(B) integrate marine carbon dioxide removal into voluntary carbon markets;

(7) publish and submit the biennial report required by section 105;

(8) not later than 90 days after the date on which the interagency working group receives the inventory submitted under section 103(c), review the inventory and provide recommendations to the Secretary for the selection of research areas;

(9) ensure the public availability of and public access to the results of marine carbon dioxide removal research in accordance with subsection (h);

(10) take other actions, as the interagency working group considers necessary, to coordinate Federal support for safe and effective marine carbon dioxide removal; and

(11) consult with Indian Tribes and Native Hawaiian organizations.

(f) FEDERAL RESEARCH PLAN.—

(1) ADOPTION OF EXISTING PLANS.—In carrying out subsection (e)(1), the interagency working group may adopt one or more research plans prepared by agencies represented on the interagency working group or through other interagency efforts.

(2) UPDATES.—Not later than 5 years after the date on which the plan described in subsection (e)(1) is established, and every 5 years thereafter, the interagency working group shall update the plan.

(3) REQUIREMENTS.—The plan described in subsection (e)(1) shall—

(A) prioritize public engagement, consultation with Indian Tribes and Native Hawaiian organizations, and research on ecosystem impacts; and

(B) further the objectives and focal areas described in section 101(b).

(g) CODE OF CONDUCT.—

(1) IN GENERAL.—The interagency working group shall, after publication and an opportunity for public comment in the Federal Register, establish a code of conduct for research relating to marine carbon dioxide removal (in this subsection referred to as the ''code of conduct'').

(2) ADOPTION BY AGENCIES.—The agencies represented on the interagency working group shall adopt the code of conduct.

(3) APPLICABILITY.—Each grantee under this Act conducting activities in the field and each user of a research area designated or established under section 103 shall abide by the code of conduct.

(4) MINIMUM SUBSTANTIVE REQUIREMENTS.—The code of conduct shall, at minimum, require—

(A) open access to research data, findings, codes of conduct, mitigation plans, and scientific publications arising from the research;

(B) that open-water testing is preceded and informed by laboratory, mesocosm, and modeling research;

(C) public disclosure of funding sources;

(D) educational materials and community learning opportunities to increase awareness and literacy of proposed research activities, findings, risks, uncertainties, potential benefits, and the distribution of anticipated benefits and harms;

(E) opportunities for interested stakeholders to provide input on research design;

(F) where applicable, solicitation and incorporation of local and traditional knowledge, including traditional ecological knowledge, into research design and decisions;

(G) reasonable efforts to deconflict research with existing commercial and human uses;

(H) for each experiment, a mitigation plan that describes—

(i) potential ecosystem responses;

(ii) potential social outcomes, including to health and safety;

(iii) any measures taken to minimize harm; and

(iv) liability and guidelines for remediation of adverse impacts, including environmental degradation, resulting from research;

(I) compliance with all applicable domestic and international laws and policies; and

(J) other requirements or best practices, as the interagency working group determines necessary, to assess and communicate positive and negative social and environmental impacts and uncertainties.

(5) MINIMUM ENGAGEMENT REQUIREMENTS.—In fulfilling the requirements described in paragraph (4), grantees and users described in paragraph (3) shall maximize participation of and consultation with, at minimum—

(A) State and local governments and Indian Tribes near or adjacent to any part of the area in which field research relating to marine carbon dioxide removal is conducted;

(B) members of communities near or adjacent to the area, including relevant recreational and commercial users, academic institutions, Native American individuals, Indian Tribes, Tribal organizations, Native Hawaiian organizations, and nongovernmental organizations; and

(C) other stakeholders as the head of the Federal agency providing resources for the grantee or user considers necessary to ensure full and fair engagement with potentially impacted community members.

(6) UPDATES.—Not less frequently than once each year for the first 5 years following the date of the enactment of this Act, and once every 5 years thereafter, the interagency working group shall review, and, as appropriate update, the code of conduct to ensure that it remains timely and relevant.

(h) PUBLIC AVAILABILITY AND ACCESS.—

(1) IN GENERAL.—Subject to contracts protecting confidential proprietary data, the interagency working group may make research papers and other results generated under this Act available to the public at no-cost and with no restrictions on copy-

ing, publishing, distributing, citing, adapting, or otherwise using such papers or results.

(2) PORTAL.—Not later than 1 year after the date of the enactment of this Act, the interagency working group shall establish a new portal or designate an existing information portal to ensure, while protecting sensitive proprietary information, that data and information on marine carbon dioxide removal generated under this Act, or by other Federal programs and relevant stakeholders, is easily, digitally accessible, including information that would be useful to policymakers, researchers, and other stakeholders for advancing research or evaluating the utilization of marine carbon dioxide removal.

(3) TRIBAL CONTROL.—

(A) IN GENERAL.—Nothing in this section shall be construed to—

(i) require any Indian Tribe, Tribal organization, or Native Hawaiian organization to share or publish data; or

(ii) affect an Indian Tribe's authority to determine how its data is collected, used, stored, or shared.

(B) REQUIRED CONSENT.—Information submitted by, or obtained from, an Indian

Tribe, Tribal organization, or Native Hawaiian organization pursuant to this section, shall not be published without the consent of such Indian Tribe, Tribal organization, or Native Hawaiian organization.

(C) FREEDOM OF INFORMATION ACT.—Records, methodologies, or other information or data submitted by an Indian Tribe, Tribal organization, or Native Hawaiian organization, shall be exempt from disclosure under subsection (b)(3)(B) of section 552 of title 5, United States Code, unless otherwise waived or consented to by the Indian Tribe, Tribal organization, or Native Hawaiian organization.

(i) MEMORANDUM OF AGREEMENT.—Not later than 90 days after the date of the enactment of this Act, the members of the interagency working group shall enter into a memorandum of agreement to implement this Act.

SEC. 105. BIENNIAL REPORT ON MARINE CARBON DIOXIDE REMOVAL.

(a) IN GENERAL.—Not later than 2 years after the date of the enactment of this Act, and not less frequently than once every 2 years thereafter, the interagency working group shall—

(1) publish a report on marine carbon dioxide removal carried out pursuant to this Act, in accordance with subsection (c); and

(2) submit the report to the relevant congressional committees.

(b) ELEMENTS.—Each report required by subsection (a) shall include, for the period covered by the report, the following:

(1) A description of progress made toward the objectives described in section 101(b)(1), including—

(A) findings generated under subparagraph (A) of such section and the information on which those findings are based; and

(B) efforts and outcomes related to subparagraph (B) of such section.

(2) A summary of the activities conducted at all research areas designated or established under section 103, including—

(A) the number of entities and personnel using each research area for marine carbon dioxide removal; and

(B) the specific marine carbon dioxide removal approaches studied or demonstrated.

(3) A summary of key findings from data collection and monitoring, including—

(A) the amount of carbon dioxide removed from the ocean and the atmosphere, as measured on a life-cycle basis, by each removal technology;

(B) whether a particular removal technology results in net removals of greenhouse gasses from the atmosphere over its life cycle, and the duration of sequestration, as applicable;

(C) for removal technologies that rely on an energy source, the amount of energy consumed by the technology; and

(D) any other metrics the interagency working group considers necessary or advisable.

(4) A summary of research findings, knowledge gaps, and future research priorities.

(5) An assessment of the permitting regime regulating marine carbon dioxide removal that includes recommendations for improved efficiency or coordination, as applicable.

(6) An identification of barriers in resources, capacity, technology, infrastructure, or expertise to advancing the science and application of marine carbon dioxide removal.

(7) Strategic updates to the objectives described in section 101(b)(1).

(8) Any additional matters the interagency working group considers relevant.

(c) PUBLIC AVAILABILITY.—The interagency working group shall—

(1) publish each report required by subsection (a) on a publicly accessible website; and

(2) make each such report available to the public at no-cost and with no restrictions on copying, publishing, distributing, citing, adapting, or otherwise using the report.

SEC. 106. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Under Secretary of Commerce for Oceans and Atmosphere to carry out this title such sums as may be necessary for each of fiscal years 2027 through 2031.

TITLE II—MATTERS RELATING TO THE NATIONAL SCIENCE FOUNDATION

SEC. 201. RESEARCHING MARINE CARBON DIOXIDE REMOVAL.

(a) RESEARCH.—The Director of the National Science Foundation shall award grants to support the Federal research plan described in section 104, including research related to—

(1) the efficacy of marine carbon dioxide removal, including measurability, magnitude of greenhouse gas removal, durability, and additionally;

(2) ecosystem responses to and social and cultural dimensions of marine carbon dioxide removal;

(3) tools and technologies to support understanding and measurement of the efficacy and environmental impacts of marine carbon dioxide removal, including traditional ecological knowledge; and

(4) other relevant research areas, as determined by the Director of the National Science Foundation.

(b) COORDINATION.—In carrying out subsection (a), the Director of the National Science Foundation shall coordinate with the heads of appropriate Federal agencies, including the Secretary.

(c) SCIENCE WORKFORCE DEVELOPMENT.—The Director of the National Science Foundation shall leverage, as appropriate, the existing scientific training, workforce development programs, and networks of the National Science Foundation to build and expand scientific capacity and expertise related to marine carbon dioxide removal.

TITLE III—MATTERS RELATING TO THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

SEC. 301. MEASURING MARINE CARBON DIOXIDE REMOVAL FROM SPACE.

(a) MARINE CARBON DIOXIDE REMOVAL ACTIVITIES.—To the extent practicable, the Administrator of the National Aeronautics and Space Administration (referred to in this section as the ''Administrator'') shall ensure that the capabilities and assets of the National Aeronautics and Space Administration are used to advance understanding of the efficacy and impacts of marine carbon dioxide removal and to support the Federal research plan described in section 104, including by—

(1) leveraging the research portfolio of the National Aeronautics and Space Administration;

(2) enhancing the monitoring and modeling programs of the National Aeronautics and Space Administration to incorporate relevant data for marine carbon dioxide removal;

(3) leveraging and aligning the Mission Directorates of the National Aeronautics and Space Administration; and

(4) carrying out any other relevant activity, as determined by the Administrator.

(b) COORDINATION AND PROGRAM CONSISTENCY.—In carrying out the activities described in subsection (a), the Administrator shall coordinate with the head of any appropriate Federal agency, including the Under Secretary of Commerce for Oceans and Atmosphere, to ensure that the research activities of the National Aeronautics and Space Administration are carried out in cooperation with the efforts of such agency.

(c) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Administrator to carry out this section such sums as may be necessary for each of fiscal years 2027 through 2031.

TITLE IV—MATTERS RELATING TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

SEC. 401. VALIDATING MARINE CARBON DIOXIDE REMOVAL.

(a) MARINE CARBON DIOXIDE REMOVAL INITIATIVE.—The Under Secretary of Commerce for Standards and Technology shall carry out an initiative to develop and standardize benchmark materials, measurements, data, and models to accelerate innovation in and validate per-

formance of materials and technologies for marine carbon dioxide removal.

(b) COORDINATION.—In carrying out the activities described in subsection (a), the Under Secretary of Commerce for Standards and Technology shall coordinate with the heads of such Federal agencies as the Under Secretary considers appropriate, including the Under Secretary of Commerce for Oceans and Atmosphere.

(c) INTERNATIONAL ENGAGEMENT.—The Under Secretary of Commerce for Standards and Technology, in coordination with the Secretary of State, shall engage international bodies to promote global adoption of the standards referred to in subsection (a).

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Under Secretary of Commerce for Standards and Technology to carry out this section such sums as may be necessary for each of fiscal years 2027 through 2031.

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