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(Original Signature of Member)

119TH CONGRESS  
2D SESSION

**H. R.** \_\_\_\_\_

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

\_\_\_\_\_  
IN THE HOUSE OF REPRESENTATIVES

Ms. BONAMICI introduced the following bill; which was referred to the  
Committee on \_\_\_\_\_

\_\_\_\_\_  
**A BILL**

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

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the  
5 “Removing and Sequestering Carbon Unleashed in the  
6 Environment and Oceans Act” or the “ReSCUE Oceans  
7 Act”.

8 (b) TABLE OF CONTENTS.—The table of contents for  
9 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.

1 **SEC. 2. DEFINITIONS.**

2 In this Act:

3 (1) CARBON REMOVAL CREDIT.—The term  
4 “carbon removal credit” means 1 metric tonne of  
5 carbon dioxide or equivalent (tCO<sub>e</sub>) that—

6 (A) is removed through marine carbon di-  
7 oxide removal and durably stored;

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

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

1           (2) COASTAL WATERS.—The term “coastal  
2           waters” has the meaning given the term in section  
3           304 of the Coastal Zone Management Act of 1972  
4           (16 U.S.C. 1453).

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

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

13          (5) INDIAN.—The term “Indian” has the mean-  
14          ing given the term in section 4 of the Indian Self-  
15          Determination and Education Assistance Act (25  
16          U.S.C. 5304).

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

21          (7) INDIAN TRIBAL GOVERNMENT.—The term  
22          “Indian Tribal government” means the recognized  
23          governing body of any Indian Tribe or Alaska Native  
24          tribe, band, nation, pueblo, village, community, com-  
25          ponent band, or component reservation, individually

1 identified (including parenthetically) in the list pub-  
2 lished most recently as of the date of the enactment  
3 of this Act pursuant to section 104 of the Federally  
4 Recognized Indian Tribe List Act of 1994 (25  
5 U.S.C. 5131).

6 (8) INTERAGENCY WORKING GROUP.—The term  
7 “interagency working group” means the interagency  
8 working group established under section 104.

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

13 (10) MARINE CARBON DIOXIDE REMOVAL.—The  
14 term “marine carbon dioxide removal” means an in-  
15 tentional intervention in the marine environment  
16 that results in the net removal of carbon dioxide  
17 from the atmosphere as measured on a life-cycle  
18 basis, taking into account all greenhouse gasses  
19 measured in carbon dioxide equivalents.

20 (11) NATIONAL SEA GRANT COLLEGE PRO-  
21 GRAM.—The term “national sea grant college pro-  
22 gram” means the program maintained under section  
23 204(a) of the National Sea Grant College Program  
24 Act (33 U.S.C. 1123(a)).

1           (12) NATIVE AMERICAN.—The term “Native  
2 American” means—

3                   (A) an Indian; or

4                   (B) a Native Hawaiian.

5           (13) NATIVE HAWAIIAN.—The term “Native  
6 Hawaiian” has the meaning given the term in sec-  
7 tion 6207 of the Elementary and Secondary Edu-  
8 cation Act of 1965 (20 U.S.C. 7517).

9           (14) NATIVE HAWAIIAN ORGANIZATION.—The  
10 term “Native Hawaiian organization”—

11                   (A) has the meaning given the term in sec-  
12 tion 6207 of the Elementary and Secondary  
13 Education Act of 1965 (20 U.S.C. 7517); and

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

16           (15) PROGRAM.—The term “Program” means  
17 the program established and maintained under sec-  
18 tion 101.

19           (16) PROTOCOL.—The term “protocol” means a  
20 systematic approach for generating a carbon removal  
21 credit that follows a transparent and thorough  
22 science-based methodology—

23                   (A) for the development of projects to re-  
24 move greenhouse gas emissions or sequester  
25 carbon; and

1 (B) for demonstrating how to measure,  
2 monitor, report, and verify the removal of  
3 greenhouse gas emissions or carbon sequestra-  
4 tion by projects described in subparagraph (A).

5 (17) REGIONAL OCEAN PARTNERSHIP.—The  
6 term “Regional Ocean Partnership” means a Re-  
7 gional Ocean Partnership designated under section  
8 10102(b)(3) of the James M. Inhofe National De-  
9 fense Authorization Act for Fiscal Year 2023 (16  
10 U.S.C. 1468(b)(3)).

11 (18) RELEVANT CONGRESSIONAL COMMIT-  
12 TEES.—The term “relevant congressional commit-  
13 tees” means—

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

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

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

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

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

24 (19) SECRETARY.—The term “Secretary”  
25 means the Secretary of Commerce.

1           (20) STANDARD.—The term “standard” means  
2           a broad principle or set of criteria established to en-  
3           sure the credibility and integrity of a carbon removal  
4           credit or marine carbon dioxide removal by providing  
5           guidance on measurement, monitoring, reporting,  
6           and verification of greenhouse gas removals.

7           (21) STATE.—The term “State” means any of  
8           the several States of the United States, the District  
9           of Columbia, the Commonwealth of Puerto Rico, the  
10          United States Virgin Islands, American Samoa,  
11          Guam, and the Commonwealth of the Northern Mar-  
12          iana Islands.

13          (22) TERRITORIAL SEAS.—The term “terri-  
14          torial seas” has the meaning given the term in sec-  
15          tion 502 of the Federal Water Pollution Control Act  
16          (33 U.S.C. 1362).

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

21          (24) TRIBAL ORGANIZATION.—The term “Trib-  
22          al organization” has the meaning given the term in  
23          section 4 of the Indian Self-Determination and Edu-  
24          cation Assistance Act (25 U.S.C. 5304).

1           (25) VOLUNTARY CARBON MARKET .—The term  
2           “voluntary carbon market” means a voluntary mar-  
3           ket through which carbon removal credits may be  
4           bought or sold.

5 **SEC. 3. PURPOSES.**

6           The purposes of this Act are—

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

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

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

14          (4) to support meaningful engagement with af-  
15          fected coastal communities and engagement and con-  
16          sultation, as appropriate, with Indian Tribes, Tribal  
17          organizations, and Native Hawaiian organizations,  
18          regarding marine carbon dioxide removal research,  
19          monitoring, and demonstration activities.

20 **SEC. 4. RULE OF CONSTRUCTION.**

21          Nothing in this Act shall be construed in derogation  
22          of applicable law regulating or restricting the use of the  
23          contiguous zone, the territorial seas, the exclusive eco-  
24          nomic zone of the United States, or coastal waters other  
25          than internal waters.

1 **SEC. 5. RESEARCH SECURITY.**

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

6 **TITLE I—MATTERS RELATING**  
7 **TO THE NATIONAL OCEANIC**  
8 **AND ATMOSPHERIC ADMINIS-**  
9 **TRATION**

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

12 (a) IN GENERAL.—The Secretary, through the Na-  
13 tional Oceanic and Atmospheric Administration and in  
14 consultation with the interagency working group, shall es-  
15 tablish, not later than 90 days after the date of the enact-  
16 ment of this Act, and maintain a Program to support and  
17 conduct activities to advance science and integrate tradi-  
18 tional ecological knowledge (to the maximum extent prac-  
19 ticable), and understanding of marine carbon dioxide re-  
20 moval consistent with the objectives and focal areas de-  
21 scribed in subsection (b).

22 (b) OBJECTIVES AND FOCAL AREAS.—

23 (1) OBJECTIVES.—In carrying out the Pro-  
24 gram, the Secretary shall seek to—

25 (A) generate, through research, develop-  
26 ment, and field trials, the necessary knowledge,

1 theoretical basis, and empirical evidence to  
2 evaluate—

3 (i) the efficacy of marine carbon diox-  
4 ide removal, including measurability, dura-  
5 bility, magnitude, and additionality;

6 (ii) environmental and ecosystem re-  
7 sponses to marine carbon dioxide removal;  
8 and

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

13 (B) apply the knowledge described in sub-  
14 paragraph (A) to—

15 (i) develop best practices for how ma-  
16 rine carbon dioxide removal efficacy is  
17 measured, monitored, reported, and  
18 verified;

19 (ii) establish a methodology for defin-  
20 ing actionable thresholds of environmental  
21 and ecosystem impacts for the utilization  
22 of marine carbon dioxide removal tech-  
23 nologies;

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

1 could be safe and effective for larger-scale  
2 utilization for climate mitigation, consid-  
3 ering potential positive and negative cli-  
4 mate, environmental, and social outcomes;

5 (iv) evaluate the sustainability of ma-  
6 rine carbon dioxide removal approaches, in-  
7 cluding resource requirements, life-cycle ef-  
8 ficiency, and carbon storage capability suf-  
9 ficient to demonstrate net carbon removal  
10 on a carbon dioxide equivalent basis,  
11 scalability, and potential for cost reduc-  
12 tions;

13 (v) analyze viable commercialization  
14 pathways and requisite enabling conditions  
15 for safe and effective marine carbon diox-  
16 ide removal; and

17 (vi) as necessary or appropriate, sup-  
18 port the implementation of this Act.

19 (2) FOCAL AREAS.—In carrying out the Pro-  
20 gram, the Secretary shall support and conduct ac-  
21 tivities to advance the science and understanding  
22 of—

23 (A) ocean alkalinity enhancement;

24 (B) electrochemical engineering ap-  
25 proaches;

- 1 (C) macroalgae cultivation;
- 2 (D) nutrient fertilization;
- 3 (E) artificial upwelling and downwelling;
- 4 (F) carbon storage properties of both nat-
- 5 ural and manipulated coastal and estuarine eco-
- 6 systems for the purposes of ecologically-based
- 7 marine carbon dioxide removal; and
- 8 (G) other marine carbon dioxide removal
- 9 approaches as the Secretary considers appro-
- 10 priate.

11 (c) GRANTS.—

12 (1) IN GENERAL.—In carrying out the Pro-

13 gram, the Secretary shall award grants, on a com-

14 petitive basis, to fund research in accordance with

15 the objectives described in subsection (b)(1) and the

16 Federal research plan described in section 104.

17 (2) CODE OF CONDUCT.—The Secretary shall

18 require grantees under this subsection conducting

19 activities in the field to abide by the code of conduct

20 established under section 104.

21 (3) FUNDING FOR ENGAGEMENT AND CON-

22 SULTATION.—The Secretary shall award not less

23 than \$10,000 in grant funding to support engage-

24 ment and consultation activities, including—

1 (A) consultation or engagement, as appro-  
2 priate, with Indian Tribes and Native Hawaiian  
3 organizations; and

4 (B) engagement with affected coastal com-  
5 munities.

6 (d) ADDITIONAL AUTHORITY.—The Secretary may  
7 enter into contracts, public-private partnerships, coopera-  
8 tive agreements, or other financial agreements in further-  
9 ance of this Act.

10 (e) DATA MANAGEMENT.—

11 (1) STRATEGIES.—The Secretary, in coopera-  
12 tion with such partners as the Secretary considers  
13 relevant, including Indian Tribes and Native Hawai-  
14 ian organizations, shall develop and implement data  
15 management strategies to ensure all non-proprietary  
16 data collected pursuant to this Act are—

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

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

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

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

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

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

7 (B) preserve and curate such data in ac-  
8 cordance with chapter 31 of title 44, United  
9 States Code (commonly known as the “Federal  
10 Records Act of 1950”), in order to maximize  
11 use of such data.

12 (3) TRIBAL CONTROL.—

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

15 (i) require any Indian Tribe, Tribal  
16 organization, or Native Hawaiian organiza-  
17 tion to share or publish data; or

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

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

1 Tribe, Tribal organization, or Native Hawaiian  
2 organization.

3 (C) FREEDOM OF INFORMATION ACT.—  
4 Records, methodologies, or other information or  
5 data submitted by an Indian Tribe, Tribal orga-  
6 nization, or Native Hawaiian organization, shall  
7 be exempt from disclosure under subsection  
8 (b)(3)(B) of section 552 of title 5, United  
9 States Code, unless otherwise waived or con-  
10 sented to by the Indian Tribe, Tribal organiza-  
11 tion, or Native Hawaiian organization.

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

15 **SEC. 102. MONITORING OF MARINE CARBON DIOXIDE RE-**  
16 **MOVAL.**

17 (a) IN GENERAL.—For field activities conducted as  
18 part of the Program, the Secretary shall, to the maximum  
19 extent practicable, provide or otherwise develop the instru-  
20 mentation, infrastructure, and personnel for efficient and  
21 rigorous monitoring to—

22 (1) understand and minimize negative eco-  
23 system, community, cultural, and economic impacts  
24 related to marine carbon dioxide removal, including  
25 impacts to Native American communities; and

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

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

5           (1) use monitoring assets to achieve the objec-  
6           tives described in section 101(b)(1);

7           (2) support compliance with applicable environ-  
8           mental law;

9           (3) support rigorous, science-based approaches  
10          for the research, development, and trialing of tech-  
11          nologies for marine carbon dioxide removal;

12          (4) incorporate traditional ecological knowledge;

13          (5) develop and improve technologies for moni-  
14          toring, modeling, analyzing, remediating, or miti-  
15          gating impacts from marine carbon dioxide removal;

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

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

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

1 (B) the duration of carbon sequestration  
2 and risk of reversal of sequestration, as applica-  
3 ble;

4 (C) the total energetic requirements of all  
5 processes and activities associated with the cap-  
6 ture and storage of carbon dioxide and associ-  
7 ated carbon dioxide release; and

8 (D) other metrics the Secretary considers  
9 necessary or advisable, including those devel-  
10 oped through consultation with Indian Tribes  
11 and Native Hawaiian organizations.

12 (e) TECHNICAL ASSISTANCE.—To support the devel-  
13 opment of reliable, fair, and efficient voluntary carbon  
14 markets and best practices, the Secretary, in consultation  
15 with the Secretary of the Treasury and the Secretary of  
16 Energy, may provide technical assistance to promote con-  
17 sistency, reliability, effectiveness, efficiency, and trans-  
18 parency, including through protocol documents and details  
19 relating to—

- 20 (1) calculations;
- 21 (2) sampling methodologies;
- 22 (3) accounting principles;
- 23 (4) systems for measurement, monitoring, re-  
24 porting, and verification; and

1           (5) methods to account for additionality, dura-  
2           bility and duration of carbon storage, leakage, and,  
3           as appropriate, avoidance of double counting.

4           (d) PUBLIC-PRIVATE-ACADEMIC PARTNERSHIPS.—

5           The Secretary may examine and develop models for public-  
6           private-academic partnerships to efficiently monitor ma-  
7           rine carbon dioxide removal, including with respect to—

8                 (1) data sharing and standardization;

9                 (2) cost sharing;

10                (3) in-kind contributions; and

11                (4) contracts and grants for third-party moni-  
12           toring activities.

13           (e) CONTRACTS.—In carrying out this section, the

14           Secretary may enter into contracts the Secretary considers

15           necessary or advisable.

16           (f) UNLIMITED RIGHT DATA.—

17                (1) IN GENERAL.—Subject to contracts pro-  
18           tecting confidential proprietary data, the Secretary  
19           shall make monitoring data collected, and protocols  
20           created, under this section available to the public at  
21           no-cost and with no restrictions on copying, pub-  
22           lishing, distributing, citing, adapting, or otherwise  
23           using such data or protocols.

24                (2) LIMITATION.—

1 (A) IN GENERAL.—The Secretary may  
2 enter into cooperative research and development  
3 agreements that restrict data sharing and en-  
4 sure protection of intellectual property for such  
5 users of research areas designated or estab-  
6 lished under section 103 as the Secretary con-  
7 siders appropriate.

8 (B) REQUIRED PERMISSION TO SHARE.—  
9 The Secretary may not share or otherwise dis-  
10 close the monitoring data of any Indian Tribe,  
11 Tribal organization, or Native Hawaiian organi-  
12 zation without the express permission of the In-  
13 dian Tribe, Tribal organization or Native Ha-  
14 waiian organization.

15 **SEC. 103. RESEARCH AREAS FOR MARINE CARBON DIOXIDE**  
16 **REMOVAL.**

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

19 (1) designate Federally administered, funded,  
20 or supported oceanic, coastal, estuarine, riverine, or  
21 terrestrial areas, including Tribal lands, with the  
22 consent of the Indian Tribe, for research related to  
23 one or more marine carbon dioxide removal ap-  
24 proaches; or

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

3           (b) PURPOSE.—The purpose of the research areas  
4           designated or established under this section shall be to en-  
5           able—

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

9                   (A) bench-scale, mesocosm, and wet lab ex-  
10                  periments; and

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

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

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

17           (4) sensing networks that can reliably return  
18           accurate observations across a wide field of variables  
19           in support of the monitoring goals set forth in sec-  
20           tion 102(b);

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

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

3           (A) marine carbon dioxide removal tech-  
4 nologies; or

5           (B) technologies to measure, monitor, re-  
6 port, or verify approaches; and

7           (7) long-term community engagement and par-  
8 ticipation in marine carbon dioxide removal activi-  
9 ties.

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

12           (1) conduct an inventory of existing Federal fa-  
13 cilities and oceanic, coastal, estuarine, riverine, or  
14 terrestrial areas that may be suitable for designation  
15 as Federally administered research areas under this  
16 section;

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

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

22           (4) use such public comments to inform the se-  
23 lection of research areas.

24       (d) GRANTS.—

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

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

11           (B) A State or local government or an In-  
12 dian Tribal government.

13           (C) An Indian Tribe.

14           (D) A Tribal organization or a Native Ha-  
15 waiian organization.

16           (E) A consortium of entities, including—

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

20           (ii) a consortium of private or public  
21 entities that have demonstrated the capac-  
22 ity to conduct the research described in  
23 this section, including a National Labora-  
24 tory (as defined in section 2 of the Energy  
25 Policy Act of 2005 (42 U.S.C. 15801)).

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

6           (3) PRIVATE SECTOR INVESTMENT.—In award-  
7           ing grants under this section, the Secretary shall  
8           seek to leverage private sector investment, to the ex-  
9           tent possible.

10          (e) SUITABILITY ASSESSMENT.—

11           (1) IN GENERAL.—The Secretary shall assess  
12           the suitability of each research area under consider-  
13           ation for designation or establishment under this  
14           section.

15           (2) DATA; TOOLS; CONSIDERATIONS.—In car-  
16           rying out paragraph (1), the Secretary—

17                   (A) shall use relevant scientific, social, tra-  
18                   ditional ecological knowledge, and economic  
19                   data, including baseline environmental data and  
20                   any assessments of baseline environmental data;  
21                   and

22                   (B) may—

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

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

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

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

9                   (i) proximity and access to geologic  
10                  storage formations;

11                  (ii) impacts to coastal and marine eco-  
12                  systems, biodiversity, protected species,  
13                  and the habitat of such species;

14                  (iii) proximity and impacts to existing  
15                  protected areas, such as marine monu-  
16                  ments and sanctuaries, and Tribal and Na-  
17                  tive Hawaiian cultural sites; and

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

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

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

1 (ii) availability of existing sensor net-  
2 works, technology, infrastructure, and  
3 land-based facilities;

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

8 (iv) potential socioeconomic,  
9 socio-cultural, and direct and indirect im-  
10 pacts (including access to subsistence and  
11 traditional resources) on affected coastal  
12 communities, including Indians, Native  
13 Hawaiians, Indian Tribes, and Native Ha-  
14 waiian organizations.

15 (C) Potential downstream impacts beyond  
16 the research area.

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

19 (i) States, Indian Tribes, and Native  
20 Hawaiian organizations that are in reason-  
21 able proximity to the research area; or

22 (ii) the interagency working group.

23 (f) TERMS AND CONDITIONS.—

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

1       ject to subsection (i), the Secretary shall develop  
2       terms and conditions by which all users of the re-  
3       search area shall abide.

4               (2) ELEMENTS.—At a minimum, the terms and  
5       conditions developed under this subsection shall in-  
6       clude—

7                       (A) a requirement for any user of the re-  
8       search area to abide by the code of conduct es-  
9       tablished under section 104;

10                      (B) stewardship, management, and con-  
11       servation measures that incorporate local  
12       knowledge, including traditional ecological  
13       knowledge, to the greatest extent practicable;

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

16                               (i) mitigate risks and conflicts regard-  
17       ing local ecological conditions, biological  
18       sensitivities, protected resources (including  
19       cultural resources), and commercial and  
20       human uses;

21                               (ii) monitor ecosystem responses with-  
22       in, and in reasonable proximity to, the re-  
23       search area;

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

4 (iv) following the expiration of a re-  
5 search area, remove—

6 (I) the user's fixtures, fur-  
7 nishings, equipment; and

8 (II) any improvements made to  
9 the research area;

10 (D) clear, objective thresholds of environ-  
11 mental harm that require the immediate ces-  
12 sation of a user's activities at the research area;

13 (E) the user's consent for—

14 (i) remote monitoring of the user's ac-  
15 tivities and the impacts of those activities  
16 on the environment; and

17 (ii) regular and unannounced inspec-  
18 tions of the user's activities by the advisory  
19 board for the research area appointed  
20 under subsection (j);

21 (F) a requirement that the user will com-  
22 ply with all applicable law and policies; and

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

1 (g) DURATION.—

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

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

7 (A) REASSESSMENT.—Not less frequently  
8 than once every 5 years, the Secretary shall re-  
9 assess each research area administered by a  
10 Federal agency to ensure that the research area  
11 advances the purpose set forth in subsection  
12 (b), the research area is suitable under sub-  
13 section (e), and users of the research area are  
14 in compliance with applicable terms and condi-  
15 tions developed under subsection (f).

16 (B) TERMINATION OF ACTIVITIES.—If,  
17 pursuant to a reassessment carried out with re-  
18 spect to a research area under subparagraph  
19 (A), the Secretary finds that the research area  
20 does not advance the purpose set forth in sub-  
21 section (b), the research area is not suitable  
22 under subsection (e), or users of the research  
23 area are noncompliant with applicable terms  
24 and conditions developed under subsection (f),

1 the Federal agency administering the research  
2 area shall—

3 (i) terminate activities at the research  
4 area; and

5 (ii)(I) close down operations at the re-  
6 search area pursuant to applicable terms  
7 and conditions; or

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

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

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

16 (B) REASSESSMENT.—Before the conclu-  
17 sion of an initial period for a research area de-  
18 scribed in subparagraph (A), the Secretary shall  
19 reassess the research area to ensure that the re-  
20 search area advances the purpose set forth in  
21 subsection (b), the research area is suitable  
22 under subsection (e), and users of the research  
23 are in compliance with applicable terms and  
24 conditions developed under subsection (f).

1           (C) ADDITIONAL PERIOD.—If, pursuant to  
2           a reassessment carried out with respect to a re-  
3           search area under subparagraph (B), the Sec-  
4           retary finds that the research area advances the  
5           purpose set forth in subsection (b), the research  
6           area is suitable under subsection (e), and users  
7           of the research area are in compliance with ap-  
8           plicable terms and conditions developed under  
9           subsection (f), the Secretary may authorize the  
10          eligible entity administering the research area  
11          to carry out activities at the research area for  
12          a single, additional period of 5 years.

13          (D) TERMINATION OF ACTIVITIES.—If,  
14          pursuant to a reassessment carried out with re-  
15          spect to a research area under subparagraph  
16          (B), the Secretary finds that the research area  
17          does not advance the purpose set forth in sub-  
18          section (b), the research area is not suitable  
19          under subsection (e), or users of the research  
20          area are noncompliant with applicable terms  
21          and conditions developed under subsection (f),  
22          the eligible entity administering the research  
23          area shall—

24                           (i) terminate activities at the research  
25                           area; and

1 (ii)(I) close down operations at the re-  
2 search area pursuant to applicable terms  
3 and conditions; or

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

6 (E) REESTABLISHMENT.—In order to  
7 allow for continuity of operations, not later  
8 than 1 year prior to the conclusion of an addi-  
9 tional 5-year period for a research area author-  
10 ized under subparagraph (C), the eligible entity  
11 administering the research area may reapply for  
12 the establishment of the research area under  
13 this section.

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

19 (1) community benefit agreements;

20 (2) workforce development opportunities;

21 (3) mitigation measures;

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

24 (5) other socioeconomic or educational benefit  
25 schemes.

1 (i) ENGAGEMENT OR CONSULTATION; PARTNER-  
2 SHIPS.—In carrying out subsections (f) and (h), the Sec-  
3 retary—

4 (1) shall engage or consult, as appropriate, re-  
5 garding the terms and conditions and community  
6 benefits described in such subsections with—

7 (A) State and local governments and In-  
8 dian Tribes near or adjacent to the research  
9 area;

10 (B) members of communities near or adja-  
11 cent to the research area, including relevant  
12 recreational and commercial users, academic in-  
13 stitutions, Native American individuals, Indian  
14 Tribes, Tribal organizations, Native Hawaiian  
15 organizations, and nongovernmental organiza-  
16 tions; and

17 (C) other stakeholders as the Secretary  
18 considers necessary to ensure full and fair en-  
19 gagement with potentially impacted community  
20 members; and

21 (2) may leverage existing partnerships and as-  
22 sets to support meaningful public participation, in-  
23 cluding—

24 (A) the national sea grant college program;

25 (B) Regional Ocean Partnerships; and

1 (C) the Regional Collaboration Network.

2 (j) ADVISORY BOARDS.—

3 (1) IN GENERAL.—Except as provided in para-  
4 graph (3), the Secretary shall appoint an advisory  
5 board to support oversight of each research area  
6 designated or established under this section, con-  
7 sisting of—

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

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

14 (C) one or more members from each com-  
15 munity adjacent to the research area;

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

18 (E) additional members as the Secretary  
19 considers appropriate.

20 (2) DUTIES.—

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

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

1           advisable, inspections of activities at the  
2           research area;

3                   (ii) meet regularly with the Secretary  
4           to provide advice and guidance for the  
5           management, conservation, and steward-  
6           ship of the research area;

7                   (iii) provide advice and recommenda-  
8           tions to the Secretary on whether a pro-  
9           posed use or user of the research area  
10          should be allowed; and

11                   (iv) take other actions to support the  
12          safe, effective, orderly, and lawful oper-  
13          ation of the research area at the discretion  
14          of the Secretary.

15                   (B) ADDITIONAL DUTIES.—Upon the re-  
16          quest of a board appointed under this sub-  
17          section, the Secretary may assign additional du-  
18          ties to the board as the Secretary considers ap-  
19          propriate.

20                   (3) SPECIAL RULE FOR REGIONAL OCEAN PART-  
21          NERSHIPS.—At the discretion of the Secretary or  
22          upon the request of a State or local government or  
23          Indian Tribal government, the Secretary may re-  
24          quest that the Regional Ocean Partnership in which  
25          the research area is located carry out the duties de-

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

3 **SEC. 104. INTERAGENCY WORKING GROUP FOR MARINE**  
4 **CARBON DIOXIDE REMOVAL.**

5 (a) IN GENERAL.—There is established an inter-  
6 agency working group for marine carbon dioxide removal  
7 under the subcommittee on Ocean Science and Technology  
8 of the National Science and Technology Council.

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

12 (1) The Army Corps of Engineers.

13 (2) The National Oceanic and Atmospheric Ad-  
14 ministration.

15 (3) The National Institute of Standards and  
16 Technology.

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

20 (5) The Bureau of Ocean Energy Management.

21 (6) The Bureau of Safety and Environmental  
22 Enforcement.

23 (7) The United States Fish and Wildlife Serv-  
24 ice.

25 (8) The United States Geological Survey.

1 (9) The Bureau of Indian Affairs.

2 (10) The Department of State.

3 (11) The Environmental Protection Agency.

4 (12) The National Aeronautics and Space Ad-  
5 ministration.

6 (13) The National Science Foundation.

7 (14) The Smithsonian Institution.

8 (15) The Office of Naval Research.

9 (16) The Department of the Navy.

10 (17) The Coast Guard.

11 (18) The Department of Agriculture.

12 (19) The Council on Environmental Quality.

13 (20) The Office of Science and Technology Pol-  
14 icy.

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

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

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

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

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

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

5 (A) establish a code of conduct in accord-  
6 ance with subsection (g); and

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

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

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

13 (5) coordinate Federal funding opportunities in  
14 a manner that avoids duplication of funding and re-  
15 search efforts and maximizes funding for marine  
16 carbon dioxide removal;

17 (6) as appropriate, provide recommendations  
18 to—

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

22 (B) integrate marine carbon dioxide re-  
23 moval into voluntary carbon markets;

24 (7) publish and submit the biennial report re-  
25 quired by section 105;

1           (8) not later than 90 days after the date on  
2           which the interagency working group receives the in-  
3           ventory submitted under section 103(c), review the  
4           inventory and provide recommendations to the Sec-  
5           retary for the selection of research areas;

6           (9) ensure the public availability of and public  
7           access to the results of marine carbon dioxide re-  
8           moval research in accordance with subsection (h);

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

13          (11) consult with Indian Tribes and Native Ha-  
14          waiian organizations.

15          (f) FEDERAL RESEARCH PLAN.—

16           (1) ADOPTION OF EXISTING PLANS.—In car-  
17           rying out subsection (e)(1), the interagency working  
18           group may adopt one or more research plans pre-  
19           pared by agencies represented on the interagency  
20           working group or through other interagency efforts.

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

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

3           (A) prioritize public engagement, consulta-  
4 tion with Indian Tribes and Native Hawaiian  
5 organizations, and research on ecosystem im-  
6 pacts; and

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

9 (g) CODE OF CONDUCT.—

10          (1) IN GENERAL.—The interagency working  
11 group shall, after publication and an opportunity for  
12 public comment in the Federal Register, establish a  
13 code of conduct for research relating to marine car-  
14 bon dioxide removal (in this subsection referred to  
15 as the “code of conduct”).

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

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

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

1 (A) open access to research data, findings,  
2 codes of conduct, mitigation plans, and sci-  
3 entific publications arising from the research;

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

7 (C) public disclosure of funding sources;

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

14 (E) opportunities for interested stake-  
15 holders to provide input on research design;

16 (F) where applicable, solicitation and in-  
17 corporation of local and traditional knowledge,  
18 including traditional ecological knowledge, into  
19 research design and decisions;

20 (G) reasonable efforts to deconflict re-  
21 search with existing commercial and human  
22 uses;

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

25 (i) potential ecosystem responses;

1 (ii) potential social outcomes, includ-  
2 ing to health and safety;

3 (iii) any measures taken to minimize  
4 harm; and

5 (iv) liability and guidelines for remedi-  
6 ation of adverse impacts, including envi-  
7 ronmental degradation, resulting from re-  
8 search;

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

11 (J) other requirements or best practices, as  
12 the interagency working group determines nec-  
13 essary, to assess and communicate positive and  
14 negative social and environmental impacts and  
15 uncertainties.

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

21 (A) State and local governments and In-  
22 dian Tribes near or adjacent to any part of the  
23 area in which field research relating to marine  
24 carbon dioxide removal is conducted;

1 (B) members of communities near or adja-  
2 cent to the area, including relevant recreational  
3 and commercial users, academic institutions,  
4 Native American individuals, Indian Tribes,  
5 Tribal organizations, Native Hawaiian organi-  
6 zations, and nongovernmental organizations;  
7 and

8 (C) other stakeholders as the head of the  
9 Federal agency providing resources for the  
10 grantee or user considers necessary to ensure  
11 full and fair engagement with potentially im-  
12 pacted community members.

13 (6) UPDATES.—Not less frequently than once  
14 each year for the first 5 years following the date of  
15 the enactment of this Act, and once every 5 years  
16 thereafter, the interagency working group shall re-  
17 view, and, as appropriate update, the code of con-  
18 duct to ensure that it remains timely and relevant.

19 (h) PUBLIC AVAILABILITY AND ACCESS.—

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

1 ing, publishing, distributing, citing, adapting, or oth-  
2 erwise using such papers or results.

3 (2) PORTAL.—Not later than 1 year after the  
4 date of the enactment of this Act, the interagency  
5 working group shall establish a new portal or des-  
6 ignate an existing information portal to ensure,  
7 while protecting sensitive proprietary information,  
8 that data and information on marine carbon dioxide  
9 removal generated under this Act, or by other Fed-  
10 eral programs and relevant stakeholders, is easily,  
11 digitally accessible, including information that would  
12 be useful to policymakers, researchers, and other  
13 stakeholders for advancing research or evaluating  
14 the utilization of marine carbon dioxide removal.

15 (3) TRIBAL CONTROL.—

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

18 (i) require any Indian Tribe, Tribal  
19 organization, or Native Hawaiian organiza-  
20 tion to share or publish data; or

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

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

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

6 (C) FREEDOM OF INFORMATION ACT.—  
7 Records, methodologies, or other information or  
8 data submitted by an Indian Tribe, Tribal orga-  
9 nization, or Native Hawaiian organization, shall  
10 be exempt from disclosure under subsection  
11 (b)(3)(B) of section 552 of title 5, United  
12 States Code, unless otherwise waived or con-  
13 sented to by the Indian Tribe, Tribal organiza-  
14 tion, or Native Hawaiian organization.

15 (i) MEMORANDUM OF AGREEMENT.—Not later than  
16 90 days after the date of the enactment of this Act, the  
17 members of the interagency working group shall enter into  
18 a memorandum of agreement to implement this Act.

19 **SEC. 105. BIENNIAL REPORT ON MARINE CARBON DIOXIDE**  
20 **REMOVAL.**

21 (a) IN GENERAL.—Not later than 2 years after the  
22 date of the enactment of this Act, and not less frequently  
23 than once every 2 years thereafter, the interagency work-  
24 ing group shall—

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

4 (2) submit the report to the relevant congress-  
5 sional committees.

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

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

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

14 (B) efforts and outcomes related to sub-  
15 paragraph (B) of such section.

16 (2) A summary of the activities conducted at all  
17 research areas designated or established under sec-  
18 tion 103, including—

19 (A) the number of entities and personnel  
20 using each research area for marine carbon di-  
21 oxide removal; and

22 (B) the specific marine carbon dioxide re-  
23 moval approaches studied or demonstrated.

24 (3) A summary of key findings from data col-  
25 lection and monitoring, including—

1 (A) the amount of carbon dioxide removed  
2 from the ocean and the atmosphere, as meas-  
3 ured on a life-cycle basis, by each removal tech-  
4 nology;

5 (B) whether a particular removal tech-  
6 nology results in net removals of greenhouse  
7 gasses from the atmosphere over its life cycle,  
8 and the duration of sequestration, as applicable;

9 (C) for removal technologies that rely on  
10 an energy source, the amount of energy con-  
11 sumed by the technology; and

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

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

16 (5) An assessment of the permitting regime  
17 regulating marine carbon dioxide removal that in-  
18 cludes recommendations for improved efficiency or  
19 coordination, as applicable.

20 (6) An identification of barriers in resources,  
21 capacity, technology, infrastructure, or expertise to  
22 advancing the science and application of marine car-  
23 bon dioxide removal.

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

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

3           (c) PUBLIC AVAILABILITY.—The interagency work-  
4 ing group shall—

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

7           (2) make each such report available to the pub-  
8 lic at no-cost and with no restrictions on copying,  
9 publishing, distributing, citing, adapting, or other-  
10 wise using the report.

11 **SEC. 106. AUTHORIZATION OF APPROPRIATIONS.**

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

16 **TITLE II—MATTERS RELATING**  
17 **TO THE NATIONAL SCIENCE**  
18 **FOUNDATION**

19 **SEC. 201. RESEARCHING MARINE CARBON DIOXIDE RE-**  
20 **MOVAL.**

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

1           (1) the efficacy of marine carbon dioxide re-  
2           moval, including measurability, magnitude of green-  
3           house gas removal, durability, and additionally;

4           (2) ecosystem responses to and social and cul-  
5           tural dimensions of marine carbon dioxide removal;

6           (3) tools and technologies to support under-  
7           standing and measurement of the efficacy and envi-  
8           ronmental impacts of marine carbon dioxide re-  
9           moval, including traditional ecological knowledge;  
10          and

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

13          (b) COORDINATION.—In carrying out subsection (a),  
14          the Director of the National Science Foundation shall co-  
15          ordinate with the heads of appropriate Federal agencies,  
16          including the Secretary.

17          (c) SCIENCE WORKFORCE DEVELOPMENT.—The Di-  
18          rector of the National Science Foundation shall leverage,  
19          as appropriate, the existing scientific training, workforce  
20          development programs, and networks of the National  
21          Science Foundation to build and expand scientific capacity  
22          and expertise related to marine carbon dioxide removal.

1 **TITLE III—MATTERS RELATING**  
2 **TO THE NATIONAL AERO-**  
3 **NAUTICS AND SPACE ADMIN-**  
4 **ISTRATION**

5 **SEC. 301. MEASURING MARINE CARBON DIOXIDE REMOVAL**  
6 **FROM SPACE.**

7 (a) MARINE CARBON DIOXIDE REMOVAL ACTIVI-  
8 TIES.—To the extent practicable, the Administrator of the  
9 National Aeronautics and Space Administration (referred  
10 to in this section as the “Administrator”) shall ensure that  
11 the capabilities and assets of the National Aeronautics and  
12 Space Administration are used to advance understanding  
13 of the efficacy and impacts of marine carbon dioxide re-  
14 moval and to support the Federal research plan described  
15 in section 104, including by—

16 (1) leveraging the research portfolio of the Na-  
17 tional Aeronautics and Space Administration;

18 (2) enhancing the monitoring and modeling pro-  
19 grams of the National Aeronautics and Space Ad-  
20 ministration to incorporate relevant data for marine  
21 carbon dioxide removal;

22 (3) leveraging and aligning the Mission Direc-  
23 torates of the National Aeronautics and Space Ad-  
24 ministration; and

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

3 (b) COORDINATION AND PROGRAM CONSISTENCY.—

4 In carrying out the activities described in subsection (a),  
5 the Administrator shall coordinate with the head of any  
6 appropriate Federal agency, including the Under Sec-  
7 retary of Commerce for Oceans and Atmosphere, to ensure  
8 that the research activities of the National Aeronautics  
9 and Space Administration are carried out in cooperation  
10 with the efforts of such agency.

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

15 **TITLE IV—MATTERS RELATING**  
16 **TO THE NATIONAL INSTITUTE**  
17 **OF STANDARDS AND TECH-**  
18 **NOLOGY**

19 **SEC. 401. VALIDATING MARINE CARBON DIOXIDE RE-**  
20 **MOVAL.**

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

1 formance of materials and technologies for marine carbon  
2 dioxide removal.

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

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

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