

115TH CONGRESS
2D SESSION

H. R. 6267

To amend the Federal Ocean Acidification Research and Monitoring Act of 2009 to establish an Ocean Acidification Advisory Board, to expand and improve the research on Ocean Acidification and Coastal Acidification, to establish and maintain a data archive system for Ocean Acidification data and Coastal Acidification data, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 28, 2018

Ms. BONAMICI (for herself, Mr. YOUNG of Alaska, and Mr. POSEY) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

To amend the Federal Ocean Acidification Research and Monitoring Act of 2009 to establish an Ocean Acidification Advisory Board, to expand and improve the research on Ocean Acidification and Coastal Acidification, to establish and maintain a data archive system for Ocean Acidification data and Coastal Acidification data, 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,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Coastal and Ocean
3 Acidification Stressors and Threats Research Act of
4 2018” or the “COAST Research Act”.

5 **SEC. 2. PURPOSES.**

6 (a) IN GENERAL.—Section 12402(a) of the Federal
7 Ocean Acidification Research and Monitoring Act of 2009
8 (33 U.S.C. 3701(a)) is amended—

9 (1) in paragraph (1)—

10 (A) in the matter preceding subparagraph
11 (A), by striking “development and coordina-
12 tion” and inserting “coordination and imple-
13 mentation”;

14 (B) in subparagraph (A), by striking
15 “acidification on marine organisms” and insert-
16 ing “acidification and coastal acidification on
17 marine organisms”; and

18 (C) in subparagraph (B), by striking “es-
19 tablish” and all that follows before the semi-
20 colon and inserting “maintain and advise an
21 interagency research, monitoring, and public
22 outreach program on ocean acidification and
23 coastal acidification”;

24 (2) in paragraph (2), by striking “establis-
25 ment” and inserting “maintenance”;

1 (3) in paragraph (3), by inserting “and coastal
2 acidification” after “ocean acidification”; and

3 (4) in paragraph (4), by inserting “and coastal
4 acidification that take into account other environ-
5 mental and anthropogenic stressors” after “ocean
6 acidification”.

7 (b) **TECHNICAL AND CONFORMING AMENDMENT.**—
8 Section 12402 of the Federal Ocean Acidification Re-
9 search and Monitoring Act of 2009 (33 U.S.C. 3701(a))
10 is amended by striking “**(A) PURPOSES.—**”.

11 **SEC. 3. DEFINITIONS.**

12 Section 12403 of the Federal Ocean Acidification Re-
13 search and Monitoring Act of 2009 (33 U.S.C. 3702) is
14 amended—

15 (1) in paragraph (1), by striking “of the
16 Earth’s oceans” and all that follows before the pe-
17 riod at the end and inserting “and changes in the
18 water chemistry of the Earth’s oceans, coastal estu-
19 aries, and waterways caused by carbon dioxide from
20 the atmosphere and the breakdown of organic mat-
21 ter”;

22 (2) in paragraph (3), by striking “Joint Sub-
23 committee on Ocean Science and Technology of the
24 National Science and Technology Council” and in-

1 serting “National Science and Technology Council
2 Subcommittee on Ocean Science and Technology”;

3 (3) by redesignating paragraphs (1), (2), and
4 (3) as paragraphs (2), (3), and (4), respectively; and

5 (4) by inserting before paragraph (2), as so re-
6 designated, the following new paragraph:

7 “(1) COASTAL ACIDIFICATION.—The term
8 ‘coastal acidification’ means the combined decrease
9 in pH and changes in the water chemistry of coastal
10 oceans, estuaries, and other bodies of water from
11 chemical inputs (including carbon dioxide from the
12 atmosphere), freshwater inputs, and excess nutrient
13 run-off from land and coastal atmospheric pollution
14 that result in processes that release carbon dioxide,
15 acidic nitrogen, and sulfur compounds as byprod-
16 ucts.”.

17 **SEC. 4. INTERAGENCY WORKING GROUP.**

18 Section 12404 of the Federal Ocean Acidification Re-
19 search and Monitoring Act of 2009 (33 U.S.C. 3703) is
20 amended—

21 (1) in the heading, by striking “**SUB-**
22 **COMMITTEE**” and inserting “**INTERAGENCY**
23 **WORKING GROUP**”;

24 (2) in subsection (a)—

1 (A) in paragraph (1), by striking “Joint
2 Subcommittee on Ocean Science and Tech-
3 nology of the National Science and Technology
4 Council shall coordinate Federal activities on
5 ocean acidification and” and insert “Sub-
6 committee shall”;

7 (B) in paragraph (2), by striking “Wildlife
8 Service,” and inserting “Wildlife Service, the
9 Bureau of Ocean Energy Management, the En-
10 vironmental Protection Agency, the Department
11 of Agriculture, the Department of State, the
12 Department of Energy, the Department of the
13 Navy, the National Park Service, the Bureau of
14 Indian Affairs, the National Institute of Stand-
15 ards and Technology, the Smithsonian Institu-
16 tion,”; and

17 (C) in paragraph (3), in the heading, by
18 striking “CHAIRMAN” and inserting “CHAIR”;

19 (3) in subsection (b)—

20 (A) in paragraph (1), by inserting “, in-
21 cluding the efforts of the National Oceanic and
22 Atomospheric Administration to facilitate such
23 implementation” after “of the plan”;

24 (B) in paragraph (2)—

1 (i) in subparagraph (A), by inserting
2 “and coastal acidification” after “ocean
3 acidification”; and

4 (ii) in subparagraph (B), by inserting
5 “and coastal acidification” after “ocean
6 acidification”;

7 (C) in paragraph (4), by striking the
8 “and” after the semicolon;

9 (D) in paragraph (5)—

10 (i) by striking “developed” and insert-
11 ing “and coastal acidification developed”;
12 and

13 (ii) by striking the period at the end
14 and inserting “and coastal acidification;
15 and”;

16 (E) by inserting after paragraph (5), the
17 following new paragraph:

18 “(6) ensure that each of the Federal agencies
19 represented on the interagency working group—

20 “(A) participates in the Ocean Acidifica-
21 tion Information Exchange established under
22 paragraph (5); and

23 “(B) delivers data and information to sup-
24 port the data archive system established under
25 section 12406(d).”;

1 (4) in subsection (c), in paragraph (2)—

2 (A) by inserting “, and to the Office of
3 Management and Budget,” after “House of
4 Representatives”; and

5 (B) in subparagraph (B), by striking “the
6 interagency research” and inserting “inter-
7 agency strategic research”;

8 (5) by redesignating subsection (c) as sub-
9 section (d); and

10 (6) by inserting after subsection (b) the fol-
11 lowing:

12 “(c) ADVISORY BOARD.—

13 “(1) ESTABLISHMENT.—The Chair of the Sub-
14 committee shall establish an Ocean Acidification Ad-
15 visory Board.

16 “(2) DUTIES.—The Advisory Board shall—

17 “(A) not later than 180 days after the
18 Subcommittee submits the most recent report
19 under subsection (d)(2) to Congress—

20 “(i) review such report; and

21 “(ii) submit an analysis of such report
22 to the Subcommittee, the Committee on
23 Commerce, Science, and Transportation of
24 the Senate, the Committee on Science,
25 Space, and Technology of the House of

1 Representatives, and the Committee on
2 Natural Resources of the House of Rep-
3 resentatives;

4 “(B) not later than 180 days after the
5 Subcommittee submits the most recent strategic
6 research plan under subsection (d)(3) to Con-
7 gress—

8 “(i) review such plan; and

9 “(ii) submit an analysis of such plan
10 and the implementation thereof to the Sub-
11 committee, the Committee on Commerce,
12 Science, and Transportation of the Senate,
13 the Committee on Science, Space, and
14 Technology of the House of Representa-
15 tives, and the Committee on Natural Re-
16 sources of the House of Representatives;

17 “(C) provide ongoing advice to the Sub-
18 committee and the interagency working group
19 on matters related to Federal activities on
20 ocean acidification and coastal acidification;

21 “(D) advise the Subcommittee and the
22 interagency working group on—

23 “(i) efforts to coordinate research and
24 monitoring activities related to ocean acidi-
25 fication and coastal acidification; and

1 “(ii) the best practices for the stand-
2 ards developed for data archiving under
3 section 12406(e);

4 “(E) publish in the Federal Register the
5 charter required under section 9(c) of the Fed-
6 eral Advisory Committee Act (5 U.S.C. App.);

7 “(F) provide the Library of Congress
8 with—

9 “(i) the charter described under sub-
10 paragraph (E);

11 “(ii) any schedules and minutes for
12 meetings of the Advisory Board;

13 “(iii) any documents described in sub-
14 sections (b) and (c) of section 9 of the
15 Federal Advisory Committee Act (5 U.S.C.
16 App.) that are created by the Advisory
17 Board; and

18 “(iv) any reports prepared by the Ad-
19 visory Board; and

20 “(G) establish a publicly accessible web
21 page on the website of the National Oceanic
22 and Atmospheric Administration, that contains
23 the information described in clause (i) through
24 (iv) of subparagraph (F).

1 “(3) MEMBERSHIP.—The Advisory Board shall
2 consist of 21 members as follows:

3 “(A) 2 representatives of the shellfish and
4 crab industry.

5 “(B) 1 representative of the finfish indus-
6 try.

7 “(C) 1 representative of seafood proc-
8 essors.

9 “(D) 3 representatives from academia, in-
10 cluding both natural and social sciences.

11 “(E) 1 representative of recreational fish-
12 ing.

13 “(F) 1 representative of relevant non-
14 governmental organizations.

15 “(G) 6 representatives from relevant State,
16 local, and Tribal governments.

17 “(H) 1 representative from the Alaska
18 Ocean Acidification Network.

19 “(I) 1 representative from the California
20 Current Acidification Network.

21 “(J) 1 representative from the Northeast
22 Coastal Acidification Network.

23 “(K) 1 representative from the Southeast
24 Coastal Acidification Network.

1 “(L) 1 representative from the Gulf of
2 Mexico Coastal Acidification Network.

3 “(M) 1 representative from the Mid-Atlan-
4 tic Coastal Acidification Network.

5 “(4) APPOINTMENT OF MEMBERS.—The Chair
6 of the Subcommittee shall—

7 “(A) appoint members to the Advisory
8 Board (taking into account the geographical in-
9 terests of each individual to be appointed as a
10 member of the Advisory Board to ensure that
11 an appropriate balance of geographical interests
12 are represented by the members of the Advisory
13 Board) who—

14 “(i) represent the interest group for
15 which each seat is designated;

16 “(ii) demonstrate expertise on ocean
17 acidification or coastal acidification and its
18 scientific, economic, industry, cultural, and
19 community impacts; and

20 “(iii) have a record of distinguished
21 service with respect to ocean acidification
22 or coastal acidification, and such impacts
23 thereof;

24 “(B) give consideration to nominations and
25 recommendations from the members of the

1 interagency working group and the public for
2 such appointments; and

3 “(C) ensure that an appropriate balance of
4 scientific, industry, and geographical interests
5 are represented by the members of the Advisory
6 Board.

7 “(5) TERM OF MEMBERSHIP.—Each member of
8 the Advisory Board—

9 “(A) shall be appointed for a 5-year term;
10 and

11 “(B) may be appointed to more than one
12 term.

13 “(6) CHAIR.—The Chair of the Subcommittee
14 shall appoint one member of the Advisory Board to
15 serve as the Chair of the Advisory Board.

16 “(7) MEETINGS.—Not less than once each cal-
17 endar year, the Advisory Board shall meet at such
18 times and places as may be designated by the Chair
19 of the Advisory Board, in consultation with the
20 Chair of the Subcommittee and the Chair of the
21 interagency working group.

22 “(8) BRIEFING.—The Chair of the Advisory
23 Board shall brief the Subcommittee and the inter-
24 agency working group on the progress of the Advi-
25 sory Board as necessary.

1 “(9) FEDERAL ADVISORY COMMITTEE ACT.—
2 The Federal Advisory Committee Act shall not apply
3 to the Advisory Board, except for subsections (b)
4 and (c) of section 9 and subsections (a) through (d)
5 of section 10.”.

6 **SEC. 5. STRATEGIC RESEARCH PLAN.**

7 Section 12405 of the Federal Ocean Acidification Re-
8 search and Monitoring Act of 2009 (33 U.S.C. 3704) is
9 amended—

10 (1) in subsection (a)—

11 (A) by striking “acidification” each place it
12 appears and inserting “acidification and coastal
13 acidification”;

14 (B) in the first sentence—

15 (i) by inserting “, and not later than
16 every 5 years thereafter” after “the date of
17 enactment of this Act”;

18 (ii) by inserting “address the socio-
19 economic impacts of ocean acidification
20 and coastal acidification and to” after
21 “mitigation strategies to”; and

22 (iii) by striking “marine ecosystems”
23 each place it appears and inserting “eco-
24 systems”; and

1 (C) in the second sentence, by inserting
2 “and recommendations made by the Advisory
3 Board in the review of the plan required under
4 subsection (e)” after “subsection (d)”;

5 (2) in subsection (b)—

6 (A) in paragraph (1), by inserting “and so-
7 cial sciences” after “among the ocean sciences”;

8 (B) in paragraph (2)—

9 (i) in subparagraph (A), by striking
10 “impacts” and inserting “impacts, includ-
11 ing trends of changes in ocean chemistry,”;

12 (ii) in subparagraph (B)—

13 (I) by striking “improve the abil-
14 ity to”;

15 (II) by inserting “the short-term
16 and long-term” after “assess the”;
17 and

18 (III) by striking the “and” after
19 the semicolon;

20 (iii) by amending subparagraph (C) to
21 read as follows:

22 “(C) provide information for the—

23 “(i) development of adaptation and
24 mitigation strategies to address the socio-

1 economic impacts of ocean acidification
2 and coastal acidification;

3 “(ii) conservation of marine organisms
4 and ecosystems; and

5 “(iii) assessment of the effectiveness
6 of such adaptation and mitigation strate-
7 gies;”; and

8 (iv) by adding at the end the following
9 new subparagraph:

10 “(D) improve research on—

11 “(i) ocean acidification and coastal
12 acidification;

13 “(ii) the effect of environmental
14 stressors on each other, including research
15 on the effect of changes in water chem-
16 istry, changes in sediment delivery, hy-
17 poxia, and harmful algal blooms, on ocean
18 acidification and coastal acidification; and

19 “(iii) the effect of environmental
20 stressors on marine resources and eco-
21 systems;”;

22 (C) in paragraph (3)—

23 (i) in subparagraph (F), by inserting
24 “and management” after “database devel-
25 opment”;

- 1 (ii) in subparagraph (H) by striking
2 “and” at the end; and
- 3 (iii) by inserting after subparagraph
4 (I) the following new subparagraphs:
5 “(J) assessment of adaptation and mitiga-
6 tion strategies; and
7 “(K) education and outreach activities;”;
- 8 (D) in paragraph (4), by striking “set
9 forth” and inserting “ensure an appropriate
10 balance of contribution in establishing”;
- 11 (E) in paragraph (5), by striking “reports”
12 and inserting “the best available peer-reviewed
13 scientific reports”;
- 14 (F) in paragraph (6)—
15 (i) by inserting “and coastal acidifica-
16 tion” after “ocean acidification”; and
17 (ii) by striking “of the United States”
18 and inserting “within the United States”;
- 19 (G) in paragraph (7)—
20 (i) by striking “outline budget re-
21 quirements” and inserting “estimate budg-
22 et requirements for each of the fiscal years
23 of the plan for full implementation of each
24 element of the plan”; and

1 (ii) by inserting “over the course of
2 10 years” after “under the plan”;

3 (H) in paragraph (8)—

4 (i) by inserting “and coastal acidifica-
5 tion” after “ocean acidification” each place
6 it appears;

7 (ii) by striking “its” and inserting
8 “their”; and

9 (iii) by striking the “and” after the
10 semicolon;

11 (I) in paragraph (9), by striking the period
12 at the end and inserting “; and”; and

13 (J) by inserting at the end the following
14 new paragraph:

15 “(10) describe monitoring needs necessary to
16 support potentially affected industry members,
17 coastal stakeholders, fishery management councils
18 and commissions, non-Federal resource managers,
19 and scientific experts on decision-making and adap-
20 tation related to ocean acidification and coastal
21 acidification.”;

22 (3) in subsection (c)—

23 (A) in paragraph (1)(C), by striking “sur-
24 face”;

1 (B) in paragraph (2), by inserting “and
2 coastal acidification” after “ocean acidifica-
3 tion”;

4 (C) in paragraph (3)—

5 (i) by striking “input, and” and in-
6 serting “inputs,”;

7 (ii) by inserting “, marine food webs,”
8 after “marine ecosystems”; and

9 (iii) by inserting “, and modeling that
10 supports fisheries management” after
11 “marine organisms”;

12 (D) in paragraph (5), by inserting “and
13 coastal acidification” after “ocean acidifica-
14 tion”; and

15 (E) by adding at the end the following new
16 paragraph:

17 “(6) Research to understand related and cumu-
18 lative stressors and other biogeochemical processes
19 occurring in conjunction with ocean acidification and
20 coastal acidification.”; and

21 (4) by striking subsection (e) and inserting the
22 following:

23 “(e) ADVISORY BOARD EVALUATION.—Not later
24 than 60 days before a plan is submitted to Congress, the

1 Subcommittee shall provide the Advisory Board estab-
2 lished in section 12404(c) a copy of the plan.

3 “(f) PUBLICATION AND PUBLIC COMMENT.—Not
4 later than 90 days before the strategic research plan, or
5 any revision thereof, is submitted to Congress, the Sub-
6 committee shall publish the plan in the Federal Register
7 and provide an opportunity for submission of public com-
8 ments for a period of not less than 60 days.”.

9 **SEC. 6. NOAA OCEAN ACIDIFICATION ACTIVITIES.**

10 Section 12406 of the Federal Ocean Acidification Re-
11 search and Monitoring Act of 2009 (33 U.S.C. 3705) is
12 amended—

13 (1) in subsection (a)—

14 (A) in the matter preceding paragraph (1),
15 by inserting “coordination,” after “research,
16 monitoring,”;

17 (B) in paragraph (1)—

18 (i) in subparagraph (B)—

19 (I) by inserting “including the
20 Integrated Ocean Observing System
21 and the ocean observing assets of
22 other Federal agencies,” after “ocean
23 observing assets,”; and

24 (II) by inserting “and agency
25 and department missions, prioritizing

1 the location of monitoring instru-
2 ments, assets, and projects to maxi-
3 mize the efficiency of resources and to
4 optimize understanding of socio-
5 economic impacts and ecosystem
6 health” after “research program”;

7 (ii) in subparagraph (C)—

8 (I) by striking “adaptation” and
9 inserting “adaptation and mitigation”;
10 and

11 (II) by inserting “and supporting
12 socioeconomically vulnerable commu-
13 nities and industries” after “marine
14 ecosystems”;

15 (iii) in subparagraph (E), by striking
16 “its impacts” and inserting “their respec-
17 tive impacts”;

18 (iv) in subparagraph (F), by striking
19 “monitoring and impacts research” and in-
20 sserting “research, monitoring, and adapta-
21 tion and mitigation strategies”; and

22 (v) by adding at the end the following
23 new subparagraph:

24 “(G) research to improve understanding of
25 the effect of—

1 “(i) other environmental stressors on
2 ocean acidification and coastal acidifica-
3 tion;

4 “(ii) multiple environmental stressors
5 on living marine resources and coastal eco-
6 systems; and

7 “(iii) adaptation and mitigation strat-
8 egies to address the socioeconomic impacts
9 of ocean acidification and coastal acidifica-
10 tion.”;

11 (C) in paragraph (2), by striking “critical
12 research projects that explore” and inserting
13 “critical research and education projects that
14 explore and communicate”; and

15 (D) in paragraphs (1), (2), and (3), by
16 striking “acidification” each place it appears
17 and inserting “acidification and coastal acidifi-
18 cation”; and

19 (2) by adding at the end the following new sub-
20 sections:

21 “(c) RELATIONSHIP TO INTERAGENCY WORKING
22 GROUP.—The National Oceanic and Atmospheric Admin-
23 istration shall serve as the lead Federal agency responsible
24 for coordinating the Federal response to ocean acidifica-
25 tion and coastal acidification, by—

1 “(1) leading the interagency working group in
2 implementing the strategic research plan under sec-
3 tion 12405;

4 “(2) coordinating monitoring and research ef-
5 forts among Federal agencies in cooperation with
6 State, local, and international partners;

7 “(3) maintaining an Ocean Acidification Infor-
8 mation Exchange described under section
9 12404(b)(5) to allow for information to be electroni-
10 cally accessible, including information—

11 “(A) on ocean acidification and coastal
12 acidification developed through or used by the
13 ocean acidification program described under
14 section 12406(a); or

15 “(B) that would be useful to State govern-
16 ments, local governments, Tribal governments,
17 resource managers, policymakers, researchers,
18 and other stakeholders in mitigating or adapt-
19 ing to the impacts of ocean acidification and
20 coastal acidification; and

21 “(4) establishing and maintaining the data ar-
22 chive system under subsection (d).

23 “(d) DATA ARCHIVE SYSTEM.—

24 “(1) ESTABLISHMENT.—The Secretary, in co-
25 ordination with members of the interagency working

1 group, shall provide for the long-term stewardship of
2 and access to data relating to ocean acidification
3 and coastal acidification by establishing a data ar-
4 chive system that processes, stores, archives, pro-
5 vides access to, and incorporates to the extent pos-
6 sible, such data collected—

7 “(A) through relevant Federally funded re-
8 search; and

9 “(B) by a Federal agency, State agency,
10 local agency, Tribe, academic scientist, citizen
11 scientist, or industry organization.

12 “(2) EXISTING GLOBAL OR NATIONAL DATA AS-
13 SETS.—In establishing the data archive system
14 under paragraph (1), the Secretary shall ensure that
15 existing global or national data assets (including the
16 data assets of the National Centers for Environ-
17 mental Information, the Integrated Ocean Observing
18 System, and other existing data systems within Fed-
19 eral agencies) are incorporated to the great extent
20 possible.

21 “(e) STANDARDS, PROTOCOLS, AND PROCEDURES.—
22 With respect to the data described in subsection (d), the
23 Secretary, in coordination with members of the inter-
24 agency working group, shall establish standards, protocols,
25 or procedures for—

1 “(1) processing, storing, archiving, and pro-
2 viding access to such data;

3 “(2) the interoperability and intercalibration of
4 such data;

5 “(3) the collection of any metadata underlying
6 such data; and

7 “(4) sharing such data with State, local, and
8 Tribal government programs, potentially affected in-
9 dustry members, coastal stakeholders, fishery man-
10 agement councils and commissions, non-Federal re-
11 source managers, and academia.

12 “(f) DISSEMINATION OF OCEAN ACIDIFICATION
13 DATA AND COASTAL ACIDIFICATION DATA.—The Sec-
14 retary, in coordination with members of the interagency
15 working group, shall disseminate the data described under
16 subsection (d) to the greatest extent practicable by sharing
17 such data on full and open access exchanges, including
18 the Ocean Acidification Information Exchange described
19 in section 12404(b)(5).

20 “(g) REQUIREMENT.—Recipients of grants from the
21 National Oceanic and Atmospheric Administration under
22 this subtitle that collected data described under subsection
23 (d) shall—

1 “(1) collect such data in accordance with the
2 standards, protocols, or procedures established pur-
3 suant to subsection (e); and

4 “(2) submit such data to the Secretary, in ac-
5 cordance with any rules promulgated by the Sec-
6 retary.”.

7 **SEC. 7. NSF OCEAN ACIDIFICATION ACTIVITIES.**

8 Section 12407 of the Federal Ocean Acidification Re-
9 search and Monitoring Act of 2009 (33 U.S.C. 3706) is
10 amended—

11 (1) in subsection (a)—

12 (A) in the matter preceding paragraph

13 (1)—

14 (i) by striking “continue to carry out
15 research activities on ocean acidification
16 which shall”;

17 (ii) by striking “proposals for re-
18 search” and inserting “proposals for the
19 researching”; and

20 (iii) by striking “its impacts” and in-
21 serting “their respective impacts”;

22 (B) in paragraph (1), by striking “marine
23 ecosystems” and inserting “ecosystems”;

24 (C) in paragraph (2), by striking the
25 “and” after the semicolon;

1 (D) in paragraph (3)—

2 (i) by striking “ocean acidification
3 and its impacts” and inserting “ocean
4 acidification and coastal acidification and
5 their respective impacts”; and

6 (ii) by striking the period at the end
7 and inserting “; and”; and

8 (E) by inserting at the end the following
9 new paragraph:

10 “(4) adaptation and mitigation strategies to ad-
11 dress socioeconomic effects of ocean acidification and
12 coastal acidification.”;

13 (2) by striking “ocean acidification” each place
14 it appears and inserting “ocean acidification and
15 coastal acidification”; and

16 (3) by adding at the end the following:

17 “(d) REQUIREMENT.—Recipients of grants from the
18 National Science Foundation under this subtitle that col-
19 lect data described under section 12406(d) shall—

20 “(1) collect data in accordance with the stand-
21 ards, protocols, or procedures established pursuant
22 to section 12406(e); and

23 “(2) submit such data to the Director and the
24 Secretary, in accordance with any rules promulgated
25 by the Director or the Secretary.”.

1 **SEC. 8. NASA OCEAN ACIDIFICATION ACTIVITIES.**

2 Section 12408 of the Federal Ocean Acidification Re-
3 search and Monitoring Act of 2009 (33 U.S.C. 3707) is
4 amended—

5 (1) by striking “ocean acidification” each place
6 it appears and inserting “ocean acidification and
7 coastal acidification”;

8 (2) in subsection (a), by striking “its impacts”
9 and inserting “their respective impacts”; and

10 (3) by adding at the end the following new sub-
11 section:

12 “(d) REQUIREMENT.—Researchers from the National
13 Aeronautics and Space Administration under this subtitle
14 that collect data described under section 12406(d) shall—

15 “(1) collect such data in accordance with the
16 standards, protocols, or procedures established pur-
17 suant to section 12406(e); and

18 “(2) submit such data to the Administrator and
19 the Secretary, in accordance with any rules promul-
20 gated by the Administrator or the Secretary.”.

21 **SEC. 9. AUTHORIZATION OF APPROPRIATIONS.**

22 Section 12409 of the Federal Ocean Acidification Re-
23 search and Monitoring Act of 2009 (33 U.S.C. 3708) is
24 amended—

25 (1) in subsection (a)—

1 (A) in paragraph (3), by striking the “;
2 and” and inserting a semicolon;

3 (B) in paragraph (4), by striking the pe-
4 riod at the end and inserting “; and”; and

5 (C) by inserting at the end the following
6 new paragraph:

7 “(5) \$22,000,000 for each of the fiscal
8 years 2019 through 2022.”; and

9 (2) in subsection (b)—

10 (A) in paragraph (3), by striking “; and”
11 and inserting a semicolon;

12 (B) in paragraph (4), by striking the pe-
13 riod at the end and inserting “; and”; and

14 (C) by inserting at the end the following
15 new paragraph:

16 “(5) \$15,000,000 for each of the fiscal
17 years 2019 through 2022.”.

○