

(A) monitor and conduct research on the processes and consequences of ocean acidification and coastal acidification on marine organisms and ecosystems; and

(B) maintain and advise an interagency research, monitoring, and public outreach program on ocean acidification and coastal acidification;

(2) maintenance of an ocean acidification program within the National Oceanic and Atmospheric Administration;

(3) assessment and consideration of regional and national ecosystem and socioeconomic impacts of increased ocean acidification and coastal acidification; and

(4) research adaptation strategies and mitigating the impacts of ocean and coastal acidification and related co-stressors on marine ecosystems.

(Pub. L. 111–11, title XII, §12402, Mar. 30, 2009, 123 Stat. 1436; Pub. L. 117–167, div. B, title VI, §10642, Aug. 9, 2022, 136 Stat. 1672.)

Editorial Notes

AMENDMENTS

2022—Pub. L. 117–167, §10642(b), struck out subsec. (a) designation and heading “Purposes” before “The purposes” in introductory provisions.

Subsec. (a)(1). Pub. L. 117–167, §10642(a)(1), substituted “development coordination and implementation” for “development and coordination” in introductory provisions, “acidification and coastal acidification on marine organisms” for “acidification on marine organisms” in subpar. (A), and “maintain and advise an interagency research, monitoring, and public outreach program on ocean acidification and coastal acidification;” for “establish an interagency research and monitoring program on ocean acidification;” in subpar. (B).

Subsec. (a)(2). Pub. L. 117–167, §10642(a)(2), substituted “maintenance” for “establishment”.

Subsec. (a)(3). Pub. L. 117–167, §10642(a)(3), inserted “and coastal acidification” after “ocean acidification”.

Subsec. (a)(4). Pub. L. 117–167, §10642(a)(4), substituted “mitigating the impacts of ocean and coastal acidification and related co-stressors on marine ecosystems.” for “techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification.”

Statutory Notes and Related Subsidiaries

SHORT TITLE OF 2022 AMENDMENT

Pub. L. 117–167, div. B, title VI, §10641, Aug. 9, 2022, 136 Stat. 1672, provided that: “This subtitle [subtitle E (§§10641–10649) of title VI of div. B of Pub. L. 117–167, amending this section and sections 3702 to 3708 of this title] may be cited as the ‘Coastal and Ocean Acidification Research and Innovation Act of 2021’.”

SHORT TITLE

Pub. L. 111–11, title XII, §12401, Mar. 30, 2009, 123 Stat. 1436, provided that: “This subtitle [subtitle D (§§12401–12409) of title XII of Pub. L. 111–11, enacting this chapter] may be cited as the ‘Federal Ocean Acidification Research And Monitoring Act of 2009’ or the ‘FOARAM Act’.”

§ 3702. Definitions

In this chapter:

(1) Coastal acidification

The term “coastal acidification” means the decrease in pH and changes in the water chem-

istry of coastal oceans, estuaries, and Great Lakes from atmospheric pollution, freshwater inputs, and excess nutrient run-off from land.

(2) Ocean acidification

The term “ocean acidification” means the decrease in pH and changes in the water chemistry of the Earth’s oceans, coastal estuaries, marine waterways, and Great Lakes caused by carbon dioxide from the atmosphere and the breakdown of organic matter.

(3) Secretary

The term “Secretary” means the Secretary of Commerce, acting through the Administrator of the National Oceanic and Atmospheric Administration.

(4) Subcommittee

The term “Subcommittee” means the National Science and Technology Council Subcommittee on Ocean Science and Technology.

(5) State

The term “State” means each State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, the Virgin Islands of the United States, and any other territory or possession of the United States.

(Pub. L. 111–11, title XII, §12403, Mar. 30, 2009, 123 Stat. 1437; Pub. L. 117–167, div. B, title VI, §10643, Aug. 9, 2022, 136 Stat. 1672.)

Editorial Notes

AMENDMENTS

2022—Par. (1). Pub. L. 117–167, §10643(4), added par. (1). Former par. (1) redesignated (2).

Pub. L. 117–167, §10643(1), substituted “and changes in the water chemistry of the Earth’s oceans, coastal estuaries, marine waterways, and Great Lakes caused by carbon dioxide from the atmosphere and the breakdown of organic matter” for “of the Earth’s oceans and changes in ocean chemistry caused by chemical inputs from the atmosphere, including carbon dioxide”.

Par. (2). Pub. L. 117–167, §10643(3), redesignated par. (1) as (2). Former par. (2) redesignated (3).

Par. (3). Pub. L. 117–167, §10643(3), redesignated par. (2) as (3). Former par. (3) redesignated (4).

Pub. L. 117–167, §10643(2), substituted “National Science and Technology Council Subcommittee on Ocean Science and Technology” for “Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council”.

Par. (4). Pub. L. 117–167, §10643(3), redesignated par. (3) as (4).

Par. (5). Pub. L. 117–167, §10643(5), added par. (5).

§ 3703. Interagency working group

(a) Designation

(1) In general

The Subcommittee shall coordinate Federal activities on ocean and coastal acidification and establish and maintain an interagency working group.

(2) Membership

The interagency working group on ocean acidification shall be comprised of senior representatives from the National Oceanic and Atmospheric Administration, the National Science Foundation, the National Aeronautics

and Space Administration, the United States Geological Survey, the United States Fish and Wildlife Service, the Bureau of Ocean Energy Management, the Environmental Protection Agency, the Department of Agriculture, the Department of State, the Department of Energy, the Department of the Navy, the National Park Service, the Bureau of Indian Affairs, the National Institute of Standards and Technology, the Smithsonian Institution, and such other Federal agencies as appropriate.

(3) Chair

The interagency working group shall be chaired by the representative from the National Oceanic and Atmospheric Administration.

(b) Duties

The Subcommittee shall—

(1) develop the strategic research and monitoring plan to guide Federal research on ocean acidification required under section 3704 of this title and oversee the implementation of the plan;

(2) oversee the development of—

(A) an assessment of the potential impacts of ocean acidification and coastal acidification on marine organisms and marine ecosystems; and

(B) adaptation and mitigation strategies to conserve marine organisms and ecosystems exposed to ocean acidification and coastal acidification;

(3) facilitate communication and outreach opportunities with nongovernmental organizations and members of the stakeholder community with interests in marine resources;

(4) coordinate the United States Federal research and monitoring program with research and monitoring programs and scientists from other nations;

(5) establish or designate, and contribute to as appropriate, an Ocean Acidification Information Exchange to make information on ocean acidification and coastal acidification developed through or utilized by the interagency ocean acidification program accessible through electronic means, including information which would be useful to policymakers, researchers, and other stakeholders in mitigating or adapting to the impacts of ocean acidification and coastal acidification; and¹

(c) Advisory Board

(1) Establishment

The Chair of the Subcommittee shall establish an Ocean Acidification Advisory Board.

(2) Duties

The Advisory Board shall—

(A) maintain a process for reviewing and making recommendations to the Subcommittee on—

(i) the biennial report specified in subsection (d)(2); and

(ii) the strategic research plan in subsection (d)(3);

(B) provide ongoing advice to the Subcommittee and the interagency working

group on matters related to Federal activities on ocean and coastal acidification, including impacts and mitigation of ocean and coastal acidification; and

(C) advise the Subcommittee and the interagency working group on—

(i) efforts to coordinate research and monitoring activities related to ocean acidification and coastal acidification; and

(ii) the best practices for the standards developed for data archiving under section 3705(d) of this title.

(3) Membership

The Advisory Board shall consist of 25 members as follows:

(A) Two representatives of the shellfish, lobster, or crab industry.

(B) One representative of the finfish industry.

(C) One representative of seafood processors.

(D) Three representatives from academia, including both natural and social sciences.

(E) One representative of recreational fishing.

(F) One representative of a relevant nongovernmental organization.

(G) Six representatives from relevant State and local governments with policy or regulatory authorities related to ocean acidification and coastal acidification.

(H) One representative from the Alaska Ocean Acidification Network or a subsequent entity that represents the same geographical region and has a similar purpose.

(I) One representative from the California Current Acidification Network or a subsequent entity that represents the same geographical region and has a similar purpose.

(J) One representative from the Northeast Coastal Acidification Network or a subsequent entity that represents the same geographical region and has a similar purpose.

(K) One representative from the Southeast Coastal Acidification Network or a subsequent entity that represents the same geographical region and has a similar purpose.

(L) One representative from the Gulf of Mexico Coastal Acidification Network or a subsequent entity that represents the same geographical region and has a similar purpose.

(M) One representative from the Mid-Atlantic Coastal Acidification Network or a subsequent entity that represents the same geographical region and has a similar purpose.

(N) One representative from the Pacific Islands Ocean Observing System or a subsequent entity that represents the island territories and possessions of the United States in the Pacific Ocean, and the State of Hawaii and has a similar purpose.

(O) One representative from the Caribbean Regional Association for Coastal Ocean Observing or a subsequent entity that represents Puerto Rico and the United States Virgin Islands and has a similar purpose.

(P) One representative from the National Oceanic and Atmospheric Administration

¹ So in original.

Olympic Coast Ocean Acidification Sentinel Site or a subsequent entity that represents the same geographical representation.

(Q) One representative from the National Oceanic and Atmospheric Administration shall serve as an ex-officio member of the Advisory Board without a vote.

(4) Appointment of members

The Chair of the Subcommittee shall—

(A) appoint members to the Advisory Board (taking into account the geographical interests of each individual to be appointed as a member of the Advisory Board to ensure that an appropriate balance of geographical interests are represented by the members of the Advisory Board) who—

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

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

(iii) have a record of distinguished service with respect to ocean acidification or coastal acidification, and such impacts;

(B) give consideration to nominations and recommendations from the members of the interagency working group and the public for such appointments; and

(C) ensure that an appropriate balance of scientific, industry, State and local resource managers, and geographical interests are represented by the members of the Advisory Board.

(5) Term of membership

Each member of the Advisory Board—

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

(B) may be appointed to no more than two terms.

(6) Chair

The Chair of the Subcommittee shall appoint one member of the Advisory Board to serve as the Chair of the Advisory Board.

(7) Meetings

Not less than once each calendar year, the Advisory Board shall meet at such times and places as may be designated by the Chair of the Advisory Board, in consultation with the Chair of the Subcommittee and the Chair of the interagency working group.

(8) Briefing

The Chair of the Advisory Board shall brief the Subcommittee and the interagency working group on the progress of the Advisory Board as necessary or at the request of the Subcommittee.

(9) Tribal government engagement and coordination

(A) In general

The Advisory Board shall maintain mechanisms for coordination, and engagement with Tribal governments.

(i) Rule of construction

Nothing in subparagraph (A) may be construed as affecting any requirement to

consult with Indian Tribes under Executive Order 13175 (25 U.S.C. 5301 note; relating to consultation and coordination with Tribal governments) or any other applicable law or policy.

(10) Federal Advisory Committee Act

Section 14 of the Federal Advisory Committee Act shall not apply to the Advisory Board for 10 years from August 9, 2022.²

(d) Prize competitions

(1) In general

Any Federal agency with a representative serving on the interagency working group established under this section may, either individually or in cooperation with one or more agencies, carry out a program to award prizes competitively under section 3719 of title 15. An agency seeking to carry out such a program shall carry out such program in coordination with the chair of such interagency working group.

(2) Purposes

Any prize competition carried out under this subsection shall be for the purpose of stimulating innovation to advance our Nation's ability to understand, research, or monitor ocean acidification or its impacts, or to develop management or adaptation options for responding to ocean and coastal acidification.

(3) Priority programs

Priority shall be given to establishing programs under this section that address communities, environments, or industries that are in distress due to the impacts of ocean and coastal acidification.

(e) Reports to Congress

(1) Initial report

Not later than 1 year after March 30, 2009, the Subcommittee shall transmit a report to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology and the Committee on Natural Resources of the House of Representatives that—

(A) includes a summary of federally funded ocean acidification research and monitoring activities, including the budget for each of these activities; and

(B) describes the progress in developing the plan required under section 3704 of this title.

(2) Biennial report

Not later than 2 years after the delivery of the initial report under paragraph (1) and every 2 years thereafter until 2032, the Subcommittee shall transmit a report to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology and the Committee on Natural Resources of the House of Representatives, and to the Office of Management and Budget, that includes—

(A) a summary of federally funded ocean acidification research and monitoring ac-

² See References in Text note below.

tivities, including the budget for each of these activities; and

(B) an analysis of the progress made toward achieving the goals and priorities for interagency strategic research plan developed by the Subcommittee under section 3704 of this title.

(3) Strategic research plan

Not later than 2 years after March 30, 2009, the Subcommittee shall transmit the strategic research plan developed under section 3704 of this title to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology and the Committee on Natural Resources of the House of Representatives. A revised plan shall be submitted at least once every 5 years until 2031 thereafter.¹

(4) Economic vulnerability report

(A) In general

Not later than 2 years after December 31, 2020, and every 6 years thereafter until 2032, the Subcommittee shall transmit to the appropriate committees of Congress a report that—

(i) is named the “Ocean Chemistry Coastal Community Vulnerability Assessment”;

(ii) identifies gaps in ocean acidification monitoring by public, academic, and private assets in the network of regional coastal observing systems;

(iii) identifies geographic areas which have gaps in ocean acidification research;

(iv) identifies United States coastal communities, including island communities, fishing communities, low-population rural communities, tribal and subsistence communities, and island communities, that may be impacted by ocean acidification;

(v) identifies impacts of changing ocean carbonate chemistry on the communities described in clause (iv), including impacts from changes in ocean and coastal marine resources that are not managed by the Federal Government;

(vi) identifies gaps in understanding of the impacts of ocean acidification on economically or commercially important species, particularly those which support United States commercial, recreational, and tribal fisheries and aquaculture;

(vii) identifies habitats that may be particularly vulnerable to corrosive sea water, including areas experiencing multiple stressors such as hypoxia, sedimentation, and harmful algal blooms;

(viii) identifies areas in which existing National Integrated Coastal and Ocean Observation System assets, including unmanned maritime systems, may be leveraged as platforms for the deployment of new sensors or other applicable observing technologies;

(ix) is written in collaboration with Federal agencies responsible for carrying out this chapter, including representatives of—

(I) the National Marine Fisheries Service and the Office for Coastal Manage-

ment of the National Oceanic and Atmospheric Administration;

(II) regional coastal observing systems established under section 3603(c)(4) of this title;

(III) regional ocean acidification networks; and

(IV) sea grant programs (as defined in section 1122 of this title); and

(x) is written in consultation with experts, including subsistence users, academia, and stakeholders familiar with the economic, social, ecological, geographic, and resource concerns of coastal communities in the United States.

(B) Form of report

(i) Initial report

The initial report required under subparagraph (A) shall include the information described in clauses (i) through (viii) of that subparagraph on a national level.

(ii) Subsequent reports

Each report required under subparagraph (A) after the initial report—

(I) may describe the information described in clauses (i) through (viii) of that subparagraph on a national level; or

(II) may consist of separate reports for each region of the National Oceanic and Atmospheric Administration.

(iii) Regional reports

If the Subcommittee opts to prepare a report required under subparagraph (A) as separate regional reports under clause (ii)(II), the Subcommittee shall submit a report for each region of the National Oceanic and Atmospheric Administration not less frequently than once during each 6-year reporting period.

(C) Appropriate committees of Congress defined

In this paragraph and in paragraph (5), the term “appropriate committees of Congress” means the Committee on Commerce, Science, and Transportation of the Senate, the Committee on Science, Space, and Technology of the House of Representatives, and the Committee on Natural Resources of the House of Representatives.

(5) Monitoring prioritization plan

Not later than 180 days after the date of the submission of the initial report under paragraph (4)(A), the Subcommittee shall transmit to the appropriate committees of Congress a report that develops a plan to deploy new sensors or other applicable observing technologies such as unmanned maritime systems—

(A) based on such initial report;

(B) prioritized by—

(i) the threat to coastal economies and ecosystems;

(ii) gaps in data; and

(iii) research needs; and

(C) that leverage existing platforms, where possible.

(Pub. L. 111–11, title XII, § 12404, Mar. 30, 2009, 123 Stat. 1437; Pub. L. 116–271, title I, § 109, Dec. 31,

2020, 134 Stat. 3341; Pub. L. 117-167, div. B, title VI, §10644, Aug. 9, 2022, 136 Stat. 1673.)

Editorial Notes

REFERENCES IN TEXT

Section 14 of the Federal Advisory Committee Act, referred to in subsec. (c)(10), is section 14 of Pub. L. 92-463, which was set out in the Appendix to Title 5, Government Organization and Employees, and was repealed and restated as section 1013 of Title 5 by Pub. L. 117-286, §§3(a), 7, Dec. 27, 2022, 136 Stat. 4204, 4361.

August 9, 2022, referred to in subsec. (c)(10), was in the original “the date of enactment of this Act”, which was translated as meaning the date of enactment of Pub. L. 117-167, which enacted subsec. (c), to reflect the probable intent of Congress.

AMENDMENTS

2022—Pub. L. 117-167, §10644(1), substituted “working group” for “Subcommittee” in section catchline.

Subsec. (a)(1). Pub. L. 117-167, §10644(2)(A), substituted “Subcommittee shall coordinate Federal activities on ocean and coastal acidification and establish and maintain” for “Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council shall coordinate Federal activities on ocean acidification and establish”.

Subsec. (a)(2). Pub. L. 117-167, §10644(2)(B), substituted “Wildlife Service, the Bureau of Ocean Energy Management, the Environmental Protection Agency, the Department of Agriculture, the Department of State, the Department of Energy, the Department of the Navy, the National Park Service, the Bureau of Indian Affairs, the National Institute of Standards and Technology, the Smithsonian Institution,” for “Wildlife Service.”

Subsec. (a)(3). Pub. L. 117-167, §10644(2)(C), substituted “Chair” for “Chairman” in heading.

Subsec. (b)(2). Pub. L. 117-167, §10644(3)(A), inserted “and coastal acidification” after “ocean acidification” in subpars. (A) and (B).

Subsec. (b)(4). Pub. L. 117-167, §10644(3)(B), substituted semicolon for “; and”.

Subsec. (b)(5). Pub. L. 117-167, §10644(3)(C), inserted “, and contribute to as appropriate,” after “designate” and substituted “and coastal acidification developed” for “developed” and “and coastal acidification; and” for period at end.

Subsec. (c). Pub. L. 117-167, §10644(6), added subsec. (c). Former subsec. (c) redesignated (e).

Subsec. (c)(2). Pub. L. 117-167, §10644(4)(A)(i), (ii), in introductory provisions, inserted “until 2032” after “every 2 years thereafter” and “, and to the Office of Management and Budget,” after “House of Representatives”.

Subsec. (c)(2)(B). Pub. L. 117-167, §10644(4)(A)(iii), substituted “interagency strategic research” for “the interagency research”.

Subsec. (c)(3). Pub. L. 117-167, §10644(4)(B), inserted “until 2031” after “at least once every 5 years”.

Subsec. (c)(4)(A). Pub. L. 117-167, §10644(4)(C), inserted “until 2032” after “and every 6 years thereafter” in introductory provisions.

Subsec. (d). Pub. L. 117-167, §10644(6), added subsec. (d).

Subsec. (e). Pub. L. 117-167, §10644(5), redesignated subsec. (c) as (e).

2020—Subsec. (c)(4), (5). Pub. L. 116-271 added pars. (4) and (5).

Statutory Notes and Related Subsidiaries

CHANGE OF NAME

Committee on Science and Technology of House of Representatives changed to Committee on Science, Space, and Technology of House of Representatives by House Resolution No. 5, One Hundred Twelfth Congress, Jan. 5, 2011.

§ 3704. Strategic research plan

(a) In general

Not later than 2 years after March 30, 2009, and not later than every 5 years following the publication of each subsequent strategic research plan until 2035, the Subcommittee shall develop a strategic plan for Federal research and monitoring on ocean acidification and coastal acidification that will provide for an assessment of the impacts of ocean acidification and coastal acidification on marine organisms and ecosystems and the development of adaptation and mitigation strategies to address the socioeconomic impacts of ocean acidification and coastal acidification and to conserve marine organisms and ecosystems. In developing the plan, the Subcommittee shall consider and use information, reports, and studies of ocean acidification and coastal acidification that have identified research and monitoring needed to better understand ocean acidification and coastal acidification and its potential impacts, and recommendations made by the Advisory Board established in section 3703(c) of this title.

(b) Contents of the plan

The plan shall—

(1) provide for interdisciplinary research among the ocean sciences and social sciences, and coordinated research and activities to improve the understanding of ocean chemistry that will affect marine ecosystems;

(2) establish, for the 10-year period beginning in the year the plan is submitted, the goals and priorities for Federal research and monitoring which will—

(A) advance understanding of ocean acidification and its physical, chemical, and biological impacts on marine organisms and marine ecosystems;

(B) assess the short-term and long-term socioeconomic impacts of ocean acidification;

(C) provide information for the development of adaptation and mitigation strategies to address—

(i) socioeconomic impacts of ocean acidification and coastal acidification;

(ii) conservation of marine organisms and ecosystems;

(iii) assessment of the effectiveness of such adaptation and mitigation strategies; and

(D) improve research on—

(i) ocean acidification and coastal acidification;

(ii) the interactions between and effects of ocean and coastal acidification and multiple combined stressors including changes in water chemistry, changes in sediment delivery, hypoxia, and harmful algal blooms, on ocean acidification and coastal acidification; and

(iii) the effect or effects of clauses (i) and (ii) on marine resources and ecosystems;

(3) describe specific activities, including—

(A) efforts to determine user needs;

(B) research activities;

(C) monitoring activities;

(D) technology and methods development;

(E) data collection;