AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 4174 OFFERED BY MR. BAIRD OF WASHINGTON AND MR. INGLIS OF SOUTH CAROLINA

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Federal Ocean Acidification Research And Monitoring Act of 2008" or the "FOARAM Act".

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

SEC. 2. FINDINGS AND PURPOSES.

(a) FINDINGS.—The Congress finds the following:

(1) The oceans help mitigate the effects of global warming by absorbing atmospheric carbon dioxide. About a third of anthropogenic carbon dioxide is currently absorbed by the ocean.

(2) The rapid increase in atmospheric carbon dioxide due to human induced carbon dioxide emissions is overwhelming the natural ability of the oceans to cope with this increase.

(3) The emission of carbon dioxide into the atmosphere is changing surface ocean carbon chemistry and lowering the pH. These changes in ocean chemistry are detrimental to organisms including corals, which support one of the richest habitats on Earth, marine shells, and many other organisms that form the base of the food chain for many fish and marine mammals.

(4) The rich biodiversity of marine organisms is an important contribution to the national economy and the change in ocean chemistry threatens tourism, our fisheries, and marine environmental quality, and could result in significant social and economic costs.

(5) Existing Federal programs support research in related ocean chemistry, but gaps in funding, coordination, and outreach have impeded national progress in addressing ocean acidification.

(6) National investment in a coordinated program of research and monitoring would improve the understanding of ocean acidification effects on whole

ecosystems, advance our knowledge of the socio-economic impacts of increased ocean acidification, and strengthen the ability of marine resource managers to assess and prepare for the harmful impacts of ocean acidification on our marine resources.

(b) PURPOSES.—The purposes of this Act are to provide for—

(1) development and coordination of a comprehensive interagency plan to monitor and conduct research on the processes and consequences of ocean acidification on marine organisms and ecosystems and to establish an ocean acidification program within the National Oceanic and Atmospheric Administration;

(2) assessment and consideration of regional and national ecosystem and socioeconomic impacts of increased ocean acidification, and integration into marine resource decisions; and

(3) research on adaptation strategies and techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification.

SEC. 3. DEFINITIONS.

In this Act:

(1) OCEAN ACIDIFICATION.—The term "ocean acidification" means the decrease in pH of the

Earth's oceans and changes in ocean chemistry caused by chemical inputs from the atmosphere, including anthropogenic carbon dioxide.

(2) PROGRAM.—The term "Program" means the National Oceanic and Atmospheric Administration Ocean Acidification Program established under section 6.

(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 Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council.

SEC. 4. INTERAGENCY SUBCOMMITTEE.

(a) DESIGNATION.—The Joint Subcommittee on Ocean Science and Technology of the National Science and Technology Council shall coordinate Federal programs on ocean acidification.

(b) DUTIES.—The Subcommittee shall—

(1) develop the strategic research and monitoring plan to guide Federal research on ocean acidification required under section 5 of this Act and oversee the implementation of the plan;

(2) oversee the development of—

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

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

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

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

(c) REPORTS TO CONGRESS.—

(1) ANNUAL REPORT.—Not later than 1 year after the date of enactment of this Act and every year thereafter, the Subcommittee shall transmit a report to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology of the House of Representatives that includes—

(A) a summary of federally funded ocean acidification research and monitoring activities,

including the budget for each of these activities; and

(B) an analysis of the progress made toward achieving the goals and priorities for the interagency research plan developed by the Subcommittee under section 5.

(2) STRATEGIC RESEARCH PLAN.—Not later than 1 year after the date of enactment of this Act, the Subcommittee shall transmit the strategic research plan developed under section 5 to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology of the House of Representatives.

SEC. 5. STRATEGIC RESEARCH PLAN.

(a) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Subcommittee shall develop a strategic plan for Federal research and monitoring on ocean acidification that will provide for an assessment of the impacts of ocean acidification on marine organisms and marine ecosystems and the development of adaptation and mitigation strategies to conserve marine organisms and marine ecosystems. In developing the plan, the Subcommittee shall consider and use information, reports, and studies of ocean acidification that have identified research

and monitoring needed to better understand ocean acidification and its potential impacts.

(b) CONTENTS OF THE PLAN.—The plan shall—

(1) 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) improve the ability to assess the socioeconomic impacts of ocean acidification; and

(C) provide information for the development of adaptation and mitigation strategies to conserve marine organisms and marine ecosystems;

(2) describe specific activities, including—

(A) efforts to determine user needs;

(B) research activities;

(C) monitoring activities;

(D) technology and methods development;

(E) data collection;

(F) database development;

(G) modeling activities;

(H) assessment of ocean acidification impacts; and

(I) participation in international research efforts;

(3) identify relevant programs and activities of the Federal agencies that contribute to the Program directly and indirectly and set forth the role of each Federal agency in implementing the plan;

(4) consider and utilize, as appropriate, reports and studies conducted by Federal agencies, the National Research Council, or other entities;

(5) make recommendations for the coordination of the ocean acidification research and monitoring activities of the United States with such activities of other nations and international organizations;

(6) detail budget requirements for Federal ocean acidification research and monitoring and assessment activities to be conducted under the plan;

(7) identify the monitoring systems and sampling programs currently employed in collecting data relevant to ocean acidification and prioritize additional monitoring systems that may be needed to ensure adequate data collection and monitoring of ocean acidification and its impacts; and

(8) describe specific activities designed to facilitate outreach and data and information exchange with stakeholder communities.

(c) PROGRAM ELEMENTS.—The plan shall include at a minimum the following program elements:

(1) Monitoring of ocean chemistry and biological impacts associated with ocean acidification at selected coastal and open-ocean monitoring stations, including satellite-based monitoring to characterize—

(A) marine ecosystems;

(B) changes in marine productivity; and

(C) changes in surface ocean chemistry.

(2) Research to understand the species specific physiological response of marine organisms to ocean acidification and to develop environmental and ecological indices that track marine ecosystem responses to ocean acidification.

(3) Modeling to predict changes in the ocean carbon cycle as a function of carbon dioxide and climate-induced changes in temperature, ocean circulation, biogeochemistry, ecosystem and terrestrial input, and modeling to determine impacts on marine ecosystems and individual marine organisms.

(4) Technology development and standardization of carbonate chemistry measurements on moorings and autonomous floats.

(5) Assessment of socioeconomic impacts of ocean acidification and development of adaptation and mitigation strategies to conserve marine organisms and marine ecosystems.

(d) NATIONAL ACADEMY OF SCIENCES EVALUATION.—The Secretary shall enter into an agreement with the National Academy of Sciences to review the plan.

(e) PUBLIC PARTICIPATION.—In developing the plan, the Subcommittee shall consult with representatives of academic, State, industry and environmental groups. Not later than 90 days before the plan, or any revision thereof, is submitted to the Congress, the plan shall be published in the Federal Register for a public comment period of not less than 60 days.

SEC. 6. NOAA OCEAN ACIDIFICATION PROGRAM.

The Secretary shall establish and maintain an ocean acidification program within the National Oceanic and Atmospheric Administration to implement activities consistent with the strategic research plan developed by the Subcommittee under section 5 that—

(1) includes—

(A) interdisciplinary research among the ocean and atmospheric sciences, and coordinated research and activities to improve understanding of ocean acidification;

(B) the establishment of a long-term monitoring program of ocean acidification utilizing existing global and national ocean observing assets, and adding instrumentation and sampling stations as appropriate to the aims of the research program;

(C) research to identify and develop adaptation strategies and techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification;

(D) as an integral part of the research programs described in this Act, educational opportunities that encourage an interdisciplinary and international approach to exploring the impacts of ocean acidification;

(E) as an integral part of the research programs described in this Act, national public outreach activities to improve the understanding of current scientific knowledge of ocean acidification and its impacts on marine resources; and

(F) coordination of ocean acidification monitoring and impacts research with other appropriate international ocean science bodies such as the International Oceanographic Commission, the International Council for the Exploration of the Sea, the North Pacific Marine Science Organization, and others;

(2) provides grants for critical research projects that explore the effects of ocean acidification on ecosystems and the socioeconomic impacts of increased ocean acidification that are relevant to the goals and priorities of the strategic research plan; and

(3) incorporates a competitive merit-based grant process that may be conducted jointly with other participating agencies or under the National Oceanographic Partnership Program under section 7901 of title 10, United States Code.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the National Oceanic and Atmospheric Administration to carry out the purposes of this Act—

(1) $6,000,000 for fiscal year 2009;

(2) $8,000,000 for fiscal year 2010;

(3) $11,000,000 for fiscal year 2011; and

(4) $30,000,000 for fiscal year 2012.