

SIXTEENTH CONGRESS OF THE REPUBLIC)
OF THE PHILIPPINES)
First Regular Session)



Senate
Office of the Secretary

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SENATE
S. No. 1324

RECEIVED BY: *J*

Introduced by Senator Miriam Defensor Santiago

EXPLANATORY NOTE

The Constitution, Article 2, Section 16 provides:

SEC. 16. The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.

As an archipelago, our country is surrounded by oceans. A great part of our economy is derived from ocean related industries. It is one of our paramount concerns to maintain the ecological balance of our oceans.

Ocean acidification is one of the growing concerns of scientists around the world. This phenomenon is defined as the decrease in pH of the Earth's oceans and changes in ocean chemistry caused by chemical inputs from the atmosphere, including carbon dioxide. One of the effects identified is the imbalance in calcium carbonate, leaving calcifying organisms vulnerable to dissolution. Such organisms include coccolithophores, corals, foraminifera, echinoderms, crustaceans and mollusks.

This bill seeks to establish research and monitoring initiative that would ensure that we would have sufficient information to act on the increasing danger of ocean acidification.*

Miriam Defensor Santiago
MIRIAM DEFENSOR SANTIAGO
ass.

* This bill was originally filed in the Fourteenth Congress, Second Regular Session.

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Introduced by Senator Miriam Defensor Santiago

1 AN ACT
2 PROVIDING FOR OCEAN ACIDIFICATION RESEARCH AND MONITORING

Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

3 SECTION 1. *Short Title.* — This Act shall be known as the “Ocean Acidification Research
4 and Monitoring Act.”

5 SECTION 2. *Purposes.* — The purposes of this Act are to provide for—

6 A. development and coordination of a comprehensive interagency plan to—

7 1. monitor and conduct research on the processes and consequences of ocean
8 acidification on marine organisms and ecosystems; and

9 2. establish an interagency research and monitoring program on ocean
10 acidification;

11 B. establishment of an ocean acidification program within the Philippine
12 Atmospheric, Geophysical and Astronomical Services Administration (PAGASA);

13 C. assessment and consideration of regional and national ecosystem and
14 socioeconomic impacts of increased ocean acidification; and

15 D. research on adaptation strategies and techniques for effectively conserving marine
16 ecosystems as they cope with increased ocean acidification.

17 SECTION 3. *Definition of Terms.* — For the purposes of this Act, the term:

18 A. OCEAN ACIDIFICATION - means the decrease in pH of the Earth's oceans and
19 changes in ocean chemistry caused by chemical inputs from the atmosphere, including carbon
20 dioxide;

1 B. SECRETARY - means the Secretary of Science and Technology; and

2 C. SUBCOMMITTEE - means the Joint Subcommittee on Ocean Science and
3 Technology of the Philippine Council for Aquatic and Marine Research and Development
4 (PCAMRD).

5 SECTION 4. *Interagency Subcommittee.* – The Joint Subcommittee on Ocean Science
6 and Technology of the PCAMRD shall coordinate national activities on ocean acidification.

7 SECTION 5. *Duties.* – The Subcommittee shall—

8 A. develop the strategic research and monitoring plan to guide national research on
9 ocean acidification required under this Act and oversee the implementation of the plan;

10 B. oversee the development of—

11 1. an assessment of the potential impacts of ocean acidification on marine
12 organisms and marine ecosystems; and

13 2. adaptation and mitigation strategies to conserve marine organisms and
14 ecosystems exposed to ocean acidification;

15 C. facilitate communication and outreach opportunities with nongovernmental
16 organizations and members of the stakeholder community with interests in marine resources;

17 D. coordinate the national research and monitoring program with research and
18 monitoring programs and scientists from other nations; and

19 E. establish or designate an Ocean Acidification Information Exchange to make
20 information on ocean acidification developed through or utilized by the interagency ocean
21 acidification program accessible through electronic means, including information which would
22 be useful to policymakers, researchers, and other stakeholders in mitigating or adapting to the
23 impacts of ocean acidification.

24 SECTION 6. *Report to Congress.* –

1 A. Not later than one (1) year after the effectivity of this Act, the Subcommittee shall
2 transmit a report to the appropriate committees in the Senate and the House of Representatives
3 that—

- 4 1. includes a summary of government funded ocean acidification research and
5 monitoring activities, including the budget for each of these activities; and
- 6 2. describes the progress in developing the strategic research plan required under
7 this Act.

8 B. Not later than two (2) years after the delivery of the initial report under paragraph
9 (1) and every 2 years thereafter, the Subcommittee shall transmit a report to the appropriate
10 committees in the Senate and the House of Representatives that—

- 11 1. a summary of government funded ocean acidification research and monitoring
12 activities, including the budget for each of these activities; and
- 13 2. an analysis of the progress made toward achieving the goals and priorities for
14 the strategic research plan developed by the Subcommittee under this Act.

15 C. Not later than two (2) years after the effectivity of this Act, the Subcommittee
16 shall transmit the strategic research plan developed under this Act to the appropriate committees
17 in the Senate and the House of Representatives. A revised plan shall be submitted at least once
18 every five (5) years thereafter.

19 SECTION 7. *Strategic Research Plan* - Not later than two (2) years after the effectivity
20 of this Act, the Subcommittee shall develop a strategic plan for national research and monitoring
21 on ocean acidification that will provide for an assessment of the impacts of ocean acidification
22 on marine organisms and marine ecosystems and the development of adaptation and mitigation
23 strategies to conserve marine organisms and marine ecosystems. In developing the plan, the
24 Subcommittee shall consider and use information, reports, and studies of ocean acidification that
25 have identified research and monitoring needed to better understand ocean acidification and its
26 potential impacts, and recommendations made by the National Research Council of the
27 Philippines (NRCP) in the review of the plan.

1 SECTION 8. *Contents of the Strategic Research Plan.* – The strategic research plan
2 shall–

3 A. establish, for the ten (10)-year period beginning in the year the plan is submitted,
4 the goals and priorities for national research and monitoring which will—

5 1. advance understanding of ocean acidification and its physical, chemical, and
6 biological impacts on marine organisms and marine ecosystems;

7 2. improve the ability to assess the socioeconomic impacts of ocean
8 acidification; and

9 3. provide information for the development of adaptation and mitigation
10 strategies to conserve marine organisms and marine ecosystems;

11 B. describe specific activities, including—

12 1. efforts to determine user needs;

13 2. research activities;

14 3. monitoring activities;

15 4. technology and methods development;

16 5. data collection;

17 6. database development;

18 7. modeling activities;

19 8. assessment of ocean acidification impacts; and

20 9. participation in international research efforts;

21 C. identify relevant programs and activities of the government agencies that
22 contribute to the interagency program directly and indirectly and set forth the role of each
23 government agency in implementing the plan;

24 D. consider and utilize, as appropriate, reports and studies conducted by other
25 entities;

26 E. make recommendations for the coordination of the local ocean acidification
27 research and monitoring activities with such activities of other nations and international
28 organizations;

1 F. outline budget requirements for national ocean acidification research and
2 monitoring and assessment activities to be conducted by each agency under the plan;

3 G. identify the monitoring systems and sampling programs currently employed in
4 collecting data relevant to ocean acidification and prioritize additional monitoring systems that
5 may be needed to ensure adequate data collection and monitoring of ocean acidification and its
6 impacts; and

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

9 SECTION 9. *Program Elements.* – The plan shall include at a minimum the following
10 program elements:

11 A. Monitoring of ocean chemistry and biological impacts associated with ocean
12 acidification at selected coastal and open-ocean monitoring stations, including satellite-based
13 monitoring to characterize—

- 14 1. marine ecosystems;
- 15 2. changes in marine productivity; and
- 16 3. changes in surface ocean chemistry.

17 B. Research to understand the species specific physiological response of marine
18 organisms to ocean acidification, impacts on marine food webs of ocean acidification, and to
19 develop environmental and ecological indices that track marine ecosystem responses to ocean
20 acidification.

21 C. Modeling to predict changes in the ocean carbon cycle as a function of carbon
22 dioxide and atmosphere-induced changes in temperature, ocean circulation, biogeochemistry,
23 ecosystem and terrestrial input, and modeling to determine impacts on marine ecosystems and
24 individual marine organisms.

25 D. Technology development and standardization of carbonate chemistry
26 measurements on moorings and autonomous floats.

27 E. Assessment of socioeconomic impacts of ocean acidification and development of
28 adaptation and mitigation strategies to conserve marine organisms and marine ecosystems.

1 SECTION 10. *NCRP Review*. – The Secretary shall enter into an agreement with the
2 NCRP to review the plan.

3 SECTION 11. *Public Participation*. – In developing the plan, the Subcommittee shall
4 consult with representatives of academic, local government, industry and environmental groups.
5 Not later than ninety (90) days before the plan, or any revision thereof, is submitted to the
6 Congress, the plan shall be duly published for a public comment period of not less than sixty (60)
7 days.

8 SECTION 12. *PAGASA Ocean Acidification Activities*. – The Secretary shall conduct
9 research and monitoring activities and may establish a program on ocean acidification within
10 PAGASA consistent with the strategic research plan developed by the Subcommittee under this
11 Act that—

12 A. Includes –

- 13 1. interdisciplinary research among the ocean and atmospheric sciences, and
14 coordinated research and activities to improve understanding of ocean
15 acidification;
- 16 2. the establishment of a long-term monitoring program of ocean acidification
17 utilizing existing global and national ocean observing assets, and adding
18 instrumentation and sampling stations as appropriate to the aims of the
19 research program;
- 20 3. research to identify and develop adaptation strategies and techniques for
21 effectively conserving marine ecosystems as they cope with increased ocean
22 acidification;
- 23 4. as an integral part of the research programs described in this Act, educational
24 opportunities that encourage an interdisciplinary and international approach to
25 exploring the impacts of ocean acidification;

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

4 6. coordination of ocean acidification monitoring and impacts research with
5 other appropriate international ocean science bodies;

6 B. provides grants for critical research projects that explore the effects of ocean
7 acidification on ecosystems and the socioeconomic impacts of increased ocean acidification that
8 are relevant to the goals and priorities of the strategic research plan; and

9 C. incorporates a competitive merit-based process for awarding grants.

10 SECTION 13. *Appropriations.* –The amount necessary for the implementation of this Act
11 is hereby appropriated from the National Treasury.

12 SECTION 14. *Separability Clause.* – If any provision or part hereof is held invalid or
13 unconstitutional, the remainder of the law or the provision not otherwise affected shall remain
14 valid and subsisting.

15 SECTION 15. *Repealing Clause.* – Any law, presidential decree or issuance, executive
16 order, letter of instruction, administrative order, rule, or regulation contrary to or inconsistent
17 with the provision of this Act is hereby repealed, modified, or amended accordingly.

18 SECTION 16. *Effectivity Clause.* – This Act shall take effect fifteen (15) days after its
19 publication in at least two (2) newspapers of general circulation.

Approved,