To authorize and strengthen the tsunami detection, forecast, warning, research, and mitigation program of the National Oceanic and Atmospheric Administration, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JULY 31, 2014

Ms. Bonamici (for herself, Mr. Rohrabacher, Ms. Eddie Bernice Johnson of Texas, Mr. Smith of Texas, Mr. Schrader, and Mr. DeFazio) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

To authorize and strengthen the tsunami detection, forecast, warning, research, and mitigation program of the National Oceanic and Atmospheric Administration, 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.

4 This Act may be cited as the “Tsunami Warning,
5 Education, and Research Act of 2014”.


SEC. 2. REFERENCES TO THE TSUNAMI WARNING AND EDUCATION ACT.

Except as otherwise expressly provided, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of the Tsunami Warning and Education Act (33 U.S.C. 3201 et seq.).

SEC. 3. EXPANSION OF PURPOSES OF TSUNAMI WARNING AND EDUCATION ACT.

Section 3 (33 U.S.C. 3202) is amended—

(1) in paragraph (1), by inserting “research,” after “warnings,”; 

(2) by amending paragraph (2) to read as follows:

“(2) to enhance and modernize the existing United States Tsunami Warning System to increase the accuracy of forecasts and warnings, to maintain full coverage of tsunami detection assets, and to reduce false alarms;”;

(3) by amending paragraph (3) to read as follows:

“(3) to improve and develop standards and guidelines for mapping, modeling, and assessment efforts to improve tsunami detection, forecasting,
warnings, notification, mitigation, resiliency, response, outreach, and recovery;”;

(4) by redesignating paragraphs (4), (5), and (6) as paragraphs (5), (6), and (8), respectively;

(5) by inserting after paragraph (3) the following:

“(4) to improve research efforts related to improving tsunami detection, forecasting, warnings, notification, mitigation, resiliency, response, outreach, and recovery;”;

(6) in paragraph (5), as so redesignated—

(A) by striking “and increase” and inserting “, increase, and develop uniform standards and guidelines for”; and

(B) by inserting “, including the warning signs of locally generated tsunami” after “approaching”;}

(7) in paragraph (6), as so redesignated, by striking “, including the Indian Ocean; and” and inserting a semicolon; and

(8) by inserting after paragraph (6), as so redesignated, the following:

“(7) to foster resilient communities in the face of tsunami and other coastal hazards; and”.

•HR 5309 IH
SEC. 4. MODIFICATION OF TSUNAMI FORECASTING AND WARNING PROGRAM.

(a) IN GENERAL.—Subsection (a) of section 4 (33 U.S.C. 3203) is amended by striking “Atlantic Ocean, Caribbean Sea, and Gulf of Mexico region” and inserting “Atlantic Ocean region, including the Caribbean Sea and the Gulf of Mexico”.

(b) COMPONENTS.—Subsection (b) of such section 4 is amended—

(1) in paragraph (1), by striking “established” and inserting “supported or maintained”;

(2) in paragraph (4), by inserting “and safeguarding port and harbor operations” after “communities”;

(3) in paragraph (7)—

(A) by inserting “, including graphical warning products,” after “warnings”; (B) by inserting “, territories,” after “States”; and

(C) by inserting “and Wireless Emergency Alerts” after “Hazards Program”; and

(4) in paragraph (8), by inserting “and commercial and Federal undersea communications cables” after “observing technologies”.

(c) TSUNAMI WARNING SYSTEM.—Subsection (c) of such section 4 is amended to read as follows:
“(c) TSUNAMI WARNING SYSTEM.—The program under this section shall operate a tsunami warning system that—

“(1) is capable of forecasting tsunami, including forecasting tsunami arrival time and inundation estimates, anywhere in the Pacific and Arctic Ocean regions and providing adequate warnings;

“(2) is capable of forecasting and providing adequate warnings in areas of the Atlantic Ocean, including the Caribbean Sea and Gulf of Mexico, that are determined—

“(A) to be geologically active, or to have significant potential for geological activity; and

“(B) to pose significant risks of tsunami for States along the coastal areas of the Atlantic Ocean, Caribbean Sea, or Gulf of Mexico; and

“(3) supports other international tsunami forecasting and warning efforts.”.

(d) TSUNAMI WARNING CENTERS.—Subsection (d) of such section 4 is amended to read as follows:

“(d) TSUNAMI WARNING CENTERS.—

“(1) IN GENERAL.—The Administrator shall support or maintain centers, as part of the National Centers for Environmental Prediction, to support
the tsunami warning system required by subsection (e). The Centers shall include—

“(A) the National Tsunami Warning Center, located in Alaska, which is primarily responsible for Alaska, the continental United States, and the Caribbean;

“(B) the Pacific Tsunami Warning Center, located in Hawai‘i, which is primarily responsible for Hawai‘i and other areas of the Pacific not covered by the National Center; and

“(C) any additional forecast and warning centers determined by the National Weather Service to be necessary.

“(2) RESPONSIBILITIES.—The responsibilities of the centers supported or maintained pursuant to paragraph (1) shall include the following:

“(A) Continuously monitoring data from seismological, deep ocean, coastal sea level, and tidal monitoring stations and other data sources as may be developed and deployed.

“(B) Evaluating earthquakes, landslides, and volcanic eruptions that have the potential to generate tsunami.

“(C) Evaluating deep ocean buoy data and tidal monitoring stations for indications of tsu-
nami resulting from earthquakes and other sources.

“(D) To the extent practicable, utilizing a range of models to predict tsunami arrival times and flooding estimates.

“(E) Disseminating forecasts and tsunami warning bulletins to Federal, State, and local government officials and the public.

“(F) Coordinating with the tsunami hazard mitigation program conducted under section 5 to ensure ongoing sharing of information between forecasters and emergency management officials.

“(G) Making data gathered under this Act and post-warning analyses conducted by the National Weather Service or other relevant Administration offices available to researchers.

“(3) Fail-safe warning capability.—The tsunami warning centers supported or maintained pursuant to paragraph (1) shall maintain a fail-safe warning capability and ability to perform back-up duties for each other.

“(4) Coordination with national weather service.—The National Weather Service shall co-
pursuant to paragraph (1) to ensure that regional and local forecast offices—

“(A) have the technical knowledge and capability to disseminate tsunami warnings for the communities they serve; and

“(B) leverage connections with local emergency management officials for optimally disseminating tsunami warnings and forecasts.

“(5) UNIFORM OPERATING PROCEDURES.—The Administrator shall—

“(A) develop uniform operational procedures for the centers supported or maintained pursuant to paragraph (1), including the use of software applications, checklists, decision support tools, and tsunami warning products that have been standardized across the program supported under this section;

“(B) ensure that processes and products of the warning system operated pursuant to subsection (e)—

“(i) reflect industry best practices;

“(ii) conform to the maximum extent practicable with internationally recognized standards for information technology; and
“(iii) conform to the maximum extent practicable with other warning products and practices of the National Weather Service;

“(C) ensure that future adjustments to operational protocols, processes, and warning products—

“(i) are made consistently across the warning system operated pursuant to subsection (e); and

“(ii) are applied in a uniform manner across such warning system; and

“(D) disseminate guidelines and metrics for evaluating and improving tsunami forecast models.

“(6) AVAILABLE RESOURCES.—The Administrator, through the National Weather Service, shall ensure that resources are available to fulfill the obligations of this Act. This includes ensuring supercomputing resources are available to run such computer models as are needed for purposes of the tsunami warning system operated pursuant to subsection (e).”.
(e) Transfer of Technology; Maintenance and Upgrades.—Subsection (e) of such section 4 is amended to read as follows:

“(e) Transfer of Technology; Maintenance and Upgrades.—In carrying out this section, the Administrator shall—

“(1) develop requirements for the equipment used to forecast tsunami, including—

“(A) provisions for multipurpose detection platforms;

“(B) reliability and performance metrics; and

“(C) to the maximum extent practicable, requirements for the integration of equipment with other United States and global ocean and coastal observation systems, the global Earth observing system of systems, the global seismic networks, and the Advanced National Seismic System;

“(2) develop and execute a plan for the transfer of technology from ongoing research conducted as part of the program supported or maintained under section 6 into the program under this section; and
“(3) ensure that the Administration’s operational tsunami detection equipment is properly maintained.”.

(f) FEDERAL COOPERATION.—Subsection (f) of such section 4 is amended to read as follows:

“(f) FEDERAL COOPERATION.—When deploying and maintaining tsunami detection technologies under the program under this section, the Administrator shall—

“(1) identify which assets of other Federal agencies are necessary to support such program; and

“(2) work with each agency identified under paragraph (1)—

“(A) to acquire the agency’s assistance; and

“(B) to prioritize the necessary assets.”.

(g) UNNECESSARY PROVISIONS.—Such section 4 is further amended by striking subsections (g) through (k).

SEC. 5. MODIFICATION OF NATIONAL TSUNAMI HAZARD MITIGATION PROGRAM.

(a) IN GENERAL.—Section 5 (33 U.S.C. 3204) is amended by striking subsections (a) through (d) and inserting the following:

“(a) PROGRAM REQUIRED.—The Administrator, in consultation with the Administrator of the Federal Emergency Management Agency and the heads of such other
agencies as the Administrator considers relevant, shall
conduct a community-based tsunami hazard mitigation
program to improve tsunami preparedness and resiliency
of at-risk areas in the United States and the territories
of the United States.

“(b) PROGRAM COMPONENTS.—The Program con-
ducted pursuant to subsection (a) shall include the fol-
lowing:

“(1) Technical and financial assistance to
coastal States, territories, tribes, and local govern-
ments to develop and implement activities under this
section.

“(2) Integration of tsunami preparedness and
mitigation programs into ongoing State-based haz-
ard warning, resilience planning, and risk manage-
ment activities, including predisaster planning, emer-
gency response, evacuation planning, disaster recov-
er, hazard mitigation, and community development
and redevelopment programs in affected areas.

“(3) Activities to promote the adoption of tsu-
nami resilience, preparedness, warning, and mitigat-
ion measures by Federal, State, territorial, tribal,
and local governments and nongovernmental entities,
including educational and risk communication pro-
grams to discourage development in high-risk areas.
“(4) Activities to support the development of regional tsunami hazard and risk assessments, using inundation models that meet programmatic standards for accuracy. Such regional risk assessments may include the following:

“(A) The sources, sizes, and histories of tsunami in that region.

“(B) Inundation models and maps of critical infrastructure and socioeconomic vulnerability in areas subject to tsunami inundation.

“(C) Maps of evacuation areas and evacuation routes.

“(D) Evaluations of the size of populations that will require evacuation, including populations with special evacuation needs.

“(5) Activities to support the development of community-based outreach and education programs to ensure community readiness and resilience, including the following:

“(A) The development, implementation, and assessment of technical training and public education programs, including education programs that address unique characteristics of distant and near-field tsunami.
“(B) The development of decision support tools.

“(C) The incorporation of social science research into community readiness and resilience efforts.

“(D) The development of evidence-based education guidelines.

“(6) Dissemination of guidelines and standards for community planning, education, and training products, programs, and tools, including standards for—

“(A) mapping products;

“(B) inundation models; and

“(C) effective emergency exercises.

“(c) AUTHORIZED ACTIVITIES.—In addition to activities conducted under subsection (b), the program conducted pursuant to subsection (a) may include the following:

“(1) Multidisciplinary vulnerability assessment research, education, and training to help integrate risk management and resilience objectives with community development planning and policies.

“(2) Risk management training for local officials and community organizations to enhance understanding and preparedness.
“(3) Development of practical applications for existing or emerging technologies, such as modeling, remote sensing, geospatial technology, engineering, and observing systems.

“(4) Risk management, risk assessment, and resilience data and information services, including—

“(A) access to data and products derived from observing and detection systems; and

“(B) development and maintenance of new integrated data products to support risk management, risk assessment, and resilience programs.

“(5) Risk notification systems that coordinate with and build upon existing systems and actively engage decisionmakers, local and State government agencies, business communities, nongovernmental organizations, and the media.

“(d) NO PREEMPTION.—

“(1) DESIGNATION OF AT-RISK AREAS.—The establishment of national standards for inundation models under this section shall not prevent States, territories, tribes, and local governments from designating additional areas as being at risk based on knowledge of local conditions.
“(2) No new regulatory authority.—Nothing in this Act may be construed as establishing new regulatory authority for any Federal agency.”.

(b) Report on Accreditation of TsunamiReady Program.—Not later than 180 days after the date of enactment of this Act, the Administrator of the National Oceanic and Atmospheric Administration shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report on which authorities and activities would be needed to have the TsunamiReady program of the National Weather Service accredited by the Emergency Management Accreditation Program.

SEC. 6. MODIFICATION OF TSUNAMI RESEARCH PROGRAM.

Section 6 (33 U.S.C. 3205) is amended—

(1) in the matter before paragraph (1), by striking “The Administrator shall” and all that follows through “establish or maintain” and inserting the following:

“(a) In General.—The Administrator shall, in consultation with such other Federal agencies, State and territorial governments, and academic institutions as the Administrator considers appropriate, the coordinating com-

•HR 5309 IH
mittee under section 11(b), and the panel under section 8(a), support or maintain”;

(2) by striking “and assessment for tsunami tracking and numerical forecast modeling. Such research program shall—” and inserting the following: “assessment for tsunami tracking and numerical forecast modeling, and standards development.

“(b) RESPONSIBILITIES.—The research program supported or maintained pursuant to subsection (a) shall—”;

(3) in subsection (b), as designated by paragraph (2)—

(A) by amending paragraph (1) to read as follows:

“(1) consider other appropriate research to mitigate the impact of tsunami, including the improvement of near-field tsunami detection and forecasting capabilities, which may include use of new generation Deep-ocean Assessment and Reporting of Tsunamis and National Oceanic and Atmospheric Administration supercomputer capacity to develop a rapid tsunami forecast for all United States coastlines;”;

(B) in paragraph (3)—
(i) by striking “include” and inserting “conduct”; and
(ii) by striking “and” at the end;
(C) by redesignating paragraph (4) as paragraph (5); and
(D) by inserting after paragraph (3) the following:
“(4) develop the technical basis for validation of tsunami maps, numerical tsunami models, digital elevation models, and forecasts; and”;
(4) by adding at the end the following:
“(c) PILOT PROJECT.—The Administrator may, pursuant to subsection (b), develop a pilot project for near-field tsunami forecast development for the Cascadia region along the west coast of the United States using new generation Deep-ocean Assessment and Reporting of Tsunamis, upcoming and existing cable networks, and new National Centers for Environmental Protection modeling capability.”.

SEC. 7. GLOBAL TSUNAMI WARNING AND MITIGATION NETWORK.

Section 7 (33 U.S.C. 3206) is amended—
(1) by amending subsection (a) to read as follows:
“(a) Support for Development of International Tsunami Warning System.—The Administrator shall, in coordination with the Secretary of State and in consultation with such other agencies as the Administrator considers relevant, provide technical assistance and training to the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific, and Cultural Organization, the World Meteorological Organization of the United Nations, and such other international entities as the Administrator considers appropriate, as part of the international efforts to develop a fully functional global tsunami forecast and warning system comprised of regional tsunami warning networks.”;

(2) in subsection (b), by striking “shall” and inserting “may”; and

(3) in subsection (c)—

(A) in paragraph (1), by striking “establishing” and inserting “supporting”; and

(B) in paragraph (2)—

(i) by striking “establish” and inserting “support”; and

(ii) by striking “establishing” and inserting “supporting”.

•HR 5309 IH
SEC. 8. TSUNAMI SCIENCE AND TECHNOLOGY ADVISORY PANEL.

(a) IN GENERAL.—The Act is further amended—

(1) by redesignating section 8 (33 U.S.C. 3207) as section 9; and

(2) by inserting after section 7 (33 U.S.C. 3206) the following:

“SEC. 8. TSUNAMI SCIENCE AND TECHNOLOGY ADVISORY PANEL.

“(a) DESIGNATION.—The Administrator shall designate the Ocean Exploration Advisory Working Group within the Science Advisory Board of the Administration to serve as the Tsunami Science and Technology Advisory Panel to provide advice to the Administrator on matters regarding tsunami science, technology, and regional preparedness.

“(b) MEMBERSHIP.—

“(1) COMPOSITION.—The working group designated under subsection (a) shall be composed of no fewer than 7 members selected by the Administrator from among individuals from academia or State agencies who have academic or practical expertise in physical sciences, social sciences, information technology, coastal resilience, emergency management, or such other disciplines as the Administrator considers appropriate.
“(2) Federal employment.—No member of the working group designated pursuant to subsection (a) may be a Federal employee.

“(c) Responsibilities.—Not less frequently than once every 4 years, the working group designated under subsection (a) shall—

“(1) review the activities of the Administration, and other Federal activities as appropriate, relating to tsunami research, detection, forecasting, warning, mitigation, resiliency, and preparation; and

“(2) submit to the Administrator and such others as the Administrator considers appropriate—

“(A) the findings of the working group with respect to the most recent review conducted pursuant to paragraph (1); and

“(B) such recommendations for legislative or administrative action as the working group considers appropriate to improve Federal tsunami research, detection, forecasting, warning, mitigation, resiliency, and preparation.

“(d) Reports to Congress.—Not less frequently than once every 4 years, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate, and the Committee on Science, Space, and Technology of the House of Representatives...
SEC. 9. REPORT ON IMPLEMENTATION OF TSUNAMI WARNING AND EDUCATION ACT.

(a) IN GENERAL.—Not later than 1 year after the date of the enactment of this Act, the Administrator shall submit to Congress a report on the implementation of the Tsunami Warning and Education Act (33 U.S.C. 3201 et seq.).

(b) ELEMENTS.—The report required by subsection (a) shall include the following:

(1) A detailed description of the progress made in implementing sections 4(d)(6), 5(b)(6), and 6(b)(4) of the Tsunami Warning and Education Act.

(2) A description of the ways that tsunami warnings and warning products issued by the Tsunami Forecasting and Warning Program established under section 4 of the Tsunami Warning and Education Act (33 U.S.C. 3203) can be standardized and streamlined with warnings and warning products for hurricanes, coastal storms, and other coastal flooding events.

SEC. 10. AUTHORIZATION OF APPROPRIATIONS.

Section 9 of the Act, as redesignated by section 8(a)(1) of this Act, is amended to read as follows:
“SEC. 9. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Administrator to carry out this Act $27,000,000 for each of fiscal years 2015 through 2017, of which—

“(1) not less than 27 percent of the amount appropriated for each fiscal year shall be for activities under the National Tsunami Hazard Mitigation Program under section 5; and

“(2) not less than 8 percent of the amount appropriated for each fiscal year shall be for the Tsunami Research Program under section 6.”.

SEC. 11. OUTREACH RESPONSIBILITIES.

(a) IN GENERAL.—The Administrator of the National Oceanic and Atmospheric Administration, in coordination with State and local emergency managers, shall develop and carry out formal outreach activities to improve tsunami education and awareness and foster the development of resilient communities. Outreach activities may include—

(1) the development of outreach plans to ensure the close integration of tsunami warning centers supported or maintained pursuant to section 4(d) of the Tsunami Warning and Education Act (33 U.S.C. 3203(d)) with local Weather Forecast Offices of the National Weather Service and emergency managers;
(2) working with appropriate local Weather
Forecast Offices to ensure they have the technical
knowledge and capability to disseminate tsunami
warnings to the communities they serve; and

(3) evaluating the effectiveness of warnings and
of coordination with local Weather Forecast Offices
after significant tsunami events.

(b) COORDINATING COMMITTEE OF THE NATIONAL
TSUNAMI HAZARD MITIGATION PROGRAM.—

(1) IN GENERAL.—The Administrator shall con-
vene a coordinating committee to assist the Adminis-
trator in the conduct of the program required by
section 5(a) of the Tsunami Warning and Education
Act (33 U.S.C. 3204(a)).

(2) COMPOSITION.—The coordinating com-
mittee shall be composed of members from each of
the States at risk from tsunami, and any other such
representatives as the Administrator considers ap-
propriate to represent Federal, State, tribal, terri-
torial, and local governments.

(3) SUBCOMMITTEES.—The Administrator may
approve the formation of subcommittees to address
specific program components or regional issues.

(4) RESPONSIBILITIES.—The coordinating com-
mittee shall—
(A) provide feedback on how funds should be prioritized to carry out the program required by section 5(a) of the Tsunami Warning and Education Act (33 U.S.C. 3204(a));

(B) ensure that areas described in section 4(c) of the Tsunami Warning and Education Act (33 U.S.C. 3203(c)) in the United States and its territories have the opportunity to participate in the program;

(C) provide recommendations to the Administrator on how to improve and continuously advance the TsunamiReady program, particularly on ways to make communities more tsunami resilient through the use of inundation maps and models and other hazard mitigation practices; and

(D) ensure that all components of the program required by section 5(a) of the Tsunami Warning and Education Act (33 U.S.C. 3204(a)) are integrated with ongoing State-based hazard warning, risk management, and resilience activities, including—

(i) integrating activities with emergency response plans, disaster recovery,
hazard mitigation, and community development programs in affected areas; and

(ii) integrating information to assist in tsunami evacuation route planning.