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114TH CONGRESS
1ST SESSION**H. R. 34****[Report No. 114–146]**

IN THE SENATE OF THE UNITED STATES

JANUARY 8, 2015

Received; read twice and referred to the Committee on Commerce, Science,
and Transportation

SEPTEMBER 22, 2015

Reported by Mr. THUNE, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]**AN ACT**

To authorize and strengthen the tsunami detection, forecast,
warning, research, and mitigation program of the Na-
tional 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 2015”.

1 **SEC. 2. REFERENCES TO THE TSUNAMI WARNING AND EDU-**
2 **CATION ACT.**

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

9 **SEC. 3. EXPANSION OF PURPOSES OF TSUNAMI WARNING**
10 **AND EDUCATION ACT.**

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

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

14 (2) by amending paragraph (2) to read as fol-
15 lows:

16 “(2) to enhance and modernize the existing
17 United States Tsunami Warning System to increase
18 the accuracy of forecasts and warnings, to maintain
19 full coverage of tsunami detection assets, and to re-
20 duce false alarms;”;

21 (3) by amending paragraph (3) to read as fol-
22 lows:

23 “(3) to improve and develop standards and
24 guidelines for mapping, modeling, and assessment
25 efforts to improve tsunami detection, forecasting,

1 warnings, notification, mitigation, resiliency, re-
 2 sponse, outreach, and recovery;”;

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

5 (5) by inserting after paragraph (3) the fol-
 6 lowing:

7 “(4) to improve research efforts related to im-
 8 proving tsunami detection, forecasting, warnings, no-
 9 tification, mitigation, resiliency, response, outreach,
 10 and recovery;”;

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

12 (A) by striking “and increase” and insert-
 13 ing “, increase, and develop uniform standards
 14 and guidelines for”; and

15 (B) by inserting “, including the warning
 16 signs of locally generated tsunami” after “ap-
 17 proaching”;

18 (7) in paragraph (6), as so redesignated, by
 19 striking “, including the Indian Ocean; and” and in-
 20 serting a semicolon; and

21 (8) by inserting after paragraph (6), as so re-
 22 designated, the following:

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

1 **SEC. 4. MODIFICATION OF TSUNAMI FORECASTING AND**
 2 **WARNING PROGRAM.**

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

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

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

12 (2) in paragraph (4), by inserting “and safe-
 13 guarding port and harbor operations” after “com-
 14 munities”;

15 (3) in paragraph (7)—

16 (A) by inserting “, including graphical
 17 warning products,” after “warnings”;

18 (B) by inserting “, territories,” after
 19 “States”; and

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

22 (4) in paragraph (8), by inserting “and com-
 23 mercial and Federal undersea communications ca-
 24 bles” after “observing technologies”.

25 (c) **TSUNAMI WARNING SYSTEM.**—Subsection (c) of
 26 such section 4 is amended to read as follows:

1 “(c) TSUNAMI WARNING SYSTEM.—The program
 2 under this section shall operate a tsunami warning system
 3 that—

4 “(1) is capable of forecasting tsunami, includ-
 5 ing forecasting tsunami arrival time and inundation
 6 estimates, anywhere in the Pacific and Arctic Ocean
 7 regions and providing adequate warnings;

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

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

14 “(B) to pose significant risks of tsunami
 15 for States along the coastal areas of the Atlan-
 16 tic Ocean, Caribbean Sea, or Gulf of Mexico;
 17 and

18 “(3) supports other international tsunami fore-
 19 casting and warning efforts.”

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

22 “(d) TSUNAMI WARNING CENTERS.—

23 “(1) IN GENERAL.—The Administrator shall
 24 support or maintain centers to support the tsunami

1 warning system required by subsection (c). The Cen-
2 ters shall include—

3 “(A) the National Tsunami Warning Cen-
4 ter, located in Alaska, which is primarily re-
5 sponsible for Alaska and the continental United
6 States;

7 “(B) the Pacific Tsunami Warning Center,
8 located in Hawaii, which is primarily respon-
9 sible for Hawaii, the Caribbean, and other
10 areas of the Pacific not covered by the National
11 Center; and

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

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

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

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

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

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

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

11 “(F) Coordinating with the tsunami haz-
12 ard mitigation program conducted under section
13 5 to ensure ongoing sharing of information be-
14 tween forecasters and emergency management
15 officials.

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

20 “(3) FAIL-SAFE WARNING CAPABILITY.—The
21 tsunami warning centers supported or maintained
22 pursuant to paragraph (1) shall maintain a fail-safe
23 warning capability and ability to perform back-up
24 duties for each other.

1 “(4) COORDINATION WITH NATIONAL WEATHER
2 SERVICE.—The National Weather Service shall co-
3 ordinate with the centers supported or maintained
4 pursuant to paragraph (1) to ensure that regional
5 and local forecast offices—

6 “(A) have the technical knowledge and ca-
7 pability to disseminate tsunami warnings for
8 the communities they serve; and

9 “(B) leverage connections with local emer-
10 gency management officials for optimally dis-
11 seminating tsunami warnings and forecasts.

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

14 “(A) develop uniform operational proce-
15 dures for the centers supported or maintained
16 pursuant to paragraph (1), including the use of
17 software applications, checklists, decision sup-
18 port tools, and tsunami warning products that
19 have been standardized across the program sup-
20 ported under this section;

21 “(B) ensure that processes and products of
22 the warning system operated pursuant to sub-
23 section (c)—

24 “(i) reflect industry best practices;

1 “(ii) conform to the maximum extent
2 practicable with internationally recognized
3 standards for information technology; and

4 “(iii) conform to the maximum extent
5 practicable with other warning products
6 and practices of the National Weather
7 Service;

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

11 “(i) are made consistently across the
12 warning system operated pursuant to sub-
13 section (c); and

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

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

19 “(6) AVAILABLE RESOURCES.—The Adminis-
20 trator, through the National Weather Service, shall
21 ensure that resources are available to fulfill the obli-
22 gations of this Act. This includes ensuring super-
23 computing resources are available to run such com-
24 puter models as are needed for purposes of the tsu-

1 nami warning system operated pursuant to sub-
2 section (e).”.

3 ~~(e) TRANSFER OF TECHNOLOGY; MAINTENANCE AND~~
4 UPGRADES.—Subsection (e) of such section 4 is amended
5 to read as follows:

6 ~~“(e) TRANSFER OF TECHNOLOGY; MAINTENANCE~~
7 ~~AND UPGRADES.—In carrying out this section, the Admin-~~
8 ~~istrator shall—~~

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

11 ~~“(A) provisions for multipurpose detection~~
12 ~~platforms;~~

13 ~~“(B) reliability and performance metrics;~~
14 ~~and~~

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

22 ~~“(2) develop and execute a plan for the transfer~~
23 ~~of technology from ongoing research conducted as~~
24 ~~part of the program supported or maintained under~~
25 ~~section 6 into the program under this section; and~~

1 ~~“(3) ensure that the Administration’s oper-~~
 2 ~~ational tsunami detection equipment is properly~~
 3 ~~maintained.”.~~

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

6 ~~“(f) FEDERAL COOPERATION.—~~When deploying and
 7 maintaining tsunami detection technologies under the pro-
 8 gram under this section, the Administrator shall—

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

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

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

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

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

18 **SEC. 5. MODIFICATION OF NATIONAL TSUNAMI HAZARD**
 19 **MITIGATION PROGRAM.**

20 ~~(a) IN GENERAL.—~~Section 5 (33 U.S.C. 3204) is
 21 amended by striking subsections (a) through (d) and in-
 22 serting the following:

23 ~~“(a) PROGRAM REQUIRED.—~~The Administrator, in
 24 consultation with the Administrator of the Federal Emer-
 25 gency Management Agency and the heads of such other

1 agencies as the Administrator considers relevant, shall
2 conduct a community-based tsunami hazard mitigation
3 program to improve tsunami preparedness and resiliency
4 of at-risk areas in the United States and the territories
5 of the United States.

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

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

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

20 “(3) Activities to promote the adoption of tsu-
21 nami resilience, preparedness, warning, and mitiga-
22 tion measures by Federal, State, territorial, tribal,
23 and local governments and nongovernmental entities,
24 including educational and risk communication pro-
25 grams to discourage development in high-risk areas.

1 “(4) Activities to support the development of
2 regional tsunami hazard and risk assessments, using
3 inundation models that meet programmatic stand-
4 ards for accuracy. Such regional risk assessments
5 may include the following:

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

8 “(B) Inundation models and maps of crit-
9 ical infrastructure and socioeconomic vulner-
10 ability in areas subject to tsunami inundation.

11 “(C) Maps of evacuation areas and evacu-
12 ation routes.

13 “(D) Evaluations of the size of populations
14 that will require evacuation, including popu-
15 lations with special evacuation needs.

16 “(5) Activities to support the development of
17 community-based outreach and education programs
18 to ensure community readiness and resilience, in-
19 cluding the following:

20 “(A) The development, implementation,
21 and assessment of technical training and public
22 education programs, including education pro-
23 grams that address unique characteristics of
24 distant and near-field tsunami.

1 “(B) The development of decision support
2 tools:

3 “(C) The incorporation of social science re-
4 search into community readiness and resilience
5 efforts:

6 “(D) The development of evidence-based
7 education guidelines:

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

12 “(A) mapping products;

13 “(B) inundation models; and

14 “(C) effective emergency exercises:

15 “(e) AUTHORIZED ACTIVITIES.—In addition to activi-
16 ties conducted under subsection (b), the program con-
17 ducted pursuant to subsection (a) may include the fol-
18 lowing:

19 “(1) Multidisciplinary vulnerability assessment
20 research, education, and training to help integrate
21 risk management and resilience objectives with com-
22 munity development planning and policies:

23 “(2) Risk management training for local offi-
24 cials and community organizations to enhance un-
25 derstanding and preparedness:

1 ~~“(3) Development of practical applications for~~
2 ~~existing or emerging technologies, such as modeling,~~
3 ~~remote sensing, geospatial technology, engineering,~~
4 ~~and observing systems.~~

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

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

9 ~~“(B) development and maintenance of new~~
10 ~~integrated data products to support risk man-~~
11 ~~agement, risk assessment, and resilience pro-~~
12 ~~grams.~~

13 ~~“(5) Risk notification systems that coordinate~~
14 ~~with and build upon existing systems and actively~~
15 ~~engage decisionmakers, local and State government~~
16 ~~agencies, business communities, nongovernmental or-~~
17 ~~ganizations, and the media.~~

18 ~~“(d) NO PREEMPTION.—~~

19 ~~“(1) DESIGNATION OF AT-RISK AREAS.—The~~
20 ~~establishment of national standards for inundation~~
21 ~~models under this section shall not prevent States,~~
22 ~~territories, tribes, and local governments from desig-~~
23 ~~nating additional areas as being at risk based on~~
24 ~~knowledge of local conditions.~~

1 ~~“(2) NO NEW REGULATORY AUTHORITY.—~~
 2 Nothing in this Act may be construed as estab-
 3 lishing new regulatory authority for any Federal
 4 agency.”.

5 (b) ~~REPORT ON ACCREDITATION OF TSUNAMIREADY~~
 6 ~~PROGRAM.—~~Not later than 180 days after the date of en-
 7 actment of this Act, the Administrator of the National
 8 Oceanic and Atmospheric Administration shall submit to
 9 the Committee on Commerce, Science, and Transportation
 10 of the Senate and the Committee on Science, Space, and
 11 Technology of the House of Representatives a report on
 12 which authorities and activities would be needed to have
 13 the TsunamiReady program of the National Weather
 14 Service accredited by the Emergency Management Accred-
 15 itation Program.

16 **SEC. 6. MODIFICATION OF TSUNAMI RESEARCH PROGRAM.**

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

18 (1) in the matter before paragraph (1), by
 19 striking “The Administrator shall” and all that fol-
 20 lows through “establish or maintain” and inserting
 21 the following:

22 ~~“(a) IN GENERAL.—~~The Administrator shall, in con-
 23 sultation with such other Federal agencies, State and ter-
 24 ritorial governments, and academic institutions as the Ad-
 25 ministrator considers appropriate, the coordinating com-

1 mittee under section 11(b), and the panel under section
2 8(a), support or maintain”;

3 (2) by striking “and assessment for tsunami
4 tracking and numerical forecast modeling. Such re-
5 search program shall—” and inserting the following:
6 “assessment for tsunami tracking and numerical
7 forecast modeling, and standards development.

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

11 (3) in subsection (b), as designated by para-
12 graph (2)—

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

15 “(1) consider other appropriate research to
16 mitigate the impact of tsunami, including the im-
17 provement of near-field tsunami detection and fore-
18 casting capabilities, which may include use of new
19 generation Deep-ocean Assessment and Reporting of
20 Tsunamis and National Oceanic and Atmospheric
21 Administration supercomputer capacity to develop a
22 rapid tsunami forecast for all United States coast-
23 lines;”;

24 (B) in paragraph (3)—

1 (i) by striking “include” and inserting
2 “conduct”; and

3 (ii) by striking “and” at the end;

4 (C) by redesignating paragraph (4) as
5 paragraph (5); and

6 (D) by inserting after paragraph (3) the
7 following:

8 “(4) develop the technical basis for validation of
9 tsunami maps, numerical tsunami models, digital
10 elevation models, and forecasts; and”; and

11 (4) by adding at the end the following:

12 “(e) PILOT PROJECT.—The Administrator may, pur-
13 suant to subsection (b), develop a pilot project for near-
14 field tsunami forecast development for the Cascadia region
15 along the west coast of the United States using new gen-
16 eration Deep-ocean Assessment and Reporting of
17 Tsunamis, upcoming and existing cable networks, and new
18 National Centers for Environmental Protection modeling
19 capability.”.

20 **SEC. 7. GLOBAL TSUNAMI WARNING AND MITIGATION NET-**
21 **WORK.**

22 Section 7 (33 U.S.C. 3206) is amended—

23 (1) by amending subsection (a) to read as fol-
24 lows:

1 “(a) SUPPORT FOR DEVELOPMENT OF INTER-
 2 NATIONAL TSUNAMI WARNING SYSTEM.—The Adminis-
 3 trator shall, in coordination with the Secretary of State
 4 and in consultation with such other agencies as the Ad-
 5 ministrator considers relevant, provide technical assistance
 6 and training to the Intergovernmental Oceanographic
 7 Commission of the United Nations Educational, Scientific,
 8 and Cultural Organization, the World Meteorological Or-
 9 ganization of the United Nations, and such other inter-
 10 national entities as the Administrator considers appro-
 11 priate, as part of the international efforts to develop a
 12 fully functional global tsunami forecast and warning sys-
 13 tem comprised of regional tsunami warning networks.”;

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

16 (3) in subsection (c)—

17 (A) in paragraph (1), by striking “estab-
 18 lishing” and inserting “supporting”; and

19 (B) in paragraph (2)—

20 (i) by striking “establish” and insert-
 21 ing “support”; and

22 (ii) by striking “establishing” and in-
 23 serting “supporting”.

1 **SEC. 8. TSUNAMI SCIENCE AND TECHNOLOGY ADVISORY**

2 **PANEL.**

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

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

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

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

9 **PANEL.**

10 “(a) ~~DESIGNATION.~~—The Administrator shall des-
11 ignate an existing working group within the Science Advi-
12 sory Board of the Administration to serve as the Tsunami
13 Science and Technology Advisory Panel to provide advice
14 to the Administrator on matters regarding tsunami
15 science, technology, and regional preparedness.

16 “(b) ~~MEMBERSHIP.~~—

17 “(1) ~~COMPOSITION.~~—The working group des-
18 ignated under subsection (a) shall be composed of no
19 fewer than 7 members selected by the Administrator
20 from among individuals from academia or State
21 agencies who have academic or practical expertise in
22 physical sciences, social sciences, information tech-
23 nology, coastal resilience, emergency management,
24 or such other disciplines as the Administrator con-
25 siders appropriate.

1 ~~“(2) FEDERAL EMPLOYMENT.—No member of~~
2 the working group designated pursuant to subsection
3 ~~(a) may be a Federal employee.~~

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

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

11 ~~“(2) submit to the Administrator and such oth-~~
12 ers as the Administrator considers appropriate—

13 ~~“(A) the findings of the working group~~
14 with respect to the most recent review con-
15 ducted pursuant to paragraph ~~(1)~~; and

16 ~~“(B) such recommendations for legislative~~
17 or administrative action as the working group
18 considers appropriate to improve Federal tsu-
19 nami research, detection, forecasting, warning,
20 mitigation, resiliency, and preparation.

21 ~~“(d) REPORTS TO CONGRESS.—Not less frequently~~
22 than once every 4 years, the Administrator shall submit
23 to the Committee on Commerce, Science, and Transpor-
24 tation of the Senate, and the Committee on Science,
25 Space, and Technology of the House of Representatives

1 a report on the findings and recommendations received by
 2 the Administrator under subsection (c)(2).”.

3 **SEC. 9. REPORT ON IMPLEMENTATION OF TSUNAMI WARN-**
 4 **ING AND EDUCATION ACT.**

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

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

12 (1) A detailed description of the progress made
 13 in implementing sections 4(d)(6), 5(b)(6), and
 14 6(b)(4) of the Tsunami Warning and Education Act.

15 (2) A description of the ways that tsunami
 16 warnings and warning products issued by the Tsu-
 17 nami Forecasting and Warning Program established
 18 under section 4 of the Tsunami Warning and Edu-
 19 cation Act (33 U.S.C. 3203) can be standardized
 20 and streamlined with warnings and warning prod-
 21 ucts for hurricanes, coastal storms, and other coast-
 22 al flooding events.

23 **SEC. 10. AUTHORIZATION OF APPROPRIATIONS.**

24 Section 9 of the Act, as redesignated by section
 25 8(a)(1) of this Act, is amended to read as follows:

1 **“SEC. 9. AUTHORIZATION OF APPROPRIATIONS.**

2 “There are authorized to be appropriated to the Ad-
3 ministrator to carry out this Act \$27,000,000 for each of
4 fiscal years 2015 through 2017, of which—

5 “(1) not less than 27 percent of the amount ap-
6 propriated for each fiscal year shall be for activities
7 under the National Tsunami Hazard Mitigation Pro-
8 gram under section 5; and

9 “(2) not less than 8 percent of the amount ap-
10 propriated for each fiscal year shall be for the Tsu-
11 nami Research Program under section 6.”

12 **SEC. 11. OUTREACH RESPONSIBILITIES.**

13 (a) IN GENERAL.—The Administrator of the Na-
14 tional Oceanic and Atmospheric Administration, in coordi-
15 nation with State and local emergency managers, shall de-
16 velop and carry out formal outreach activities to improve
17 tsunami education and awareness and foster the develop-
18 ment of resilient communities. Outreach activities may in-
19 clude—

20 (1) the development of outreach plans to ensure
21 the close integration of tsunami warning centers
22 supported or maintained pursuant to section 4(d) of
23 the Tsunami Warning and Education Act (33
24 U.S.C. 3203(d)) with local Weather Forecast Offices
25 of the National Weather Service and emergency
26 managers;

1 (2) working with appropriate local Weather
2 Forecast Offices to ensure they have the technical
3 knowledge and capability to disseminate tsunami
4 warnings to the communities they serve; and

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

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

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

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

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

24 (4) RESPONSIBILITIES.—The coordinating com-
25 mittee shall—

1 (A) provide feedback on how funds should
2 be prioritized to carry out the program required
3 by section 5(a) of the Tsunami Warning and
4 Education Act (33 U.S.C. 3204(a));

5 (B) ensure that areas described in section
6 4(e) of the Tsunami Warning and Education
7 Act (33 U.S.C. 3203(e)) in the United States
8 and its territories have the opportunity to par-
9 ticipate in the program;

10 (C) provide recommendations to the Ad-
11 ministrator on how to improve and continuously
12 advance the TsunamiReady program, particu-
13 larly on ways to make communities more tsu-
14 nami resilient through the use of inundation
15 maps and models and other hazard mitigation
16 practices; and

17 (D) ensure that all components of the pro-
18 gram required by section 5(a) of the Tsunami
19 Warning and Education Act (33 U.S.C.
20 3204(a)) are integrated with ongoing State-
21 based hazard warning, risk management, and
22 resilience activities, including—

23 (i) integrating activities with emer-
24 gency response plans, disaster recovery,

1 hazard mitigation, and community develop-
 2 ment programs in affected areas; and
 3 (ii) integrating information to assist
 4 in tsunami evacuation route planning.

5 **SECTION 1. SHORT TITLE.**

6 *This Act may be cited as the “Tsunami Warning, Edu-*
 7 *cation, and Research Act of 2015”.*

8 **SEC. 2. REFERENCES TO THE TSUNAMI WARNING AND EDU-**
 9 **CATION ACT.**

10 *Except as otherwise expressly provided, whenever in*
 11 *this Act an amendment or repeal is expressed in terms of*
 12 *an amendment to, or repeal of, a section or other provision,*
 13 *the reference shall be considered to be made to a section or*
 14 *other provision of the Tsunami Warning and Education*
 15 *Act (Public Law 109–424; 33 U.S.C. 3201 et seq.).*

16 **SEC. 3. EXPANSION OF PURPOSES OF TSUNAMI WARNING**
 17 **AND EDUCATION ACT.**

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

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

21 (2) *by amending paragraph (2) to read as fol-*
 22 *lows:*

23 *“(2) to enhance and modernize the existing*
 24 *United States Tsunami Warning System to increase*
 25 *the accuracy of forecasts and warnings, to ensure full*

1 *coverage of tsunami threats to the United States with*
 2 *a network of detection assets, and to reduce false*
 3 *alarms;”;*

4 *(3) by amending paragraph (3) to read as fol-*
 5 *lows:*

6 *“(3) to improve and develop standards and*
 7 *guidelines for mapping, modeling, and assessment ef-*
 8 *forts to improve tsunami detection, forecasting, warn-*
 9 *ings, notification, mitigation, resiliency, response,*
 10 *outreach, and recovery;”;*

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

13 *(5) by inserting after paragraph (3) the fol-*
 14 *lowing:*

15 *“(4) to improve research efforts related to im-*
 16 *proving tsunami detection, forecasting, warnings, no-*
 17 *tification, mitigation, resiliency, response, outreach,*
 18 *and recovery;”;*

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

20 *(A) by striking “and increase” and insert-*
 21 *ing “, increase, and develop uniform standards*
 22 *and guidelines for”; and*

23 *(B) by inserting “, including the warning*
 24 *signs of locally generated tsunami” after “ap-*
 25 *proaching”;*

1 (7) in paragraph (6), as so redesignated, by
 2 striking “, including the Indian Ocean; and” and in-
 3 serting a semicolon; and

4 (8) by inserting after paragraph (6), as so redesi-
 5 gnated, the following:

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

8 **SEC. 4. MODIFICATION OF TSUNAMI FORECASTING AND**
 9 **WARNING PROGRAM.**

10 (a) *IN GENERAL.*—Subsection (a) of section 4 (33
 11 U.S.C. 3203) is amended by striking “Atlantic Ocean, Car-
 12 ibbean Sea, and Gulf of Mexico region” and inserting “At-
 13 lantic Ocean region, including the Caribbean Sea and the
 14 Gulf of Mexico”.

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

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

19 (2) by redesignating paragraphs (7) through (9)
 20 as paragraphs (9) through (11), respectively;

21 (3) by redesignating paragraphs (2) through (6)
 22 as paragraphs (3) through (7), respectively;

23 (4) by inserting after paragraph (1) the fol-
 24 lowing:

1 “(2) to the degree practicable, maintain not less
2 than 80 percent of the Deep-ocean Assessment and Re-
3 porting of Tsunamis buoy array at operational ca-
4 pacity to optimize data reliability;”.

5 (5) by amending paragraph (5), as redesignated
6 by paragraph (3), to read as follows:

7 “(5) provide tsunami forecasting capability
8 based on models and measurements, including tsu-
9 nami inundation models and maps for use in increas-
10 ing the preparedness of communities and safe-
11 guarding port and harbor operations, that incor-
12 porate inputs, including—

13 “(A) the United States and global ocean
14 and coastal observing system;

15 “(B) the global Earth observing system;

16 “(C) the global seismic network;

17 “(D) the Advanced National Seismic sys-
18 tem;

19 “(E) tsunami model validation using his-
20 torical and paleotsunami data;

21 “(F) digital elevation models and bathym-
22 etry; and

23 “(G) newly developing tsunami detection
24 methodologies using satellites and airborne re-
25 mote sensing;”;

(6) by inserting after paragraph (7), as redesignated by paragraph (3), the following:

“(8) include a cooperative effort among the Administration, the United States Geological Survey, and the National Science Foundation under which the Director of the United States Geological Survey and the Director of the National Science Foundation shall—

“(A) provide rapid and reliable seismic information to the Administrator from international and domestic seismic networks; and

“(B) support seismic stations installed before the date of the enactment of the Tsunami Warning, Education, and Research Act of 2015 to supplement coverage in areas of sparse instrumentation;”.

(7) in paragraph (9), as redesignated by paragraph (2)—

(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

1 (8) in paragraph (10), as redesignated by para-
2 graph (2)—

3 (A) by inserting “provide and” before
4 “allow”; and

5 (B) by inserting “and commercial and Fed-
6 eral undersea communications cables” after “ob-
7 serving technologies”.

8 (c) *TSUNAMI WARNING SYSTEM*.—Subsection (c) of
9 such section 4 is amended to read as follows:

10 “(c) *TSUNAMI WARNING SYSTEM*.—The program
11 under this section shall operate a tsunami warning system
12 that—

13 “(1) is capable of forecasting tsunami, including
14 forecasting tsunami arrival time and inundation esti-
15 mates, anywhere in the Pacific and Arctic Ocean re-
16 gions and providing adequate warnings;

17 “(2) is capable of forecasting and providing ade-
18 quate warnings, including tsunami arrival time and
19 inundation models where applicable, in areas of the
20 Atlantic Ocean, including the Caribbean Sea and
21 Gulf of Mexico, that are determined—

22 “(A) to be geologically active, or to have sig-
23 nificant potential for geological activity; and

1 “(B) to pose significant risks of tsunami for
 2 States along the coastal areas of the Atlantic
 3 Ocean, Caribbean Sea, or Gulf of Mexico; and
 4 “(3) supports other international tsunami fore-
 5 casting and warning efforts.”.

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

8 “(d) *TSUNAMI WARNING CENTERS*.—

9 “(1) *IN GENERAL*.—The Administrator shall
 10 support or maintain centers to support the tsunami
 11 warning system required by subsection (c). The Cen-
 12 ters shall include—

13 “(A) the National Tsunami Warning Cen-
 14 ter, located in Alaska, which is primarily re-
 15 sponsible for Alaska and the continental United
 16 States;

17 “(B) the Pacific Tsunami Warning Center,
 18 located in Hawaii, which is primarily respon-
 19 sible for Hawaii, the Caribbean, and other areas
 20 of the Pacific not covered by the National Center;
 21 and

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

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

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

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

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

15 “(D) *To the extent practicable, utilizing a*
16 *range of models, including ensemble models, to*
17 *predict tsunami, including arrival times, flood-*
18 *ing estimates, coastal and harbor currents, and*
19 *duration.*

20 “(E) *Using data from the Integrated Ocean*
21 *Observing System of the Administration in co-*
22 *ordination with regional associations to calculate*
23 *new inundation estimates and periodically up-*
24 *date existing inundation estimates.*

1 “(F) Ensuring supercomputing resources of
2 the National Centers for Environmental Pre-
3 diction are available to run, as rapidly as pos-
4 sible, such computer models as are needed for
5 purposes of the tsunami warning system oper-
6 ated pursuant to subsection (c).

7 “(G) Disseminating forecasts and tsunami
8 warning bulletins to Federal, State, tribal, and
9 local government officials and the public.

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

14 “(I) Evaluating and recommending proce-
15 dures for ports and harbors at risk of tsunami
16 inundation, including review of readiness, re-
17 sponse, and communication strategies to ensure
18 coordination and data sharing with the Coast
19 Guard.

20 “(J) Making data gathered under this Act
21 and post-warning analyses conducted by the Na-
22 tional Weather Service or other relevant Admin-
23 istration offices available to the public.

24 “(K) Integrating and modernizing the pro-
25 gram operated under this section with advances

1 *in tsunami science to improve performance with-*
 2 *out compromising service.*

3 “(3) *FAIL-SAFE WARNING CAPABILITY.—The tsu-*
 4 *nami warning centers supported or maintained pur-*
 5 *suant to paragraph (1) shall maintain a fail-safe*
 6 *warning capability and perform back-up duties for*
 7 *each other.*

8 “(4) *COORDINATION WITH NATIONAL WEATHER*
 9 *SERVICE.—The Administrator shall coordinate with*
 10 *the forecast offices of the National Weather Service,*
 11 *the centers supported or maintained pursuant to*
 12 *paragraph (1), and such program offices of the Ad-*
 13 *ministration as the Administrator or the coordinating*
 14 *committee consider appropriate to ensure that re-*
 15 *gional and local forecast offices—*

16 “(A) *have the technical knowledge and ca-*
 17 *pability to disseminate tsunami warnings for the*
 18 *communities they serve;*

19 “(B) *leverage connections with local emer-*
 20 *gency management officials for optimally dis-*
 21 *seminating tsunami warnings and forecasts; and*

22 “(C) *implement mass communication tools*
 23 *in effect on the day before the date of the enact-*
 24 *ment of the Tsunami Warning, Education, and*
 25 *Research Act of 2015 used by the National*

1 *Weather Service on such date and newer mass*
2 *communication technologies as they are devel-*
3 *oped as a part of the Weather-Ready Nation pro-*
4 *gram of the Administration, or otherwise, for the*
5 *purpose of timely and effective delivery of tsu-*
6 *nami warnings.*

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

9 “(A) *develop uniform operational proce-*
10 *dures for the centers supported or maintained*
11 *pursuant to paragraph (1), including the use of*
12 *software applications, checklists, decision sup-*
13 *port tools, and tsunami warning products that*
14 *have been standardized across the program sup-*
15 *ported under this section;*

16 “(B) *ensure that processes and products of*
17 *the warning system operated pursuant to sub-*
18 *section (c)—*

19 “(i) *reflect industry best practices*
20 *when practicable;*

21 “(ii) *conform to the maximum extent*
22 *practicable with internationally recognized*
23 *standards for information technology; and*

24 “(iii) *conform to the maximum extent*
25 *practicable with other warning products*

1 *and practices of the National Weather Serv-*
2 *ice;*

3 “(C) *ensure that future adjustments to oper-*
4 *ational protocols, processes, and warning prod-*
5 *ucts—*

6 “(i) *are made consistently across the*
7 *warning system operated pursuant to sub-*
8 *section (c); and*

9 “(ii) *are applied in a uniform manner*
10 *across such warning system;*

11 “(D) *establish a systematic method for in-*
12 *formation technology product development to im-*
13 *prove long-term technology planning efforts; and*

14 “(E) *disseminate guidelines and metrics for*
15 *evaluating and improving tsunami forecast mod-*
16 *els.*

17 “(6) *AVAILABLE RESOURCES.—The Adminis-*
18 *trator, through the National Weather Service, shall*
19 *ensure that resources are available to fulfill the obli-*
20 *gations of this Act. This includes ensuring supercom-*
21 *puting resources are available to run such computer*
22 *models as are needed for purposes of the tsunami*
23 *warning system operated pursuant to subsection (c).”.*

1 *(e) TRANSFER OF TECHNOLOGY; MAINTENANCE AND*
 2 *UPGRADES.—Subsection (e) of such section 4 is amended*
 3 *to read as follows:*

4 *“(e) TRANSFER OF TECHNOLOGY; MAINTENANCE AND*
 5 *UPGRADES.—In carrying out this section, the Adminis-*
 6 *trator shall—*

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

9 *“(A) provisions for multipurpose detection*
 10 *platforms;*

11 *“(B) reliability and performance metrics;*
 12 *and*

13 *“(C) to the maximum extent practicable, re-*
 14 *quirements for the integration of equipment with*
 15 *other United States and global ocean and coastal*
 16 *observation systems, the global Earth observing*
 17 *system of systems, the global seismic networks,*
 18 *and the Advanced National Seismic System;*

19 *“(2) develop and execute a plan for the transfer*
 20 *of technology from ongoing research conducted as part*
 21 *of the program supported or maintained under sec-*
 22 *tion 6 into the program under this section; and*

23 *“(3) ensure that the Administration’s oper-*
 24 *ational tsunami detection equipment is properly*
 25 *maintained.”.*

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

3 “(f) *FEDERAL COOPERATION.*—When deploying and
4 maintaining tsunami detection technologies under the pro-
5 gram under this section, the Administrator shall—

6 “(1) identify which assets of other Federal agen-
7 cies are necessary to support such program; and

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

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

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

12 (g) *UNNECESSARY PROVISIONS.*—Such section 4 is fur-
13 ther amended—

14 (1) by striking subsections (g) and (i) through
15 (k); and

16 (2) by redesignating subsection (h) as subsection
17 (g).

18 (h) *CONGRESSIONAL NOTIFICATIONS.*—Subsection (g)
19 of such section, as redesignated by subsection (g)(2), is
20 amended—

21 (1) by redesignating paragraphs (1) and (2) as
22 subparagraphs (A) and (B), respectively, and moving
23 such subparagraphs 2 ems to the right;

(2) in the matter before subparagraph (A), as redesignated by paragraph (1), by striking “The Administrator” and inserting the following:

“(1) *IN GENERAL.—The Administrator*”;

(3) in paragraph (1), as redesignated by paragraph (2)—

(A) in subparagraph (A), as redesignated by paragraph (1), by striking “and” at the end;

(B) in subparagraph (B), as redesignated by paragraph (1), by striking the period at the end and inserting “; and”; and

(C) by adding at the end the following:

“(C) the occurrence of a significant tsunami warning.”; and

(4) by adding at the end the following:

“(2) *CONTENTS.—In a case in which notice is submitted under paragraph (1) within 90 days of a significant tsunami warning described in subparagraph (C) of such paragraph, such notice shall include brief information and analysis of—*

“(A) the accuracy of the tsunami model used;

“(B) the specific deep ocean or other monitoring equipment that detected the incident, as well as the deep ocean or other monitoring equip-

1 *ment that did not detect the incident due to mal-*
 2 *function or otherwise;*

3 “(C) *the effectiveness of the warning com-*
 4 *munication procedures including the integration*
 5 *of warnings with State, territory, local, and trib-*
 6 *al partners in the affected area under the juris-*
 7 *diction of the National Weather Service; and*

8 “(D) *such other findings as the Adminis-*
 9 *trator considers appropriate.”.*

10 **SEC. 5. MODIFICATION OF NATIONAL TSUNAMI HAZARD**
 11 **MITIGATION PROGRAM.**

12 (a) *IN GENERAL.*—Section 5 (33 U.S.C. 3204) is
 13 *amended by striking subsections (a) through (d) and insert-*
 14 *ing the following:*

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

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

1 “(1) *Technical and financial assistance to coast-*
2 *al States, territories, tribes, and local governments to*
3 *develop and implement activities under this section.*

4 “(2) *Integration of tsunami preparedness and*
5 *mitigation programs into ongoing State-based hazard*
6 *warning, resilience planning, and risk management*
7 *activities, including predisaster planning, emergency*
8 *response, evacuation planning, disaster recovery, haz-*
9 *ard mitigation, and community development and re-*
10 *development planning programs in affected areas.*

11 “(3) *Activities to promote the adoption of tsu-*
12 *namo resilience, preparedness, warning, and mitiga-*
13 *tion measures by Federal, State, territorial, tribal,*
14 *and local governments and nongovernmental entities,*
15 *including educational and risk communication pro-*
16 *grams to discourage development in high-risk areas.*

17 “(4) *Activities to support the development of re-*
18 *gional tsunami hazard and risk assessments. Such re-*
19 *gional risk assessments may include the following:*

20 “(A) *The sources, sizes, and other relevant*
21 *historical data of tsunami in the region, includ-*
22 *ing paleotsunami data.*

23 “(B) *Inundation models and maps of crit-*
24 *ical infrastructure and socioeconomic vulner-*
25 *ability in areas subject to tsunami inundation.*

1 “(C) *Maps of evacuation areas and evacu-*
2 *ation routes, including, when appropriate, traffic*
3 *studies that evaluate the viability of evacuation*
4 *routes.*

5 “(D) *Evaluations of the size of populations*
6 *that will require evacuation, including popu-*
7 *lations with special evacuation needs.*

8 “(E) *Evaluations and technical assistance*
9 *for vertical evacuation structure planning for*
10 *communities where models indicate limited or no*
11 *ability for timely evacuation, especially in areas*
12 *at risk of near shore generated tsunami.*

13 “(F) *Evaluation of at-risk ports and har-*
14 *bors.*

15 “(G) *Evaluation of the effect of tsunami*
16 *currents on the foundations of closely-spaced,*
17 *coastal high-rise structures.*

18 “(5) *Activities to promote preparedness in at-*
19 *risk ports and harbors, including the following:*

20 “(A) *Evaluation and recommendation of*
21 *procedures for ports and harbors in the event of*
22 *a distant or near-field tsunami.*

23 “(B) *A review of readiness, response, and*
24 *communication strategies to ensure coordination*
25 *and data sharing with the Coast Guard.*

1 “(6) *Activities to support the development of*
2 *community-based outreach and education programs to*
3 *ensure community readiness and resilience, including*
4 *the following:*

5 “(A) *The development, implementation, and*
6 *assessment of technical training and public edu-*
7 *cation programs, including education programs*
8 *that address unique characteristics of distant*
9 *and near-field tsunami.*

10 “(B) *The development of decision support*
11 *tools.*

12 “(C) *The incorporation of social science re-*
13 *search into community readiness and resilience*
14 *efforts.*

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

17 “(7) *Dissemination of guidelines and standards*
18 *for community planning, education, and training*
19 *products, programs, and tools, including—*

20 “(A) *standards for—*

21 “(i) *mapping products;*

22 “(ii) *inundation models; and*

23 “(iii) *effective emergency exercises; and*

24 “(B) *recommended guidance for at-risk port*
25 *and harbor tsunami warning, evacuation, and*

1 *response procedures in coordination with the*
2 *Coast Guard.*

3 “(c) *AUTHORIZED ACTIVITIES.*—*In addition to activi-*
4 *ties conducted under subsection (b), the program conducted*
5 *pursuant to subsection (a) may include the following:*

6 “(1) *Multidisciplinary vulnerability assessment*
7 *research, education, and training to help integrate*
8 *risk management and resilience objectives with com-*
9 *munity development planning and policies.*

10 “(2) *Risk management training for local officials*
11 *and community organizations to enhance under-*
12 *standing and preparedness.*

13 “(3) *Interagency, Federal, State, tribal, and ter-*
14 *ritorial intergovernmental tsunami response exercise*
15 *planning and implementation in high risk areas.*

16 “(4) *Development of practical applications for*
17 *existing or emerging technologies, such as modeling,*
18 *remote sensing, geospatial technology, engineering,*
19 *and observing systems, including the integration of*
20 *tsunami sensors into Federal and commercial sub-*
21 *marine telecommunication cables if practicable.*

22 “(5) *Risk management, risk assessment, and re-*
23 *silience data and information services, including—*

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

1 “(B) development and maintenance of new
2 integrated data products to support risk manage-
3 ment, risk assessment, and resilience programs.

4 “(6) Risk notification systems that coordinate
5 with and build upon existing systems and actively en-
6 gage decisionmakers, State, local, tribal, and terri-
7 torial governments and agencies, business commu-
8 nities, nongovernmental organizations, and the
9 media.

10 “(7) Formation of regional coastal risk manage-
11 ment coalitions of Federal, State, local and tribal gov-
12 ernments, community groups, academic institutions,
13 and non-governmental groups to advance the goals of
14 this section for communities facing common coastal
15 hazards and risks. Such coalitions may enter into an
16 agreement with an organization described in section
17 501(c)(3) of the Internal Revenue Code of 1986 to es-
18 tablish a nonprofit foundation in order to accept gifts
19 and donations to support of the goals of this section.

20 “(d) COORDINATING COMMITTEE.—

21 “(1) IN GENERAL.—The Administrator shall
22 maintain a coordinating committee to assist the Ad-
23 ministrator in the conduct of the program required by
24 subsection (a).

1 “(2) *COMPOSITION.*—*The coordinating committee*
2 *shall be composed of members as follows:*

3 “(A) *Representatives of States and terri-*
4 *tries most at risk from tsunami, including Alas-*
5 *ka, Washington, Oregon, California, Hawaii,*
6 *Puerto Rico, Guam and American Samoa.*

7 “(B) *Such other members as the Adminis-*
8 *trator considers appropriate to represent Fed-*
9 *eral, State, tribal, territorial, and local govern-*
10 *ments.*

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

14 “(4) *RESPONSIBILITIES.*—*The coordinating com-*
15 *mittee shall—*

16 “(A) *provide feedback on how funds should*
17 *be prioritized to carry out the program required*
18 *by subsection (a);*

19 “(B) *ensure that areas described in section*
20 *4(c) in the United States and its territories have*
21 *the opportunity to participate in the program;*

22 “(C) *provide recommendations to the Ad-*
23 *ministrator on how to improve and continuously*
24 *advance the TsunamiReady program of the Na-*
25 *tional Weather Service, particularly on ways to*

1 *make communities more tsunami resilient*
 2 *through the use of inundation maps and models*
 3 *and other hazard mitigation practices;*

4 “(D) ensure that all components of the pro-
 5 gram required by subsection (a) are integrated
 6 with ongoing State based hazard warning, risk
 7 management, and resilience activities, includ-
 8 ing—

9 “(i) integrating activities with emer-
 10 gency response plans, disaster recovery, haz-
 11 ard mitigation, and community develop-
 12 ment programs in affected areas; and

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

15 “(5) *EXEMPTION FROM FACA TERMINATION RE-*
 16 *QUIREMENT.*—Section 14 of the Federal Advisory
 17 Committee Act (5 U.S.C. App. 14) shall not apply to
 18 the committee established and maintained pursuant
 19 to paragraph (1).

20 “(e) *NO PREEMPTION WITH RESPECT TO DESIGNA-*
 21 *TION OF AT-RISK AREAS.*—The establishment of national
 22 standards for inundation models under this section shall
 23 not prevent States, territories, tribes, and local governments
 24 from designating additional areas as being at risk based
 25 on knowledge of local conditions.

1 “(f) *NO NEW REGULATORY AUTHORITY.*—*Nothing in*
 2 *this Act may be construed as establishing new regulatory*
 3 *authority for any Federal agency.*”.

4 (b) *REPORT ON ACCREDITATION OF TSUNAMIREADY*
 5 *PROGRAM.*—*Not later than 180 days after the date of enact-*
 6 *ment of this Act, the Administrator of the National Oceanic*
 7 *and Atmospheric Administration shall submit to the Com-*
 8 *mittee on Commerce, Science, and Transportation of the*
 9 *Senate and the Committee on Science, Space, and Tech-*
 10 *nology of the House of Representatives a report on which*
 11 *authorities and activities would be needed to have the*
 12 *TsunamiReady program of the National Weather Service*
 13 *accredited by the Emergency Management Accreditation*
 14 *Program.*

15 **SEC. 6. MODIFICATION OF TSUNAMI RESEARCH PROGRAM.**

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

17 (1) *in the matter before paragraph (1), by strik-*
 18 *ing “The Administrator shall” and all that follows*
 19 *through “establish or maintain” and inserting the fol-*
 20 *lowing:*

21 “(a) *IN GENERAL.*—*The Administrator shall, in con-*
 22 *sultation with such other Federal agencies, State, tribal,*
 23 *and territorial governments, and academic institutions as*
 24 *the Administrator considers appropriate, the coordinating*

1 *committee under section 5(d), and the panel under section*
 2 *8(a), support or maintain”;*

3 *(2) in subsection (a), as designated by para-*
 4 *graph (1), by striking “and assessment for tsunami*
 5 *tracking and numerical forecast modeling. Such re-*
 6 *search program shall—” and inserting the following:*
 7 *“assessment for tsunami tracking and numerical fore-*
 8 *cast modeling, and standards development.*

9 *“(b) RESPONSIBILITIES.—The research program sup-*
 10 *ported or maintained pursuant to subsection (a) shall—”;*
 11 *and*

12 *(3) in subsection (b), as designated by paragraph*
 13 *(2)—*

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

16 *“(1) consider other appropriate and cost effective*
 17 *research to mitigate the impact of tsunami, including*
 18 *the improvement of near-field and distant tsunami*
 19 *detection and forecasting capabilities, which may in-*
 20 *clude use of a new generation of the Deep-ocean As-*
 21 *essment and Reporting of Tsunamis array, integra-*
 22 *tion of tsunami sensors into commercial and Federal*
 23 *telecommunications cables, and other real-time tsu-*
 24 *unami monitoring systems and supercomputer capac-*

ity of the Administration 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);

(D) by inserting after paragraph (3) the fol-
lowing:

“(4) develop the technical basis for validation of
tsunami maps, numerical tsunami models, digital ele-
vation models, and forecasts; and”; and

(E) in paragraph (5), as redesignated by
subparagraph (C), by striking “to the scientific
community” and inserting “to the public”.

**SEC. 7. GLOBAL TSUNAMI WARNING AND MITIGATION NET-
WORK.**

Section 7 (33 U.S.C. 3206) is amended—

(1) by amending subsection (a) to read as fol-
lows:

“(a) *SUPPORT FOR DEVELOPMENT OF AN INTER-
NATIONAL TSUNAMI WARNING SYSTEM.*—The Adminis-
trator shall, in coordination with the Secretary of State and
in consultation with such other agencies as the Adminis-

1 *trator considers relevant, provide technical assistance and*
 2 *training to the Intergovernmental Oceanographic Commis-*
 3 *sion of the United Nations Educational, Scientific, and*
 4 *Cultural Organization, the World Meteorological Organiza-*
 5 *tion of the United Nations, and such other international*
 6 *entities as the Administrator considers appropriate, as part*
 7 *of the international efforts to develop a fully functional*
 8 *global tsunami forecast and warning system comprised of*
 9 *regional tsunami warning networks.”;*

10 (2) *in subsection (b), by striking “shall” and in-*
 11 *serting “may”; and*

12 (3) *in subsection (c)—*

13 (A) *in paragraph (1), by striking “estab-*
 14 *lishing” and inserting “supporting”; and*

15 (B) *in paragraph (2)—*

16 (i) *by striking “establish” and insert-*
 17 *ing “support”; and*

18 (ii) *by striking “establishing” and in-*
 19 *serting “supporting”.*

20 **SEC. 8. TSUNAMI SCIENCE AND TECHNOLOGY ADVISORY**

21 **PANEL.**

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

23 (1) *by redesignating section 8 (33 U.S.C. 3207)*

24 *as section 9; and*

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

3 **“SEC. 8. TSUNAMI SCIENCE AND TECHNOLOGY ADVISORY**
4 **PANEL.**

5 “(a) *DESIGNATION.—The Administrator shall des-*
6 *ignate an existing working group within the Science Advi-*
7 *sory Board of the Administration to serve as the Tsunami*
8 *Science and Technology Advisory Panel to provide advice*
9 *to the Administrator on matters regarding tsunami science,*
10 *technology, and regional preparedness.*

11 “(b) *MEMBERSHIP.—*

12 “(1) *COMPOSITION.—The working group des-*
13 *ignated under subsection (a) shall be composed of no*
14 *fewer than 7 members selected by the Administrator*
15 *from among individuals from academia or State*
16 *agencies who have academic or practical expertise in*
17 *physical sciences, social sciences, information tech-*
18 *nology, coastal resilience, emergency management, or*
19 *such other disciplines as the Administrator considers*
20 *appropriate.*

21 “(2) *FEDERAL EMPLOYMENT.—No member of the*
22 *working group designated pursuant to subsection (a)*
23 *may be a Federal employee.*

1 “(c) *RESPONSIBILITIES.*—Not less frequently than
2 once every 4 years, the working group designated under sub-
3 section (a) shall—

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

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

10 “(A) the findings of the working group with
11 respect to the most recent review conducted pur-
12 suant to paragraph (1); and

13 “(B) such recommendations for legislative
14 or administrative action as the working group
15 considers appropriate to improve Federal tsu-
16 nami research, detection, forecasting, warning,
17 mitigation, resiliency, and preparation.

18 “(d) *REPORTS TO CONGRESS.*—Not less frequently
19 than once every 4 years, the Administrator shall submit to
20 the Committee on Commerce, Science, and Transportation
21 of the Senate, and the Committee on Science, Space, and
22 Technology of the House of Representatives a report on the
23 findings and recommendations received by the Adminis-
24 trator under subsection (c)(2).”.

1 **SEC. 9. REPORTS.**

2 (a) *REPORT ON IMPLEMENTATION OF TSUNAMI WARN-*
3 *ING AND EDUCATION ACT.*—

4 (1) *IN GENERAL.*—Not later than 1 year after
5 the date of the enactment of this Act, the Adminis-
6 trator of the National Oceanic and Atmospheric Ad-
7 ministration shall submit to Congress a report on the
8 implementation of the Tsunami Warning and Edu-
9 cation Act (33 U.S.C. 3201 et seq.).

10 (2) *ELEMENTS.*—The report required by para-
11 graph (1) shall include the following:

12 (A) A detailed description of the progress
13 made in implementing sections 4(d)(6), 5(b)(6),
14 and 6(b)(4) of the Tsunami Warning and Edu-
15 cation Act.

16 (B) A description of the ways that tsunami
17 warnings and warning products issued by the
18 Tsunami Forecasting and Warning Program es-
19 tablished under section 4 of the Tsunami Warn-
20 ing and Education Act (33 U.S.C. 3203) can be
21 standardized and streamlined with warnings
22 and warning products for hurricanes, coastal
23 storms, and other coastal flooding events.

24 (b) *REPORT ON NATIONAL EFFORTS THAT SUPPORT*
25 *RAPID RESPONSE FOLLOWING NEAR-SHORE TSUNAMI*
26 *EVENTS.*—

1 (1) *IN GENERAL.*—Not later than 1 year after
2 the date of the enactment of this Act, the Adminis-
3 trator and the Secretary of Homeland Security shall
4 jointly, in coordination with the Director of the
5 United States Geological Survey, Administrator of the
6 Federal Emergency Management Agency, the Chief of
7 the National Guard Bureau, and the heads of such
8 other Federal agencies as the Administrator considers
9 appropriate, submit to the appropriate committees of
10 Congress a report on the national efforts in effect on
11 the day before the date of the enactment of this Act
12 that support and facilitate rapid emergency response
13 following a domestic near-shore tsunami event to bet-
14 ter understand domestic effects of earthquake derived
15 tsunami on people, infrastructure, and communities
16 in the United States.

17 (2) *ELEMENTS.*—The report required by para-
18 graph (1) shall include the following:

19 (A) A description of scientific or other
20 measurements collected on the day before the date
21 of the enactment of this Act to quickly identify
22 and quantify lost or degraded infrastructure or
23 terrestrial formations.

24 (B) A description of scientific or other
25 measurements that would be necessary to collect

1 to quickly identify and quantify lost or degraded
2 infrastructure or terrestrial formations.

3 (C) Identification and evaluation of Fed-
4 eral, State, local, tribal, territorial, and military
5 first responder and search and rescue operation
6 centers, bases, and other facilities as well as
7 other critical response assets and infrastructure,
8 including search and rescue aircraft, located
9 within near-shore and distant tsunami inunda-
10 tion areas on the day before the date of the en-
11 actment of this Act.

12 (D) An evaluation of near-shore tsunami re-
13 sponse plans in areas described in subparagraph
14 (C) in effect on the day before the date of the en-
15 actment of this Act, and how those response
16 plans would be affected by the loss of search and
17 rescue and first responder infrastructure de-
18 scribed in such subparagraph.

19 (E) A description of redevelopment plans
20 and reports in effect on the day before the date
21 of the enactment of this Act for communities in
22 areas that are at high-risk for near-shore tsu-
23 nami, as well identification of States or commu-
24 nities that do not have redevelopment plans.

1 (F) *Recommendations to enhance near-shore*
 2 *tsunami preparedness and response plans, in-*
 3 *cluding recommended responder exercises,*
 4 *predisaster planning, and mitigation needs.*

5 (G) *Such other data and analysis informa-*
 6 *tion as the Administrator and the Secretary of*
 7 *Homeland Security consider appropriate.*

8 (3) *APPROPRIATE COMMITTEES OF CONGRESS.—*
 9 *In this subsection, the term “appropriate committees*
 10 *of Congress” means—*

11 (A) *the Committee on Commerce, Science,*
 12 *and Transportation and the Committee on*
 13 *Homeland Security and Governmental Affairs of*
 14 *the Senate; and*

15 (B) *the Committee on Science, Space, and*
 16 *Technology and the Committee on Homeland Se-*
 17 *curity of the House of Representatives.*

18 **SEC. 10. AUTHORIZATION OF APPROPRIATIONS.**

19 *Section 9 of the Act, as redesignated by section 8(a)(1)*
 20 *of this Act, is amended—*

21 (1) *in paragraph (4)(B), by striking “and” at*
 22 *the end;*

23 (2) *in paragraph (5)(B), by striking the period*
 24 *at the end and inserting “; and”; and*

25 (3) *by adding at the end the following:*

1 “(6) \$27,000,000 for each of fiscal years 2016
2 through 2021, of which—

3 “(A) not less than 27 percent of the amount
4 appropriated for each fiscal year shall be for ac-
5 tivities conducted at the State level under the
6 tsunami hazard mitigation program under sec-
7 tion 5; and

8 “(B) not less than 8 percent of the amount
9 appropriated shall be for the tsunami research
10 program under section 6.”.

11 **SEC. 11. OUTREACH RESPONSIBILITIES.**

12 *The Administrator of the National Oceanic and At-*
13 *mospheric Administration, in coordination with State and*
14 *local emergency managers, shall develop and carry out for-*
15 *mal outreach activities to improve tsunami education and*
16 *awareness and foster the development of resilient commu-*
17 *nities. Outreach activities may include—*

18 (1) *the development of outreach plans to ensure*
19 *the close integration of tsunami warning centers sup-*
20 *ported or maintained pursuant to section 4(d) of the*
21 *Tsunami Warning and Education Act (33 U.S.C.*
22 *3203(d)) with local Weather Forecast Offices of the*
23 *National Weather Service and emergency managers;*

24 (2) *working with appropriate local Weather*
25 *Forecast Offices to ensure they have the technical*

1 *knowledge and capability to disseminate tsunami*
2 *warnings to the communities they serve; and*

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

6 **SEC. 12. REPEAL OF DUPLICATE PROVISIONS OF LAW.**

7 *(a) REPEAL.—The Magnuson-Stevens Fishery Con-*
8 *servation and Management Reauthorization Act of 2006*
9 *(Public Law 109–479) is amended by striking title VIII*
10 *(relating to tsunami warning and education).*

11 *(b) CONSTRUCTION.—Nothing in this section shall be*
12 *construed to repeal, or affect in any way, Public Law 109–*
13 *424.*

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[Report No. 114-146]

AN ACT

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

SEPTEMBER 22, 2015

Reported with an amendment