

AMENDMENT TO H.R. 6093

**OFFERED BY MS. BONAMICI OF OREGON
AND MR. ISSA OF CALIFORNIA**

Amend section 105 to read as follows:

1 **SEC. 105. TSUNAMI WARNING AND EDUCATION ACT REAU-**
2 **THORIZATION.**

3 (a) TITLE HEADING.—The Tsunami Warning and
4 Education Act (enacted as title VIII of the Magnuson-Ste-
5 vens Fishery Conservation and Management Reauthoriza-
6 tion Act of 2006 (Public Law 109–424)) is amended in
7 the title heading, by inserting “**RESEARCH,**” after
8 “**WARNING,**”.

9 (b) PURPOSES.—Section 803 of the Tsunami Warn-
10 ing and Education Act (33 U.S.C. 3202) is amended—

11 (1) in paragraph (2), by inserting “timeliness
12 and” before “accuracy”;

13 (2) in paragraph (7), by striking “and” after
14 the semicolon;

15 (3) in paragraph (8), by striking the period and
16 inserting “; and”; and

17 (4) by adding at the end the following new
18 paragraph:

19 “(9) to ensure data and metadata are managed,
20 archived, and made available for operations, re-

1 search, education, and mitigation activities in ac-
2 cordance with section 305 of the Weather Research
3 and Forecasting Innovation Act of 2017.”.

4 (c) TSUNAMI FORECASTING AND WARNING PRO-
5 GRAM.—Section 804 of the Tsunami Warning and Edu-
6 cation Act (33 U.S.C. 3203) is amended—

7 (1) in subsection (b)—

8 (A) in paragraph (4), by inserting “, using
9 industry and scientific best practices,” after
10 “operational condition”;

11 (B) in paragraph (5)—

12 (i) in subparagraph (C), by striking
13 “global seismic network” and inserting
14 “Global Seismic Network”;

15 (ii) by redesignating subparagraphs
16 (D), (E), (F), and (G), as subparagraphs
17 (E), (F), (G), and (H), respectively; and

18 (iii) by inserting after subparagraph
19 (C) the following new subparagraph:

20 “(D) the global navigation satellite system
21 (GNSS) network;”;

22 (C) by amending paragraph (6) to read as
23 follows:

24 “(6) ensure data quality and management sys-
25 tems, support data and metadata access and

1 archiving, and support the requirements of the pro-
2 gram pursuant to the Foundations for Evidence-
3 Based Policymaking Act of 2018 (Public Law 115-
4 435) and chapter 31 of title 44, United States
5 Code;”;

6 (D) in paragraph (7)—

7 (i) by amending the matter preceding
8 subparagraph (A) to read as follows: “in-
9 clude a cooperative effort among the Ad-
10 ministration, the United States Geological
11 Survey (USGS), the National Aeronautics
12 and Space Administration (NASA), and
13 the National Science Foundation (NSF)
14 under which the Director of USGS, the Di-
15 rector of the NSF, and the Administrator
16 of NASA shall—”;

17 (ii) in subparagraph (A), by striking
18 “and” at the end; and

19 (iii) by adding at the end the fol-
20 lowing new subparagraphs:

21 “(C) provide reliable and real-time support
22 for the GNSS network data streams from NSF,
23 NASA, and USGS maintained networks, and
24 supplement instrumentation coverage for rapid
25 earthquake assessment;

1 “(D) assess the data and information re-
2 relating to warning systems of collaborating agen-
3 cies for potential utilization in NOAA’s warning
4 system, taking into consideration advancement
5 in research and technology;

6 “(E) incorporate, as practicable, tsunami
7 notifications and warnings in the USGS Earth-
8 quake Early Warning System; and

9 “(F) incorporate, as practicable, prelimi-
10 nary analysis or data from the National Earth-
11 quake Information Center regarding the source
12 and magnitude of an offshore earthquake with-
13 in five minutes of detection;”;

14 (E) in paragraph (8)—

15 (i) by inserting “ and decision support
16 aides” after “graphical warning prod-
17 ucts,”; and

18 (ii) by inserting “-prone” after “tsu-
19 nami”;

20 (F) in paragraph (9), by striking “and”
21 after the semicolon;

22 (G) in paragraph (10), by striking the pe-
23 riod and inserting “; and”; and

24 (H) by adding at the end the following new
25 paragraph:

1 “(11) update tsunami inundation maps, models,
2 or other geographic products, in order to best sup-
3 port, as appropriate, relevant agencies with tsunami
4 mitigation and recovery activities.”;

5 (2) in subsection (c)—

6 (A) by striking paragraph (1) and redesign-
7 nating paragraphs (2) and (3) as paragraphs
8 (1) and (2), respectively; and

9 (B) in paragraph (1), as so redesignated—

10 (i) by striking “the Atlantic Ocean,
11 including the Caribbean Sea and Gulf of
12 Mexico, that are determined—” and insert-
13 ing “the Pacific, Arctic, and Atlantic
14 Oceans, including the Caribbean Sea and
15 Gulf of Mexico, that are determined to
16 pose significant risks of tsunami for States
17 and United States territories along the
18 coastal areas of such regions; and”;

19 (ii) by striking subparagraphs (A) and
20 (B);

21 (3) by redesignating subsections (d), (e), (f),
22 and (g) as subsections (e), (f), (g), and (h), respec-
23 tively;

24 (4) by inserting after subsection (c) the fol-
25 lowing new subsection:

1 “(d) TSUNAMI WARNING ALERT LEVEL EVALUA-
2 TION.—The Administrator, in collaboration with social sci-
3 entists, emergency personnel, and high-risk communities,
4 shall—

5 “(1) evaluate tsunami alert levels terminology,
6 timing, and effectiveness;

7 “(2) determine if such alerts produce the de-
8 sired response and understanding from possible tsu-
9 nami-prone communities; and

10 “(3) if necessary, update the alert level system
11 for increased effectiveness.”;

12 (5) in subsection (e), as so redesignated—

13 (A) in paragraph (1)—

14 (i) in the matter preceding subpara-
15 graph (A), by inserting “responsible for
16 Alaska, the continental United States, Ha-
17 waii, United States territories, and inter-
18 national entities the Administrator deter-
19 mines appropriate” before the period;

20 (ii) in subparagraph (A), by striking
21 “which is primarily responsible for Alaska
22 and the continental United States”; and

23 (iii) in subparagraph (B), by striking
24 “which is primarily responsible for Hawaii,

1 the Caribbean, and other areas of the Pa-
2 cific not covered by the National Center”;
3 (B) in paragraph (2)—

4 (i) in subparagraph (A), by inserting
5 “current,” after “sea level,”;

6 (ii) in subparagraph (B), by striking
7 “and volcanic eruptions” and inserting
8 “volcanic eruptions, or other sources”;

9 (iii) in subparagraph (C), by striking
10 “buoy data and tidal” and inserting
11 “coastal”;

12 (iv) in subparagraph (E), by striking
13 “Integrated Ocean Observing System of
14 the Administration” and inserting “United
15 States and global ocean and coastal observ-
16 ing system”;

17 (v) in subparagraph (H), by inserting
18 “monitoring needs,” after “response,”; and

19 (vi) by amending subparagraph (I) to
20 read as follows:

21 “(I) Providing a Tsunami Warning Coordi-
22 nator to coordinate with partners and stake-
23 holders products and services of the centers
24 supported or maintained under paragraph (1).”;

1 (C) by amending paragraph (3) to read as
2 follows:

3 “(3) FAIL-SAFE WARNING CAPABILITY.—The
4 Administrator shall support and maintain fail-safe
5 warning capability for the tsunami warning centers
6 supported or maintained under paragraph (1), and
7 such centers shall conduct at least one service back
8 up drill biannually.”;

9 (D) in paragraph (4)—

10 (i) by amending the matter preceding
11 subparagraph (A) to read as follows: “The
12 Administrator shall coordinate with the
13 weather forecast offices of the National
14 Weather Service, the centers supported or
15 maintained under paragraph (1), and such
16 national and regional program offices of
17 the Administration as the Administrator or
18 the coordinating committee, as established
19 in section 805(b), consider appropriate to
20 ensure that regional and local weather
21 forecast offices—”;

22 (ii) in subparagraph (B), by striking
23 “and” after the semicolon;

24 (iii) in subparagraph (C), by striking
25 the period and inserting “; and”; and

1 (iv) by adding at the end the following
2 new subparagraph:

3 “(D) conduct education and outreach ef-
4 forts to help prepare coastal communities for
5 tsunami hazards.”;

6 (E) in paragraph (5)—

7 (i) in the section heading, by striking
8 “UNIFORM” and inserting “STANDARD-
9 IZED”;

10 (ii) in subparagraph (A), by striking
11 “uniform” and inserting “standardized”;

12 (iii) in subparagraph (C)(ii), by strik-
13 ing “uniform” and inserting “standard-
14 ized”;

15 (iv) in subparagraph (D), by striking
16 “and” after the semicolon;

17 (v) in subparagraph (E), by striking
18 the period and inserting “; and”; and

19 (vi) by adding at the end the following
20 new subparagraph:

21 “(F) align the analytic techniques and
22 methodologies of the existing tsunami warning
23 centers supported or maintained under para-
24 graph (1) to ensure seamless continuity of oper-

1 ations and mitigate risk of operational failure
2 by prioritizing investments that include—

3 “(i) replacing end of life equipment;

4 “(ii) ensuring product consistency;

5 “(iii) enabling consistent operational
6 process for backup capabilities;

7 “(iv) mitigating existing operational
8 security risks; and

9 “(v) meeting information security re-
10 quirements specified in chapter 35 of title
11 44, United States Code.”; and

12 (F) by adding at the end the following new
13 paragraph:

14 “(7) REPORTING.—Not later than 180 days
15 after the date of the enactment of this paragraph
16 and annually thereafter until such time as all rel-
17 evant requirements have been satisfied, the Adminis-
18 trator shall provide to the Committee on Science,
19 Space, and Technology of the House of Representa-
20 tives and the Committee on Commerce, Science, and
21 Transportation of the Senate an update briefing on
22 the progress of the following:

23 “(A) Standardizing products and proce-
24 dures under paragraph (5), including tsunami

1 assessments, forecast guidance, and related
2 products.

3 “(B) Migrating the message generation
4 systems of the centers supported or maintained
5 under paragraph (1) to the Advanced Weather
6 Information Processing Systems, or successor
7 systems.

8 “(C) The structural reorganization effort,
9 if necessary, to align such centers’ organiza-
10 tional charts.

11 “(D) The expected timeline for the full
12 completion of standardizing such centers’ prod-
13 ucts and procedures.”;

14 (6) in subsection (f), as so redesignated—

15 (A) in paragraph (1)—

16 (i) in the matter preceding subpara-
17 graph (A), by inserting “detect, measure,
18 and” after “used to”;

19 (ii) in subparagraph (B), by striking
20 “and” after the semicolon;

21 (iii) in subparagraph (C), by striking
22 “and the Advanced National Seismic Sys-
23 tem” and inserting “the Advanced Na-
24 tional Seismic System, and the global navi-
25 gation satellite system (GNSS); and”;

1 (iv) by adding at the end the following
2 new subparagraph:

3 “(D) ensure research is coordinated with
4 tsunami warning operations;”; and

5 (B) in paragraph (3), by inserting “accord-
6 ing to industry best practices” before the pe-
7 riod; and

8 (7) in subsection (h)(2)(A), as so redesignated,
9 by striking “accuracy of the tsunami model used”
10 and inserting “timeliness and accuracy of the fore-
11 cast used to issue the warning”.

12 (d) NATIONAL TSUNAMI HAZARD MITIGATION PRO-
13 GRAM.—Section 805(c) of the Tsunami Warning and Edu-
14 cation Act (33 U.S.C. 3204(c)) is amended—

15 (1) in paragraph (5)—

16 (A) by redesignating subparagraphs (B),
17 (C), (D), (E), (F), and (G) as subparagraphs
18 (C), (D), (E), (F), (G), and (H), respectively;

19 (B) by inserting after subparagraph (A)
20 the following new subparagraph:

21 “(B) Coastal digital elevation models
22 (DEMs) to support the development of inunda-
23 tion maps.”; and

24 (C) by adding at the end the following new
25 subparagraphs:

1 “(I) Evaluation of the variation of inunda-
2 tion impact resulting from tsunami-driven sedi-
3 ment transport.

4 “(J) Evaluation of tsunami debris impact
5 on critical infrastructure (as such term is de-
6 fined in section 1016(e) of Public Law 107–56
7 (42 U.S.C. 5195c(e))) and lifelines.

8 “(K) High-resolution and high-quality dig-
9 ital elevation models needed for at-risk coast-
10 lines, ports, and harbors, particularly for re-
11 gions not covered by existing inundation
12 maps.”; and

13 (2) in paragraph (7)(C), by inserting “and be-
14 havioral” after “social”;

15 (e) TSUNAMI RESEARCH PROGRAM.—Section 806 of
16 the Tsunami Warning and Education Act (33 U.S.C.
17 3205) is amended—

18 (1) in subsection (a)—

19 (A) by striking “section 805(d)” and in-
20 serting “section 805(b)”;

21 (B) by inserting “and management” after
22 “data collection”;

23 (2) in subsection (b)—

24 (A) in paragraph (1), by inserting “deploy-
25 ment and” after “may include”;

1 (B) in paragraph (3), by striking “social
2 science research” and inserting “social and be-
3 havioral science research, including data collec-
4 tion,”;

5 (C) in paragraph (4), by striking “and”
6 after the semicolon;

7 (D) by redesignating paragraph (5) as
8 paragraph (7); and

9 (E) by inserting after paragraph (4) the
10 following new paragraphs:

11 “(5) develop decision support tools;

12 “(6) leverage and prioritize research opportuni-
13 ties; and”;

14 (3) by adding at the end the following new sub-
15 section:

16 “(c) RESEARCH AND DEVELOPMENT PLAN.—Not
17 later than 12 months after the date of the enactment of
18 this subsection and not less frequently than every 36
19 months thereafter, the Administrator, in consultation with
20 the Interagency Council for Advancing Meteorological
21 Services, shall develop a research and development and re-
22 search to operations plan to improve tsunami detection
23 and forecasting capabilities that—

24 “(1) identifies and prioritizes research and de-
25 velopment priorities to satisfy section 804;

1 “(2) identifies key research needs for better de-
2 tecting tsunamis that may occur in open ocean and
3 along the coastlines of the United States and its ter-
4 ritories, improve forecasting of tsunamis that are
5 not seismically driven, and other opportunities deter-
6 mined appropriate;

7 “(3) develops plans for transitioning research to
8 operations; and

9 “(4) identifies collaboration opportunities that
10 may further and align tsunami research, develop-
11 ment, warnings, and operations between the centers
12 supported or maintained under section 804, the Na-
13 tional Tsunami Hazard Mitigation Program, the Na-
14 tional Oceanic and Atmospheric Administration Cen-
15 ter for Tsunami Research, the National Science
16 Foundation, the United States Geological Survey,
17 the Federal Emergency Management Agency, insti-
18 tutions of higher education, private entities, stake-
19 holders, and others determined appropriate.”;

20 (f) GLOBAL TSUNAMI WARNING AND MITIGATION
21 NETWORK.—Section 807(d) of the Tsunami Warning and
22 Education Act (33 U.S.C. 3206(d)) is amended by insert-
23 ing “and management” after “data sharing”;

24 (g) TSUNAMI SCIENCE AND TECHNOLOGY ADVISORY
25 PANEL.—Section 808(b)(1) of the Tsunami Warning and

1 Education Act (33 U.S.C. 3206a(b)(1)) is amended by in-
2 serting “and behavioral” after “social”;

3 (h) AUTHORIZATION OF APPROPRIATIONS.—Section
4 809 of the Tsunami Warning and Education Act (33
5 U.S.C. 3207) is amended to read as follows:

6 **“SEC. 808. AUTHORIZATION OF APPROPRIATIONS.**

7 “There are authorized to be appropriated to the Ad-
8 ministrator to carry out this title \$30,000,000 for each
9 of fiscal years 2024 through 2028, of which—

10 “(1) not less than 27 percent of the amount ap-
11 propriated for each fiscal year shall be for activities
12 conducted at the State level under the national tsu-
13 nami hazard mitigation program under section 805;
14 and

15 “(2) not less than 8 percent of the amount ap-
16 propriated shall be for the tsunami research pro-
17 gram under section 806.”.

