

118TH CONGRESS  
1ST SESSION

# H. R. 6234

To reauthorize the Tsunami Warning and Education Act, and for other purposes.

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IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 6, 2023

Ms. BONAMICI introduced the following bill; which was referred to the Committee on Science, Space, and Technology

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## A BILL

To reauthorize the Tsunami Warning and Education Act,  
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. TSUNAMI WARNING AND EDUCATION ACT RE-**  
4 **AUTHORIZATION.**

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

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

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

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

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

9 (4) by adding at the end the following new  
10 paragraph:

11 “(9) to ensure data and metadata are managed,  
12 archived, and made fully available for operations, re-  
13 search, education, and mitigation activities.”.

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

17 (1) in subsection (b)—

18 (A) in paragraph (4), by inserting “, using  
19 industry and scientific best practices,” after  
20 “operational condition”;

21 (B) in paragraph (5)—

22 (i) in subparagraph (C), by striking  
23 “global seismic network” and inserting  
24 “Global Seismic Network”;

1                   (ii) by redesignating subparagraphs  
2                   (D), (E), (F), and (G), as subparagraphs  
3                   (E), (F), (G), and (H), respectively; and

4                   (iii) by inserting after subparagraph  
5                   (C) the following new subparagraph:

6                   “(D) the global navigation satellite system  
7                   (GNSS) network;”;

8                   (C) by amending paragraph (6) to read as  
9                   follows:

10                  “(6) ensure data quality and management sys-  
11                  tems, support data and metadata access and  
12                  archiving, and support the requirements of the pro-  
13                  gram pursuant to the Foundations for Evidence-  
14                  Based Policymaking Act of 2018 (Public Law 115–  
15                  435) and chapter 31 of title 44, United States  
16                  Code;”;

17                  (D) in paragraph (7)—

18                   (i) by amending the matter preceding  
19                   subparagraph (A) to read as follows: “in-  
20                   clude a cooperative effort among the Ad-  
21                   ministration, the United States Geological  
22                   Survey (USGS), the National Aeronautics  
23                   and Space Administration (NASA), and  
24                   the National Science Foundation (NSF)  
25                   under which the Director of USGS, the Di-

1 rector of the NSF, and the Administrator  
2 of NASA shall—”;

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

5 (iii) by adding at the end the fol-  
6 lowing new subparagraphs:

7 “(C) provide reliable and real-time support  
8 for the GNSS network data streams from NSF,  
9 NASA, and USGS maintained networks, and  
10 supplement instrumentation coverage for rapid  
11 earthquake assessment;

12 “(D) assess the data and information re-  
13 lating to warning systems of collaborating agen-  
14 cies for potential utilization in NOAA’s warning  
15 system, taking into consideration advancement  
16 in research and technology; and

17 “(E) incorporate, as practicable, tsunami  
18 notifications and warnings in the USGS Earth-  
19 quake Early Warning System;”;

20 (E) in paragraph (8)—

21 (i) by inserting “ and decision support  
22 aides” after “graphical warning prod-  
23 ucts,”; and

24 (ii) by inserting “-prone” after “tsu-  
25 nami”;

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

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

5 (H) by adding at the end the following new  
6 paragraph:

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

11 (2) in subsection (c)—

12 (A) by striking paragraph (1) and redesign-  
13 ating paragraphs (2) and (3) as paragraphs  
14 (1) and (2), respectively; and

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

16 (i) by striking “the Atlantic Ocean,  
17 including the Caribbean Sea and Gulf of  
18 Mexico, that are determined—” and insert-  
19 ing “the Pacific, Arctic, and Atlantic  
20 Oceans, including the Caribbean Sea and  
21 Gulf of Mexico, that are determined to  
22 pose significant risks of tsunami for States  
23 and United States territories along the  
24 coastal areas of such regions; and”; and

1 (ii) by striking subparagraphs (A) and  
2 (B);

3 (3) by redesignating subsections (d), (e), (f),  
4 and (g) as subsections (e), (f), (g), and (h), respec-  
5 tively;

6 (4) by inserting after subsection (c) the fol-  
7 lowing new subsection:

8 “(d) TSUNAMI WARNING ALERT LEVEL EVALUA-  
9 TION.—The Administrator, in collaboration with social sci-  
10 entists, emergency personnel, and high-risk communities,  
11 shall—

12 “(1) evaluate tsunami alert levels terminology,  
13 timing, and effectiveness;

14 “(2) determine if such alerts produce the de-  
15 sired response and understanding from possible tsu-  
16 nami-prone communities; and

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

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

20 (A) in paragraph (1)—

21 (i) in the matter preceding subpara-  
22 graph (A), by inserting “responsible for  
23 Alaska, the continental United States, Ha-  
24 waii, United States territories, and inter-

1 national entities the Administrator deter-  
2 mines appropriate” before the period;

3 (ii) in subparagraph (A), by striking  
4 “which is primarily responsible for Alaska  
5 and the continental United States”; and

6 (iii) in subparagraph (B), by striking  
7 “which is primarily responsible for Hawaii,  
8 the Caribbean, and other areas of the Pa-  
9 cific not covered by the National Center”;  
10 (B) in paragraph (2)—

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

13 (ii) in subparagraph (B), by striking  
14 “and volcanic eruptions” and inserting  
15 “volcanic eruptions, or other sources”;

16 (iii) in subparagraph (C), by striking  
17 “buoy data and tidal” and inserting  
18 “coastal”;

19 (iv) in subparagraph (E), by striking  
20 “Integrated Ocean Observing System of  
21 the Administration” and inserting “United  
22 States and global ocean and coastal observ-  
23 ing system”;

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

1 (vi) by amending subparagraph (I) to  
2 read as follows:

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

7 (C) by amending paragraph (3) to read as  
8 follows:

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

15 (D) in paragraph (4)—

16 (i) by amending the matter preceding  
17 subparagraph (A) to read as follows: “The  
18 Administrator shall coordinate with the  
19 weather forecast offices of the National  
20 Weather Service, the centers supported or  
21 maintained under paragraph (1), and such  
22 national and regional program offices of  
23 the Administration as the Administrator or  
24 the coordinating committee, as established  
25 in section 805(b)?, consider appropriate to



1 ensure that regional and local weather  
2 forecast offices—”;

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

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

7 (iv) by adding at the end the following  
8 new subparagraph:

9 “(D) conduct education and outreach ef-  
10 forts to help prepare coastal communities for  
11 tsunami hazards.”; and

12 (E) in paragraph (5)—

13 (i) in the section heading, by striking  
14 “UNIFORM” and inserting “STANDARD-  
15 IZED”;

16 (ii) in subparagraph (A), by striking  
17 “uniform” and inserting “standardized”;  
18 and

19 (iii) in subparagraph (C)(ii), by strik-  
20 ing “uniform” and inserting “standard-  
21 ized”; and

22 (F) by adding at the end the following new  
23 paragraph:

24 “(7) REPORTING.—Not later than 180 days  
25 after the date of the enactment of this paragraph

1 and annually thereafter until such time as all rel-  
2 evant requirements have been satisfied, the Adminis-  
3 trator shall provide to the Committee on Science,  
4 Space, and Technology of the House of Representa-  
5 tives and the Committee on Commerce, Science, and  
6 Transportation of the Senate an update briefing on  
7 the progress of the following:

8 “(A) Standardizing products and proce-  
9 dures under paragraph (5), including tsunami  
10 assessments, forecast guidance, and related  
11 products.

12 “(B) Migrating the message generation  
13 systems of the centers supported or maintained  
14 under paragraph (1) to the Advanced Weather  
15 Information Processing Systems, or successor  
16 systems.

17 “(C) The structural reorganization effort,  
18 if necessary, to align such centers’ organiza-  
19 tional charts.

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

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

24 (A) in paragraph (1)—

1 (i) in the matter preceding subpara-  
2 graph (A), by inserting “detect, measure,  
3 and” after “used to”;

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

6 (iii) in subparagraph (C), by striking  
7 “and the Advanced National Seismic Sys-  
8 tem” and inserting “the Advanced Na-  
9 tional Seismic System, and the global navi-  
10 gation satellite system (GNSS); and”;

11 (iv) by adding at the end the following  
12 new subparagraph:

13 “(D) ensure research is coordinated with  
14 tsunami warning operations;”; and

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

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

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

25 (1) in paragraph (5)—

1 (A) by redesignating subparagraphs (B),  
2 (C), (D), (E), (F), and (G) as subparagraphs  
3 (C), (D), (E), (F), (G), and (H), respectively;

4 (B) by inserting after subparagraph (A)  
5 the following new subparagraph:

6 “(B) Coastal digital elevation models  
7 (DEMs) to support the development of inunda-  
8 tion maps.”; and

9 (C) by adding at the end the following new  
10 subparagraphs:

11 “(I) Evaluation of the variation of inunda-  
12 tion impact resulting from tsunami-driven sedi-  
13 ment transport.

14 “(J) Evaluation of tsunami debris impact  
15 on critical infrastructure (as such term is de-  
16 fined in section 1016(e) of Public Law 107–56  
17 (42 U.S.C. 5195c(e))) and lifelines.

18 “(K) High-resolution and high-quality dig-  
19 ital elevation models needed for at-risk coast-  
20 lines, ports, and harbors, particularly for re-  
21 gions not covered by existing inundation  
22 maps.”; and

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

1 (e) TSUNAMI RESEARCH PROGRAM.—Section 806 of  
2 the Tsunami Warning and Education Act (33 U.S.C.  
3 3205) is amended—

4 (1) in subsection (a)—

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

7 (B) by inserting “and management” after  
8 “data collection”;

9 (2) in subsection (b)—

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

12 (B) in paragraph (3), by striking “social  
13 science research” and inserting “social and be-  
14 havioral science research, including data collec-  
15 tion,”;

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

18 (D) by redesignating paragraph (5) as  
19 paragraph (8); and

20 (E) by inserting after paragraph (4) the  
21 following new paragraphs:

22 “(5) develop and maintain a data portal for ad-  
23 vancing research and model development;

24 “(6) develop decision support tools;

1           “(7) leverage and prioritize research opportuni-  
2           ties; and”;

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

5           “(c) RESEARCH AND DEVELOPMENT PLAN.—Not  
6           later than 12 months after the date of the enactment of  
7           this subsection and not less frequently than every 36  
8           months thereafter, the Administrator, in consultation with  
9           the Interagency Council for Advancing Meteorological  
10          Services, shall develop a research and development and re-  
11          search to operations plan to improve tsunami detection  
12          and forecasting capabilities that—

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

15           “(2) identifies key research needs for better de-  
16          tecting tsunamis that may occur in open ocean and  
17          along the coastlines of the United States and its ter-  
18          ritories, improve forecasting of tsunamis that are  
19          not seismically driven, and other opportunities deter-  
20          mined appropriate;

21           “(3) develops plans for transitioning research to  
22          operations; and

23           “(4) identifies collaboration opportunities that  
24          may further and align tsunami research, develop-  
25          ment, warnings, and operations between the centers

1 supported or maintained under section 804, the Na-  
2 tional Tsunami Hazard Mitigation Program, the Na-  
3 tional Oceanic and Atmospheric Administration Cen-  
4 ter for Tsunami Research, the National Science  
5 Foundation, the United States Geological Survey,  
6 the Federal Emergency Management Agency, insti-  
7 tutions of higher education, private entities, stake-  
8 holders, and others determined appropriate.”;

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

13 (g) TSUNAMI SCIENCE AND TECHNOLOGY ADVISORY  
14 PANEL.—Section 808(b)(1) of the Tsunami Warning and  
15 Education Act (33 U.S.C. 3206a(b)(1)) is amended by in-  
16 serting “and behavioral” after “social”;

17 (h) AUTHORIZATION OF APPROPRIATIONS.—Section  
18 809 of the Tsunami Warning and Education Act (33  
19 U.S.C. 3207) is amended to read as follows:

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

21 “There are authorized to be appropriated to the Ad-  
22 ministrator to carry out this title \$32,000,000 for each  
23 of fiscal years 2024 through 2028, of which—

24 “(1) not less than 27 percent of the amount ap-  
25 propriated for each fiscal year shall be for activities

1 conducted at the State level under the national tsu-  
2 nami hazard mitigation program under section 805;  
3 and

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

○