

Tsunami Science and Technology Advisory Panel's (TSTAP) statement on improved tsunami characterization in FEMA's National Risk Index

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Tsunami Science and Technology Advisory Panel's (TSTAP) Charge

- Responsibilities: the [TSTAP] Panel shall—
 - (1) review the activities of the Administration, **and other Federal activities** as appropriate, relating to tsunami research, detection, forecasting, warning, mitigation, resilience, and preparation; and
 - (2) submit to the Administrator **and such others** as the Administrator considers appropriate—
 - (A) the findings of the working group with respect to the most recent review conducted under paragraph (1); and
 - (B) such recommendations for legislative or administrative action as the working group considers appropriate to improve Federal tsunami research, detection, forecasting, warning, mitigation, resiliency, and preparation.

TSTAP Concerns with FEMA's National Risk Index

In the absence of a consistent national tsunami hazard map FEMA has developed a method to determine tsunami hazard zones and at-risk areas. TSTAP is concerned with their methods and believes their approach drastically underestimates local and state tsunami risk.

The consequences of this include:

- An inaccurate national definition of at-risk coastlines for tsunami hazard
- Disagreement with NOAA's National Tsunami Hazard Mitigation Program (NTHMP) partner defined and socialized tsunami hazard areas
- Likely reduced FEMA funding for critical life-saving mitigation activities such as vertical evacuation structures, maritime infrastructure hardening, recovery planning and more

Suggested Approach:

The TSTAP would like NOAA to submit the statement drafted by TSTAP to FEMA expressing concern with the NRI's definition of tsunami and asking for an update.

FEMA's National Risk Index

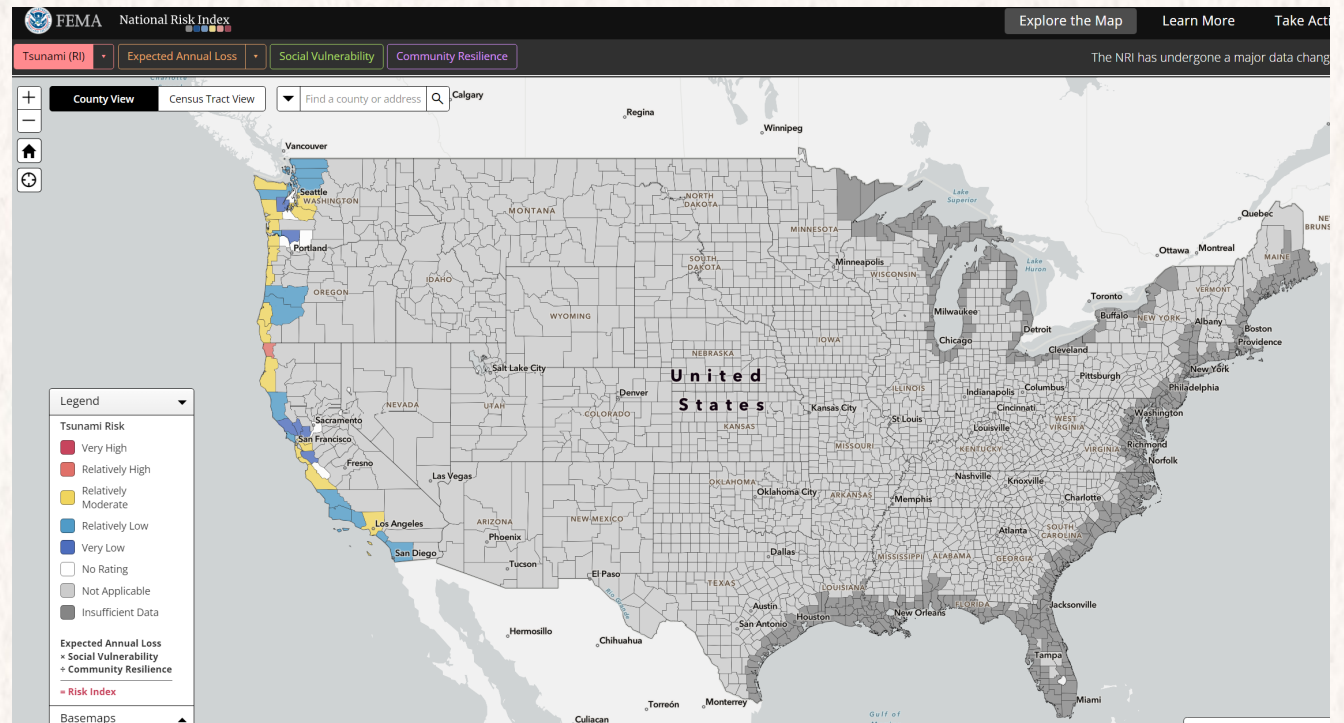
Visualizes “natural hazard risk metrics”

- 18 natural hazards (including many others NOAA may wish to investigate further)
- Expected annual losses
- Social vulnerability
- Community resilience

Intended uses for city, county, and Tribal organizations

- Mitigation planning
- Hazard Mitigation Assistance Grant Application
- Risk communication
- **Funding opportunities for highest risk communities**

The National Risk Index is a dataset and online tool to help illustrate the U.S. communities most at risk to 18 natural hazards. It was designed and built by FEMA and will be used to designate high risk zones for increased mitigation funding.



National Risk Index to be used in Community Disaster Resilience Zones Act

Community Disaster Resilience
Zones Act (CDRZA) of 2022

- Requires the President to maintain a program that develops publicly available products to show the U.S. risk of natural hazards
- Community disaster resilience zones (CDRZs), shall be
 - (1) the 50 census tracts assigned the highest individual hazard risk ratings; and,
 - (2) in each state, not less than 1% of census tracts that are assigned a high individual risk rating
- CDRZs can receive financial, technical, or other assistance to an eligible entity (a state, Indian tribal government, or local government) that plans to perform a resilience or mitigation project
- CDRZ tracts will hold that official designation for five years
- **The inaccurate categorization of tsunami hazards in the NRI likely means high tsunami risk communities will not be designated as a CDRZ**

Tsunami Definition in the National Risk Index and TSTAP Concerns

NRI definition of tsunami hazard	TSTAP concerns
Only includes tsunami events from 1800-2019	Ignores paleoseismic and paleotsunami evidence
Does not map or account for distant vs. local tsunamis	Does not include a local tsunami threat (e.g., Cascadia subduction zone) for most of the US, therefore tsunami hazard is underestimated especially for life safety
Historic loss ratios are based on county-level tsunami losses from 1996-2019 in SHELDUS	Does not capture potential for 100% loss and significant casualties in high-risk communities for local events and only reflect damage of smaller recent events
Incomplete data for US coastlines	Not all known at-risk communities are identified which contradicts state and territory partners mapping and modeling (parts of US west coast, Puerto Rico, USVI, Guam, American Samoa, CNMI, Gulf of Mexico, East Coast, etc.)
Historical run-up data rely on communities with long-term monitoring gauges, extended with 500m buffer	Adjacent census tracts and counties with the same tsunami threat have different NRI tsunami hazard values where they should be the same
Social vulnerability is detached from the tsunami context	Attributes (e.g., age, ability, etc.) are inappropriately considered to be universally applicable regardless of tsunami type

TSTAP
recommends
that:

NOAA submits the statement prepared by TSTAP regarding our concerns with the NRI and it's use in the CRDZA to FEMA leadership. The three recommendations in that statement are:

- 1) NOAA communicates to FEMA leadership and Federal decision makers that the NRI currently misrepresents tsunami risk and that these errors can have negative impacts to community preparedness, local and county planning, mitigation funding opportunities, access to funding, and policy making.
- 2) NOAA supports its Federal, state, and territory partners to develop interim tsunami hazard maps for local and distant tsunami sources for NRI use based on subject matter expertise that includes consistent hazard mapping assumptions and includes attributes relevant to the NRI (e.g., threat levels, annualized frequencies, and historic loss ratios).
- 3) NOAA works with its partners to develop national probabilistic tsunami maps for local and distant tsunami sources that are updated every four years to align with the building code cycle and the USGS National Seismic Hazard Map.



Questions/Discussion

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