



Statewide Threat Assessment Update

Outreach & Methodology Update

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Delivering a better world

2019 STA Methodology

Statewide Threat Assessment: Identification of Threats from Erosion, Flooding, and Thawing Permafrost in Remote Alaska Communities

Report Prepared for the Denali Commission

By

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US Army Corps of Engineers



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Overview

- Considered ~190 rural communities
 - Larger, more urban communities not included as the study is designed to address data gaps in remote locations with fewer data and limited resources
- For each community, determined best fit **Impact Rating (0 to 3)** for
 - **Permafrost Degradation**
 - **Flooding**
 - **Erosion**

Impact Ratings: 0 (no impact) – 3 (high impact)

Uncertainty Ratings: *** (relative high amounts of high-quality data available) – * (relatively little data available)

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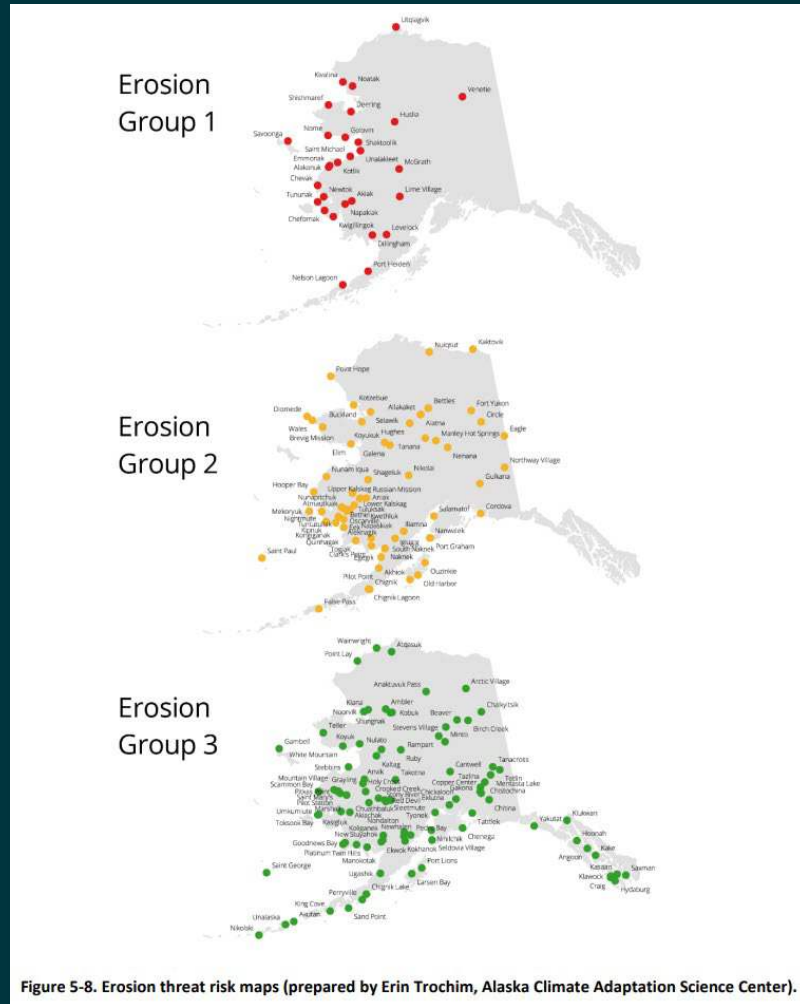


Figure 5-8. Erosion threat risk maps (prepared by Erin Trochim, Alaska Climate Adaptation Science Center).

Chapter 4.0 Risk Evaluation, Criteria, and Methods

– Steps:

1. Gathered all available data
2. Developed evaluation criteria
3. For each criterion, determined best fit **Impact Rating** (0 to 3) and combined into ranked **Aggregate Impact Rating**
4. Estimate the most likely **Time to Damage**
5. Calculate **Risk Rating** based on **Aggregate Impact Rating** and **Time to Damage**
6. Rate the overall level of **Uncertainty** (* to ***)

Additionally, a simple summation for normalized scores performed for a **Combined Threat Ranking**

Impact Ratings: 0 (no impact) – 3 (high impact)

Uncertainty Ratings: *** (relative high amounts of high-quality data available) – * (relatively little data available)

2019 STA Methodology Scoring Example

Table 4-4. Erosion scoring example for MyCommunity.

A	B	C	D	E	F	G	H
Evaluation Criterion	Impact Rating	Criterion Relative Weight	Weighted Impact Rating (B*C)	Time to Damage	Risk Rating (D*E)	Normalized Score (100*(F/Max Possible Score))	Group
Critical Infrastructure	3	3	9				
Health & Human Safety	2	3	6				
Subsistence & Shoreline Use	1	2	2				
Land Use/Geographic Location	1	1	1				
Population Affected	2	2	4				
Housing Distribution	2	2	4				
Environmental Threat	3	3	9				
Cultural Importance	1	1	1				
Commercial Infrastructure	3	2	6				
Aggregate Ratings			42	3	126	74	Group 1

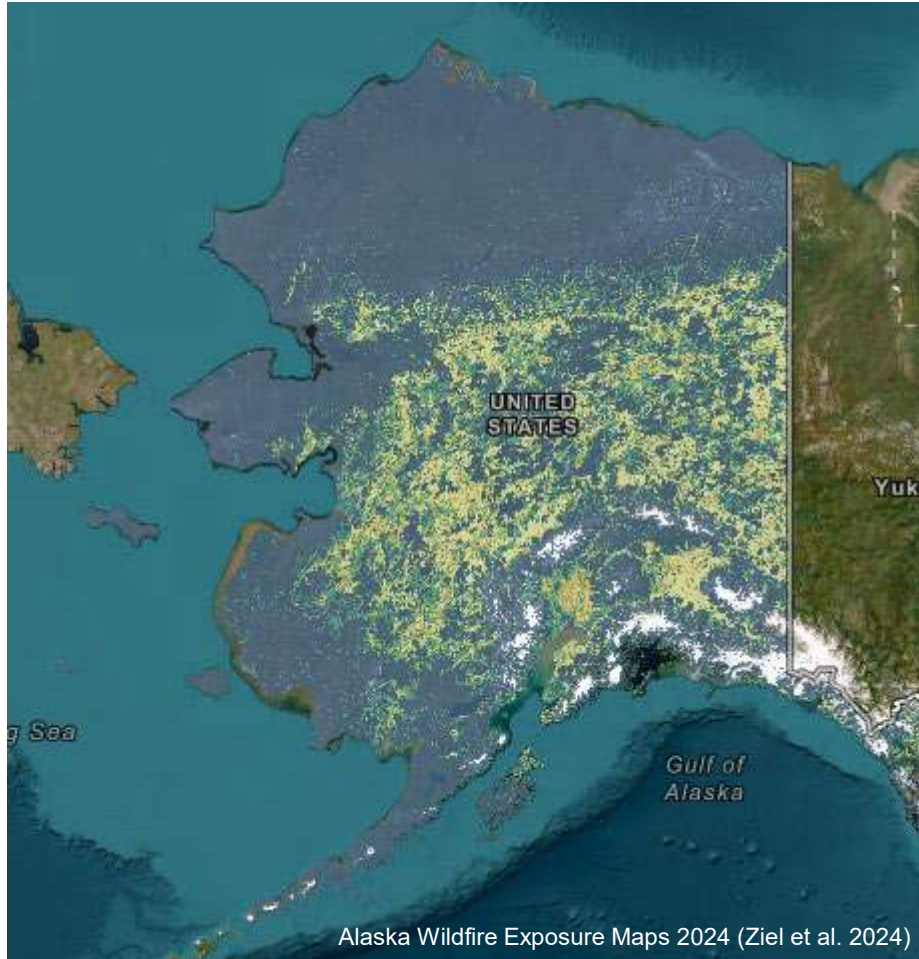
Group 1 = high relative threat

Group 2 = medium relative threat

Group 3 = low relative threat

Proposed Changes

1. Include five additional hazards



- ✓ Flood
- ✓ Erosion
- ✓ Permafrost Degradation
- ✓ Earthquake
- ✓ Landslide
- ✓ Tsunami
- ✓ Volcano
- ✓ Wildfire

Proposed Changes

2. Modify Evaluation Criteria

- Add two new evaluation criteria
- Remove one evaluation criteria
- Rename Commercial Infrastructure to include Economic Impact
- Minor edits proposed in justification for remaining 8 to align across all hazards
 - Removed quantitative measures – could not be determined equally across hazards
 - Included determination of “local” versus “regional” impacts

- ✓ Past Impacts
- ✓ Critical Infrastructure
- ✓ Health and Human Safety
- ✓ Subsistence and Shoreline Use
- ✓ Land Use / Geographic Location
- ~~✓ Percentage of Population Affected~~
- ✓ Housing Distribution
- ✓ Environmental Threat
- ✓ Cultural Importance
- ✓ Commercial Infrastructure / Economic Impact
- ✓ Changing Conditions

Proposed Changes

3. Remove **weights** in Impact Rating

4. Replace **Time to Damage** multiplier with **Changing Conditions** evaluation criteria
 - Changing conditions addresses conditions either worsening or improving impacts to the community during the threat, and new or emerging threats experienced by a community.

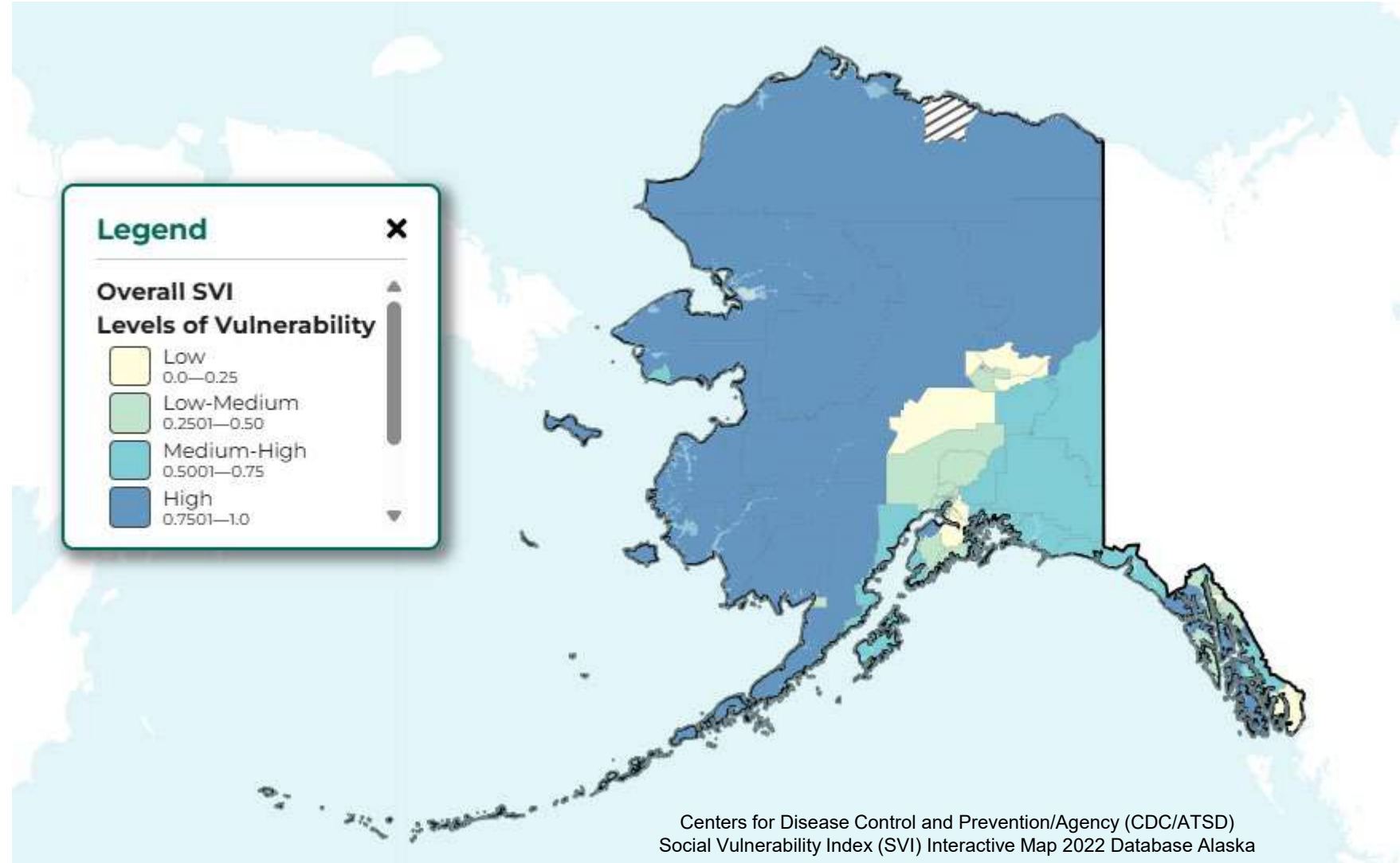
Table 4-3. Evaluation factors and relative weights.

Evaluation Factor	Relative Weight
Critical Infrastructure	3
Health & Human Safety	3
Subsistence & Shoreline Use	2
Land Use/Geographic Location	1
% Population Affected	2
Housing Distribution	2
Environmental Threat	3
Cultural Importance	1
Commercial Infrastructure	2

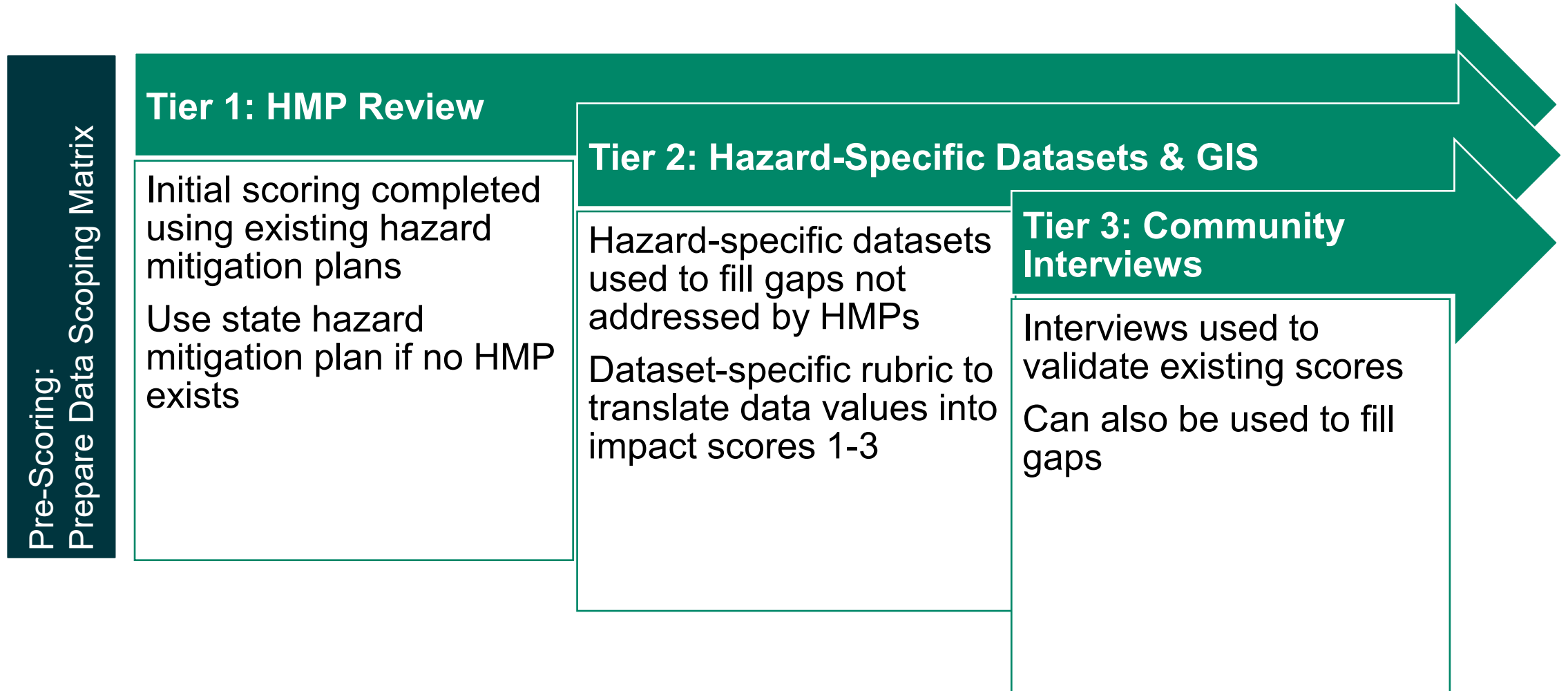
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Proposed Changes

- 5. Added a multiplier for **Social Vulnerability**



Three-Tiered Approach



Next Steps

1. Modify methodology based on feedback received
2. Complete **impact rating scores**
3. Rate the overall level of **Uncertainty** (* to ***)
4. Determine which hazards to **aggregate**
5. Develop **draft** report with results (summer 2026)
6. Collect public/stakeholder **feedback** (fall 2026)
7. Release **final** document (end of 2026)

Feedback

1. **Bethel (Jan. 27) and Anchorage (Feb.6) and:** Met with Stakeholders
2. **Juneau:** Available to meet today.
3. **Fairbanks:** Available to chat in Zach's at Sophie Station. **Thursday, February 26**, 1:00-5:00pm
4. **Questionnaire:** Connect with us