

**National Oceanic and  
Atmospheric Administration**

CPASW May 10, 2023

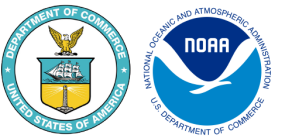
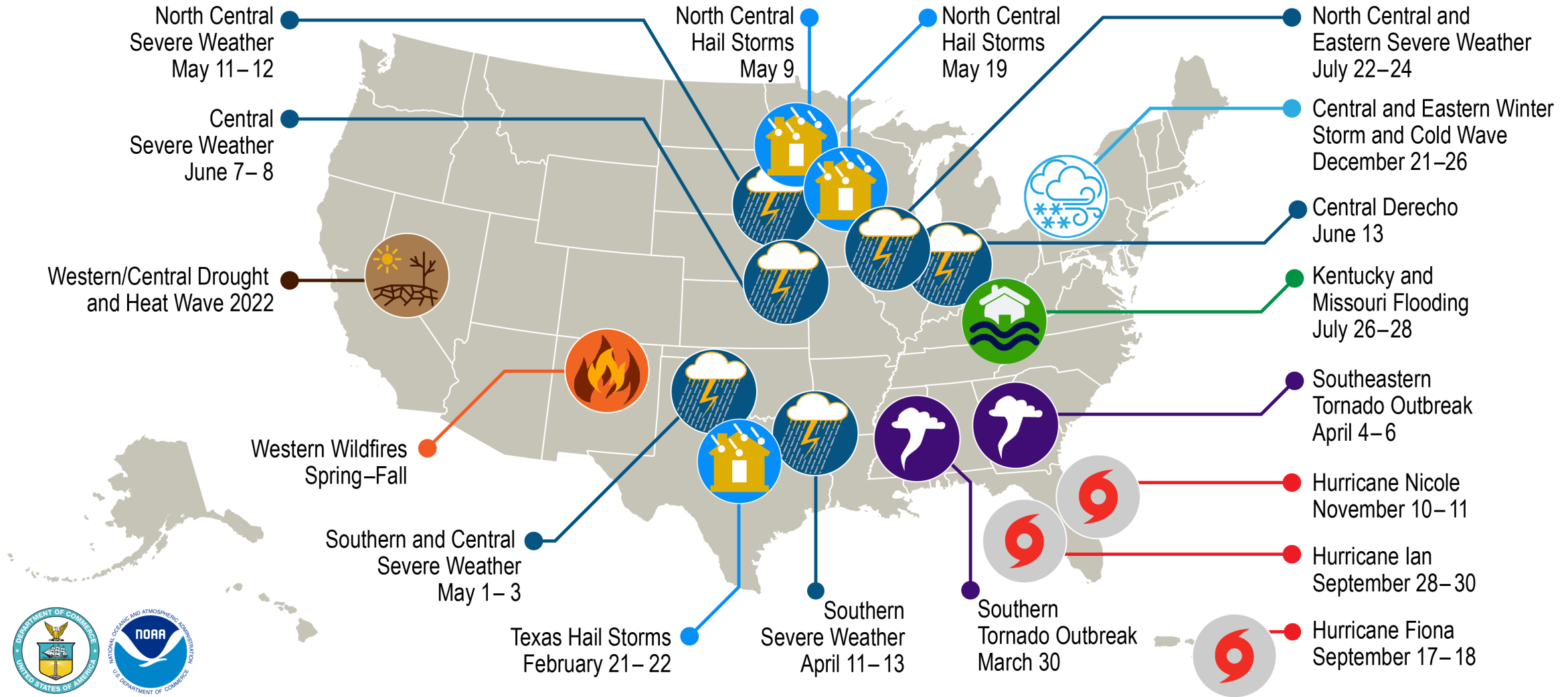
# Million Dollar Disasters in Alaska

**Potential for a regional product**

Jessica Cherry, Regional Climate Services Director,  
Alaska, NESDIS/NCEI

# U.S. 2022 Billion-Dollar Weather and Climate Disasters

-  Drought/Heat Wave
-  Flooding
-  Hail
-  Hurricane
-  Severe Weather
-  Tornado Outbreak
-  Wildfire
-  Winter Storm/Cold Wave



This map denotes the approximate location for each of the **18 separate billion-dollar weather and climate disasters that impacted the United States in 2022.**



# Top \$\$ weather/water/climate-related disasters in Alaska

Fisheries

Fires

Floods (including ice jams, rainfall driven, and glacial lake outbursts)

Coastal Storms

Debris flows (Haines, Sitka, Juneau, Denali Park, Barry Arm potential)

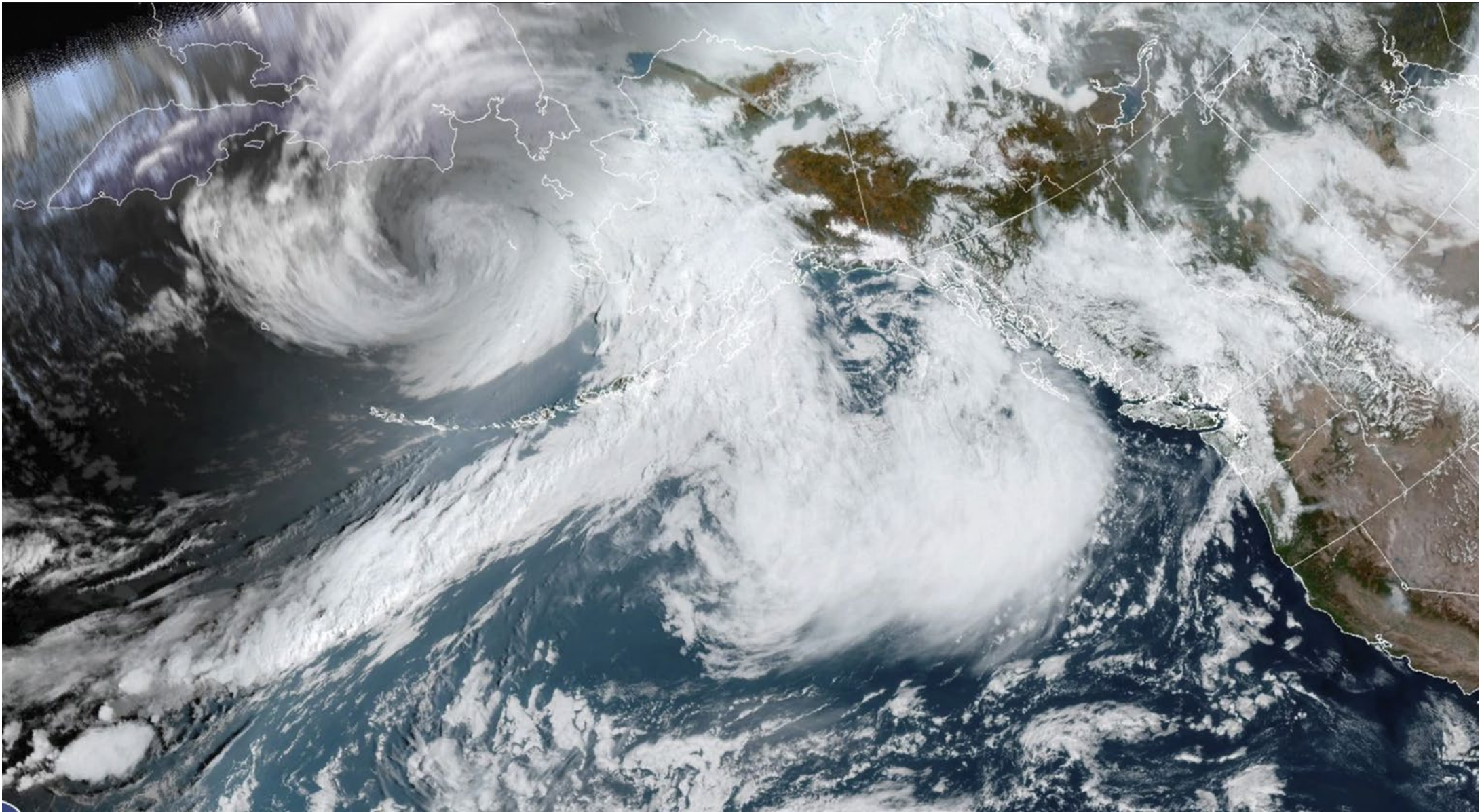
Atmospheric Rivers/snow loads

Heat stress on fish and wildlife habitat

Drought







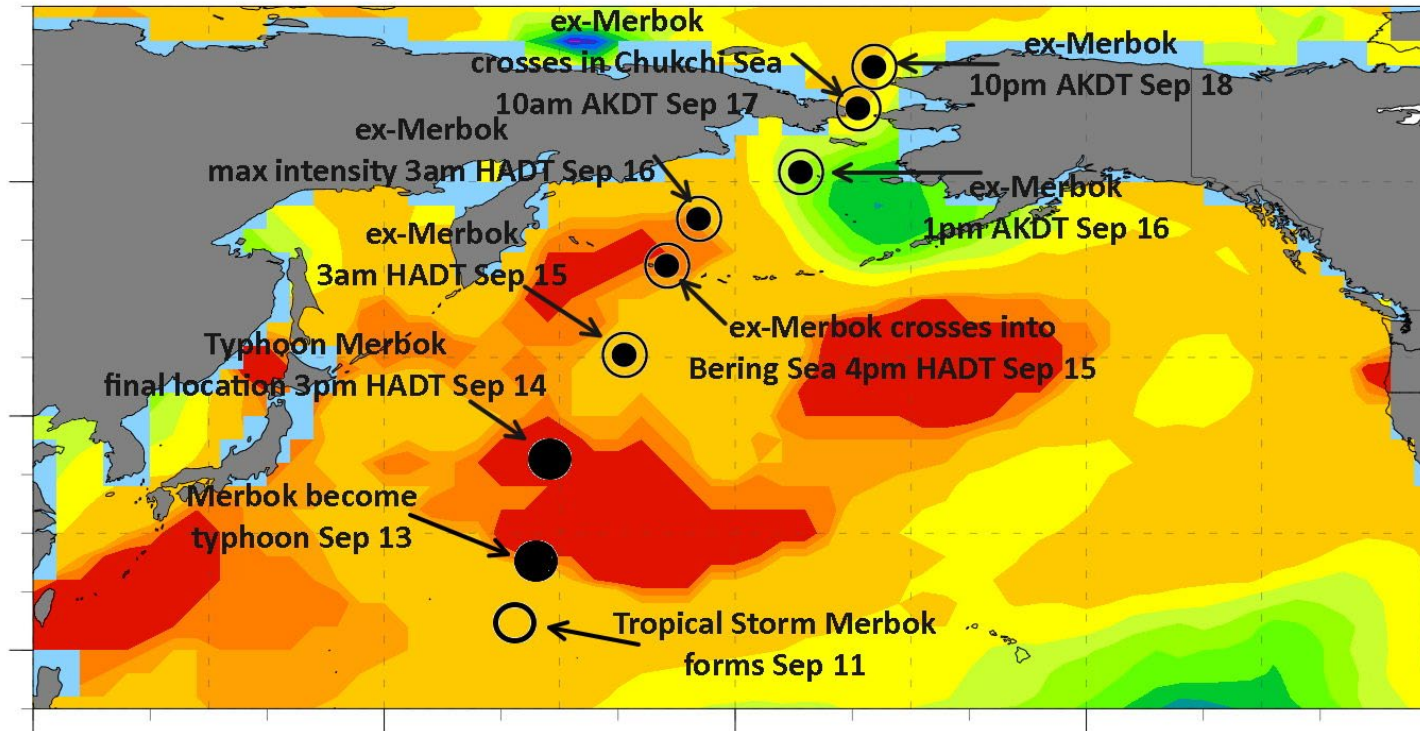
NESDIS

Extra Tropical Typhoon Merbok, September, 2022

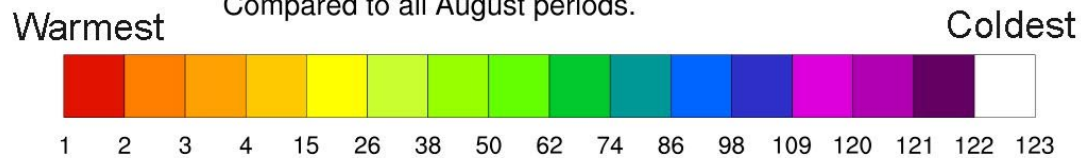




# Track of Merbok, September 11-18, 2022 August 2022 Sea Surface Temperature Ranks Relative to 1900-2021

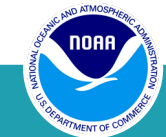


B. Brettschneider 2022 (Data Source: NOAA).ERSSTv5  
Ranks are from 1 (High) to 123 (Low). [Since 1900]  
Compared to all August periods.



**Sept. 15 formation**  
**Warmest temperature**  
**on record in region of**  
**formation**  
**Sept 17 landfall in**  
**western Alaska**

**Figure created by Rick Thoman - ACCAP and Brian Brettschneider - NWS.**



## September 17, 2022

Governor Mike Dunleavy issued a disaster declaration for the storm

## September 23, 2022

President Joseph R. Biden, Jr. approved a major disaster declaration

## September 29, 2022

President Joseph R. Biden, Jr. made additional disaster assistance available to the State of Alaska

### Major flooding: At what height...

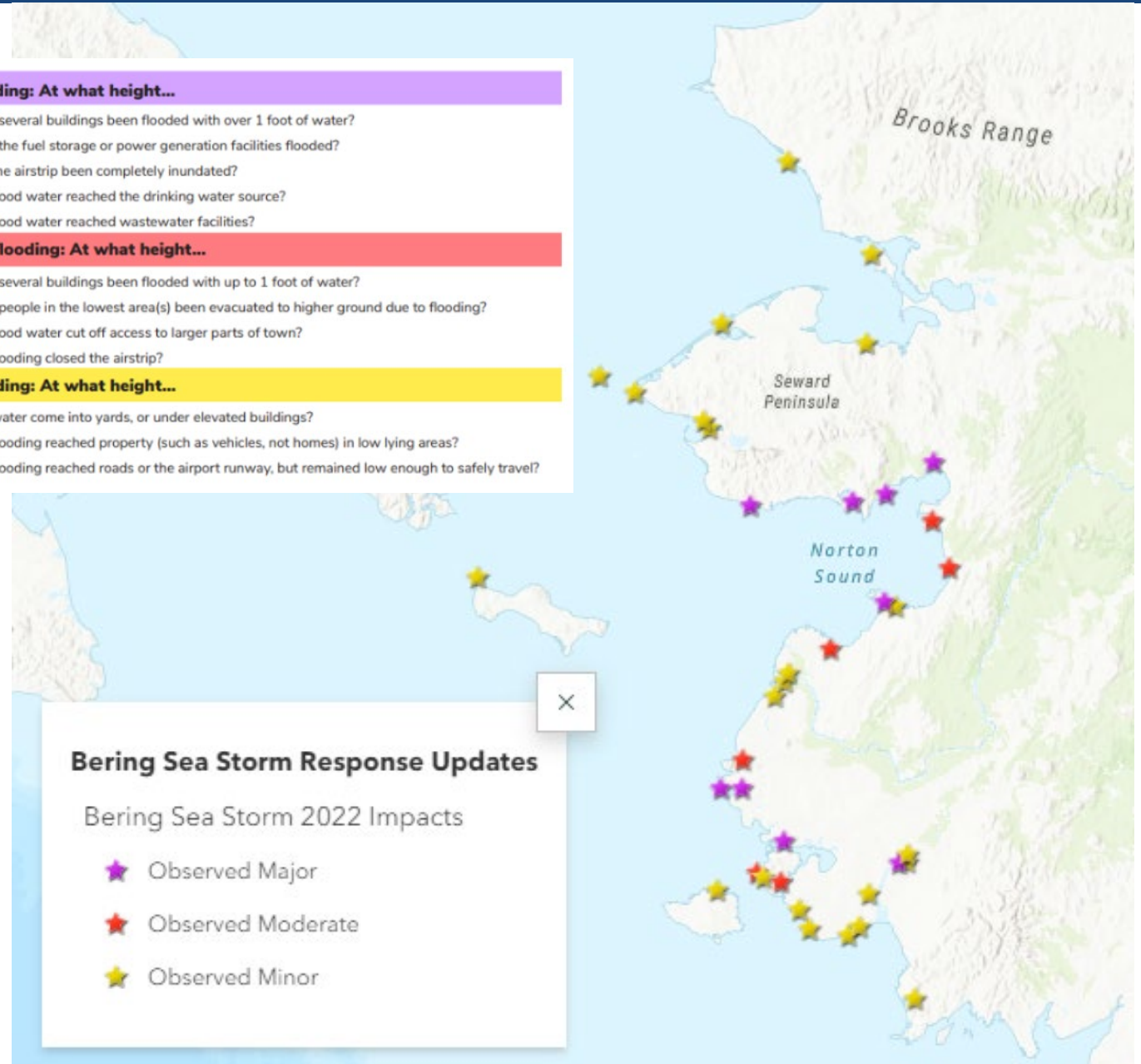
1. Have several buildings been flooded with over 1 foot of water?
2. Have the fuel storage or power generation facilities flooded?
3. Has the airstrip been completely inundated?
4. Has flood water reached the drinking water source?
5. Has flood water reached wastewater facilities?

### Moderate flooding: At what height...

1. Have several buildings been flooded with up to 1 foot of water?
2. Have people in the lowest area(s) been evacuated to higher ground due to flooding?
3. Has flood water cut off access to larger parts of town?
4. Has flooding closed the airstrip?

### Minor flooding: At what height...

1. Has water come into yards, or under elevated buildings?
2. Has flooding reached property (such as vehicles, not homes) in low lying areas?
3. Has flooding reached roads or the airport runway, but remained low enough to safely travel?







Hooper Bay, AK



Nome, AK



Newtok, AK



Slide: J. Overbeck





# Federal Fishery Disasters in Alaska

The Secretary of Commerce recently announced allocations totaling \$131.8 million in fishery disaster assistance to address losses across several fisheries in Alaska affected by fishery failures:

1. 2019 Norton Sound Red King Crab: \$1,433,137
2. 2020 Norton Sound, Yukon River, Kuskokwim River, Chignik, and Southeast Alaska salmon; and 2021 Yukon River salmon: \$55,928,849
3. 2018 and 2020 Copper River and Prince William Sound salmon: \$34,326,265
4. 2020 Gulf of Alaska Pacific cod: \$17,772,540
5. 2019/2020 Eastern Bering Sea Tanner crab: \$12,935,199
6. 2018 Upper Cook Inlet East Side Set Net and 2020 Upper Cook Inlet salmon: \$9,404,672

Pending Federal Disaster Declarations:

7. Alaska 2022 Yukon River Salmon Fisheries \*Pending\*
8. Alaska Bering Sea Crab Fisheries, 2022/2023
9. Alaska Prince William Sound Salmon Fisheries, 2018 \*Pending\*



# OPINION: The end of an era for Alaska fishing may already be here

By Tom Kizzia

Updated: 1 day ago

Published: May 6, 2023







# Flood Safety Awareness Week

## Historical Flood- Galena May 2013

Galena Under Water as Yukon River Floods 29 May 2013

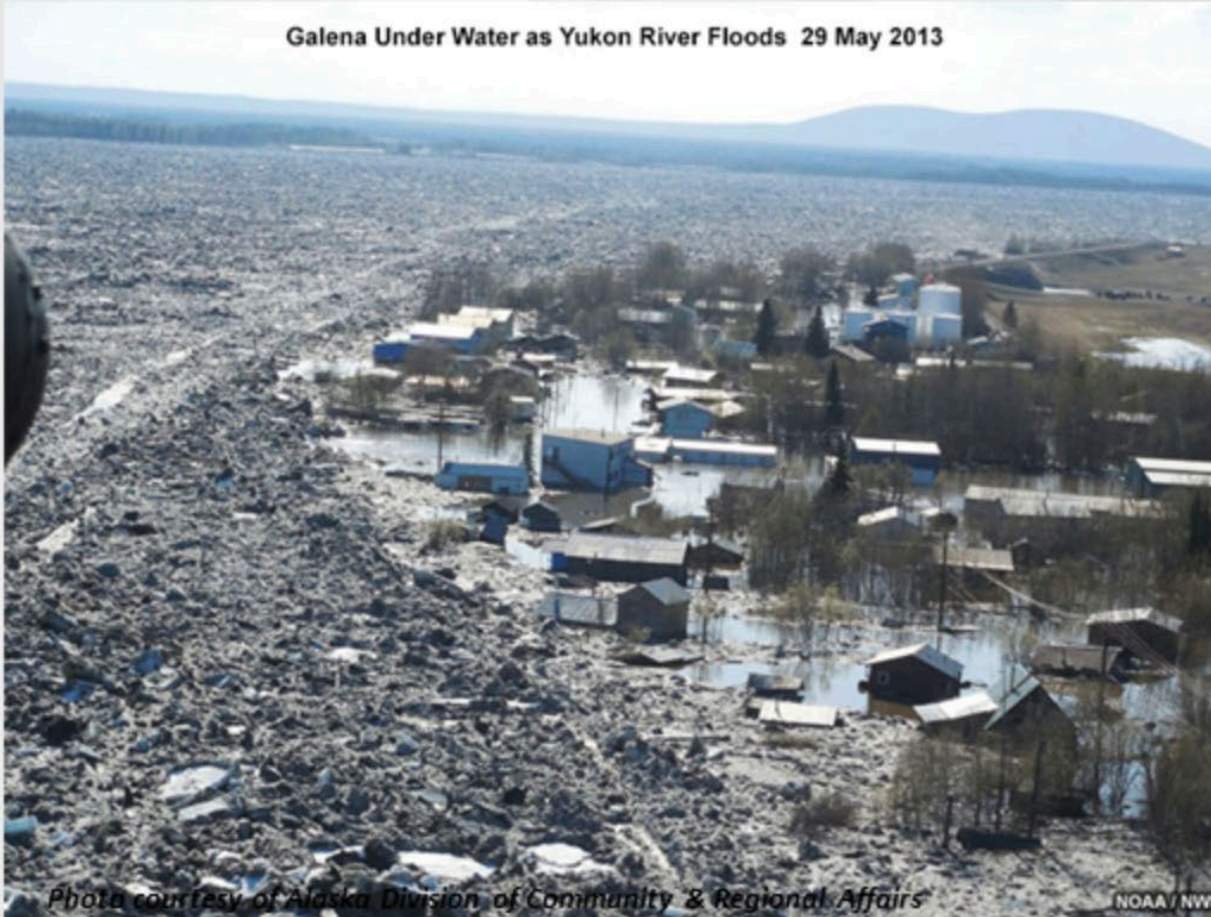


Photo courtesy of Alaska Division of Community & Regional Affairs

NOAA / NWS

Photo courtesy of Alaska Division of Community & Regional Affairs

[www.weather.gov/aprfc/](http://www.weather.gov/aprfc/)



US National Weather Service Alaska

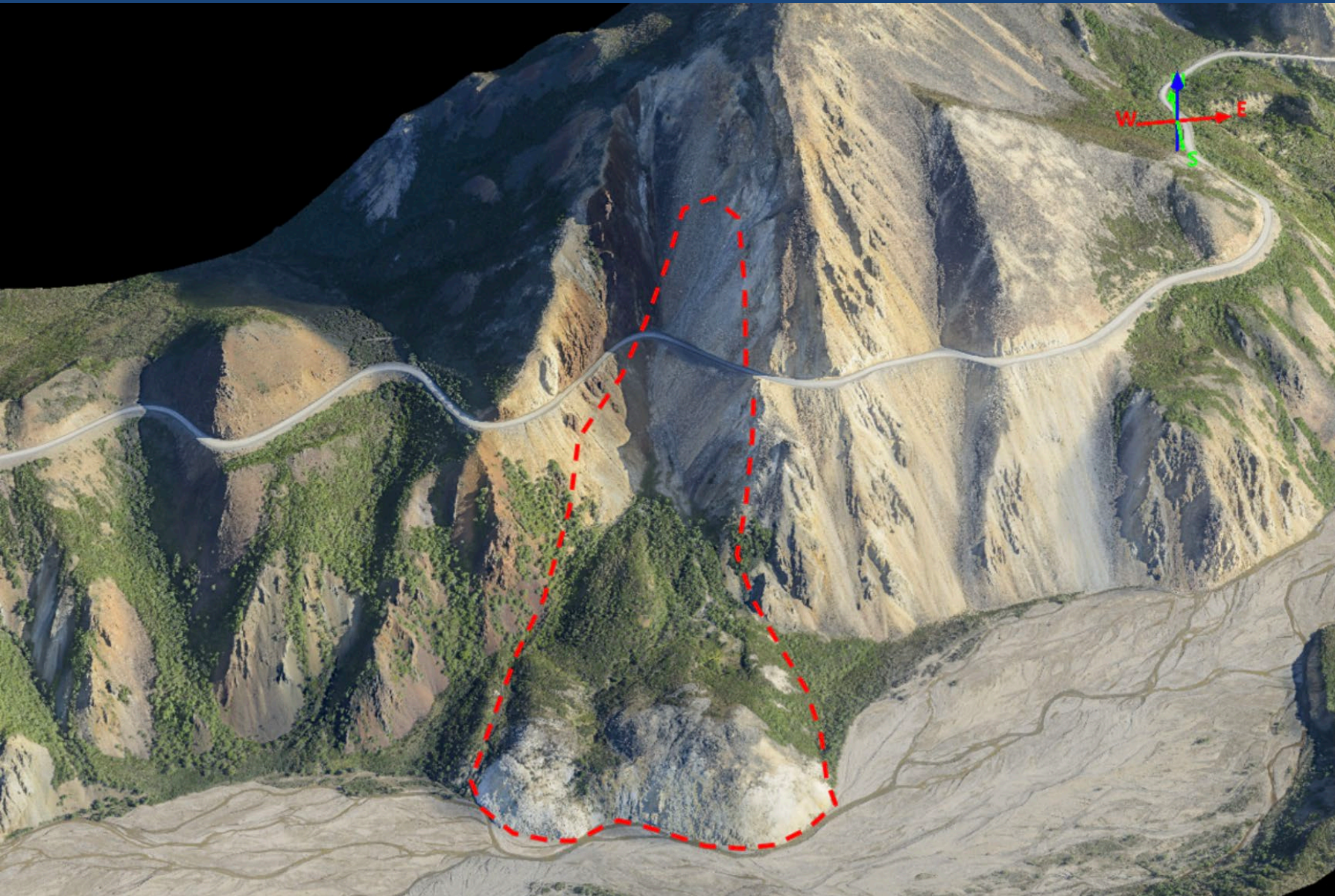


#AKwx

#AKRiverWatch

Below normal temperatures followed by a quick melt led to mechanical ice breakup along the Yukon. May 26, an ice jam developed at Bishop Rock, a constriction point just downriver of Galena. The river quickly rose and caused the worst flooding in Galena history



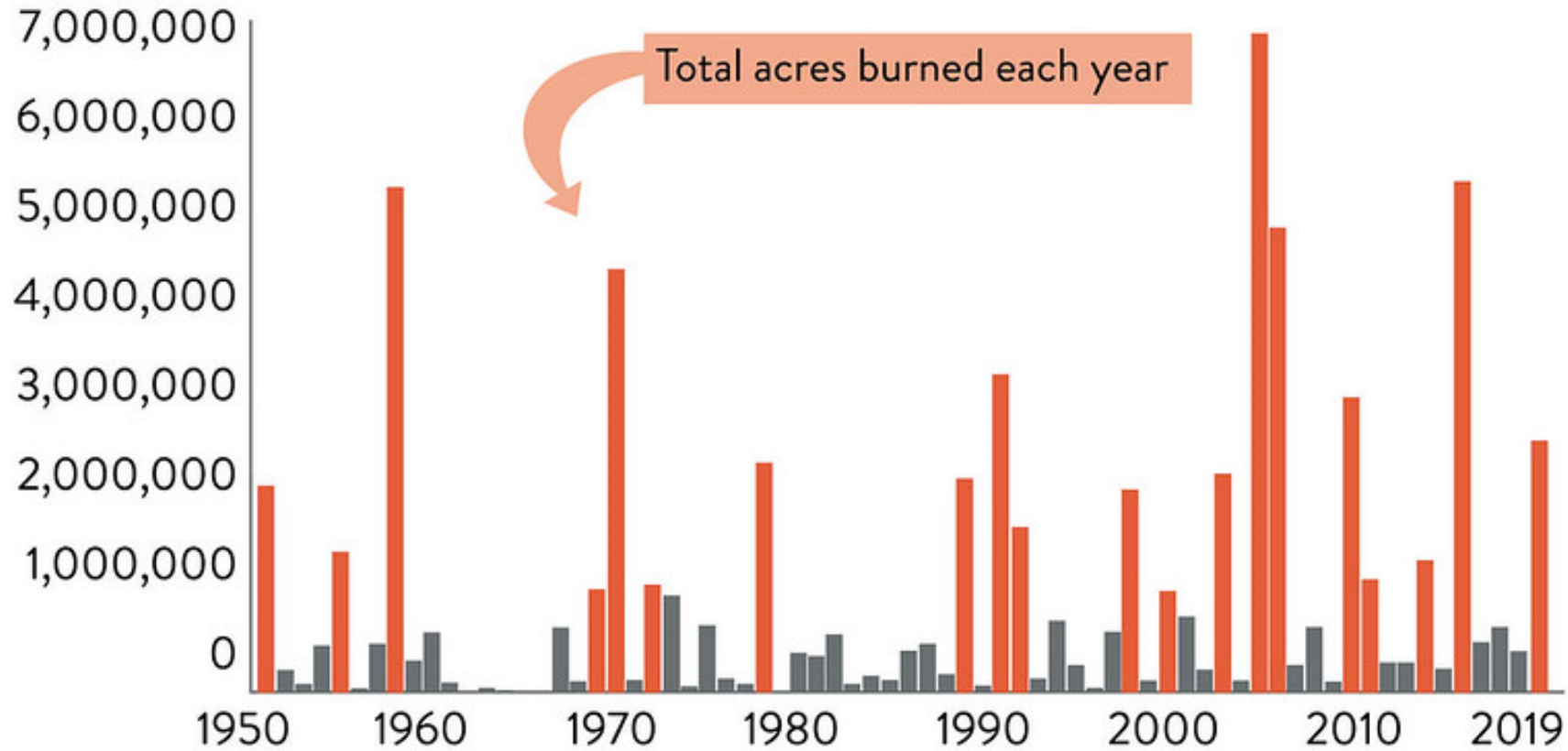


Debris flows in Alaska may be related to permafrost and post-glacial instabilities (i.e. Climate Driven), or just heavy precipitation, and may also cause tsunamis in addition to localized damage

NPS/Denali National Park

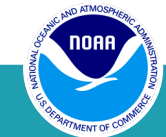


# Alaska wildfires, 1950–2019

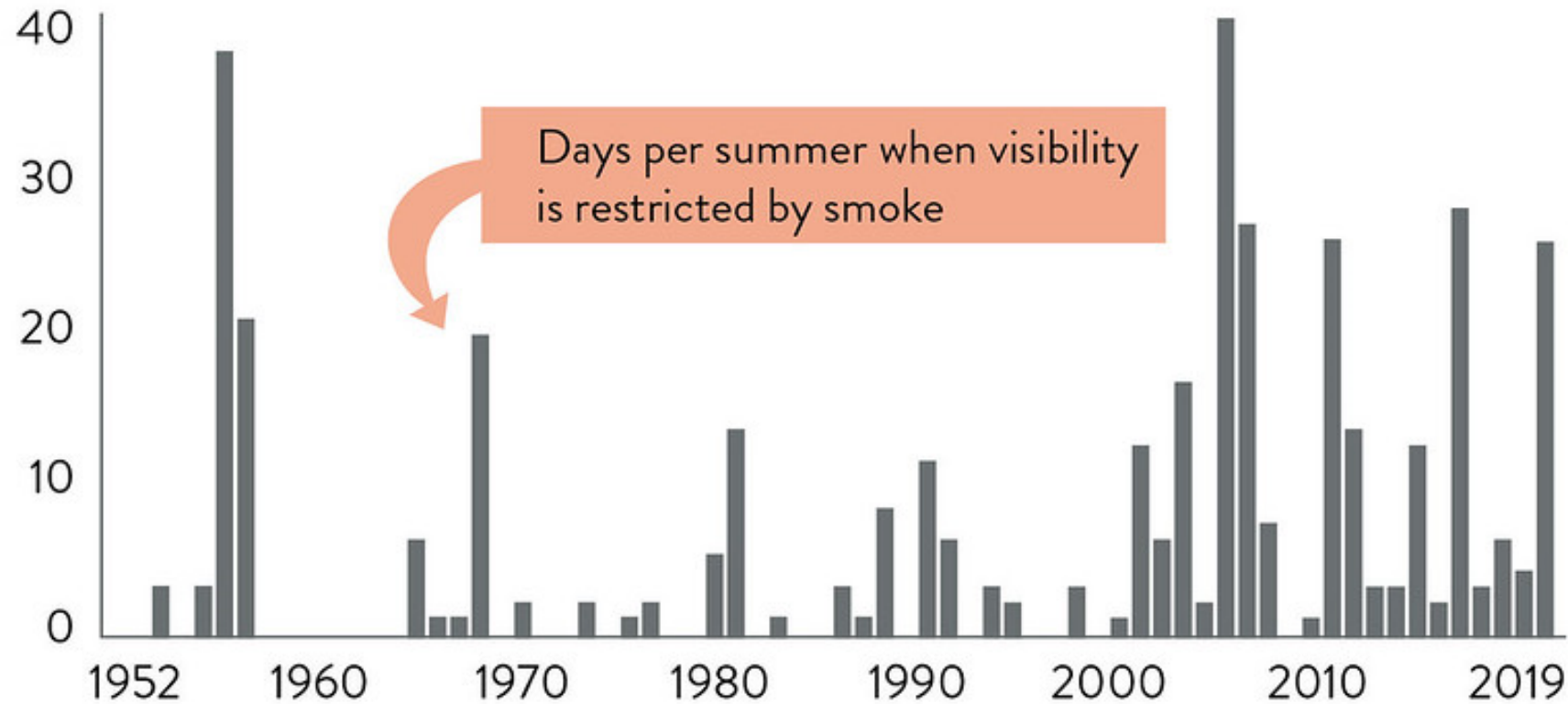


Credit: Rick Thoman, Alaska Center for Climate Assessment and Policy.

Data source: Alaska Interagency Coordination Center



# Smoky days in Alaska, 1952–2019



Credit: Rick Thoman, Alaska Center for Climate Assessment and Policy.

Data source: NOAA/NCEI

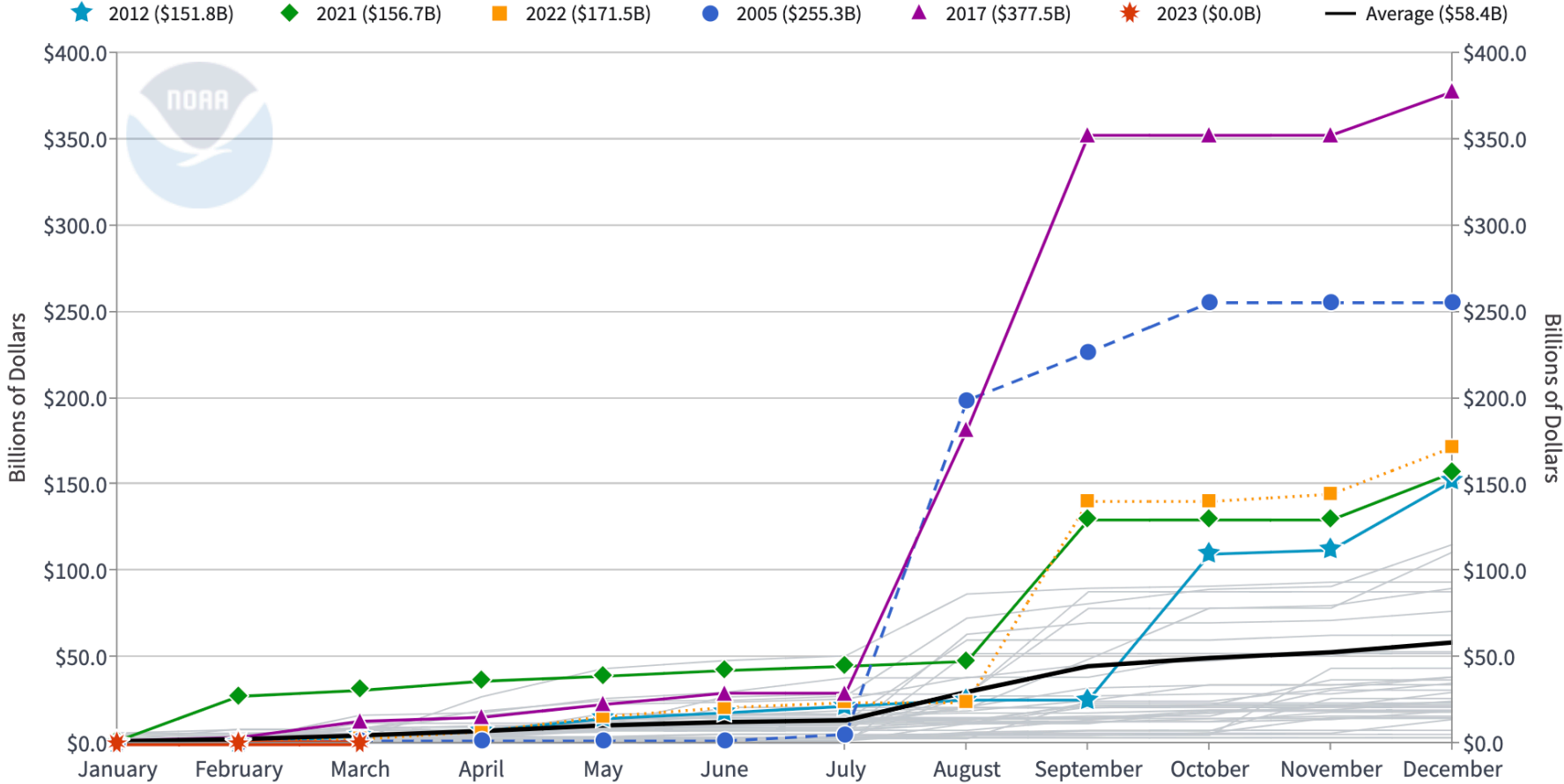




- All Disasters
- Drought
- Flooding
- Freeze
- Severe Storm
- Tropical Cyclone
- Wildfire
- Winter Storm

United States  Cost  Update  CPI-Adjusted  Unadjusted

### 1980-2023 United States Billion-Dollar Disaster Event Cost (CPI-Adjusted)



Updated: April 10, 2023

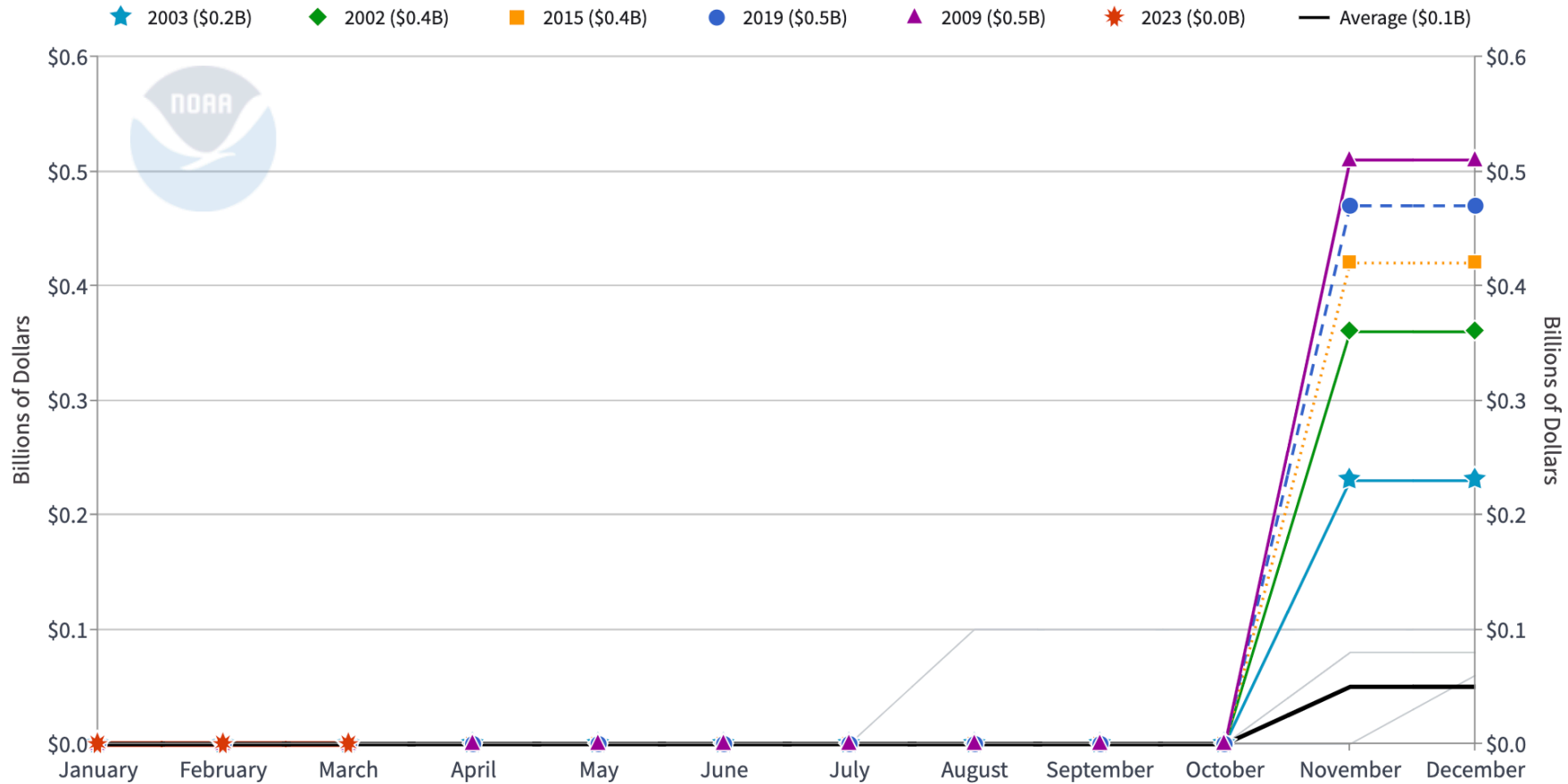
Event statistics are added according to the date on which they ended. Powered by ZingChart



- All Disasters
- Drought
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Alaska Cost Update CPI-Adjusted Unadjusted

### 1980-2023 Alaska Billion-Dollar Disaster Event Cost (CPI-Adjusted)



Updated: April 10, 2023

Event statistics are added according to the date on which they ended. Powered by ZingChart





All Disasters

Drought

Flooding

Freeze

Severe Storm

Tropical Cyclone

Wildfire

Winter Storm

Alaska

Cost

Update

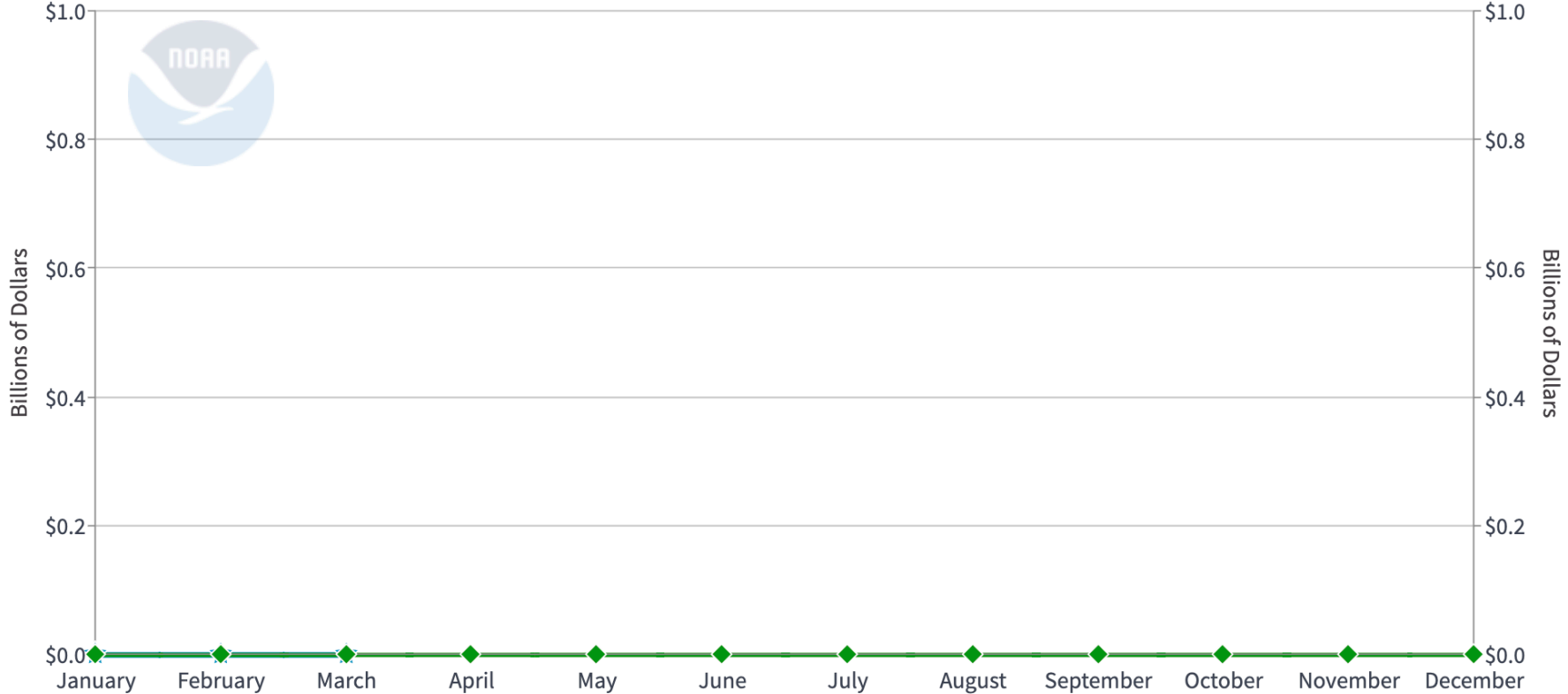
CPI-Adjusted

Unadjusted

### 1980-2023 Alaska Billion-Dollar Disaster Event Cost (CPI-Adjusted)

Flooding

★ 2023 (\$0.0B)    ◆ Average (\$0.0B)



Updated: April 10, 2023

Event statistics are added according to the date on which they ended. Powered by ZingChart



All Disasters

Drought

Flooding

Freeze

Severe Storm

Tropical Cyclone

Wildfire

Winter Storm

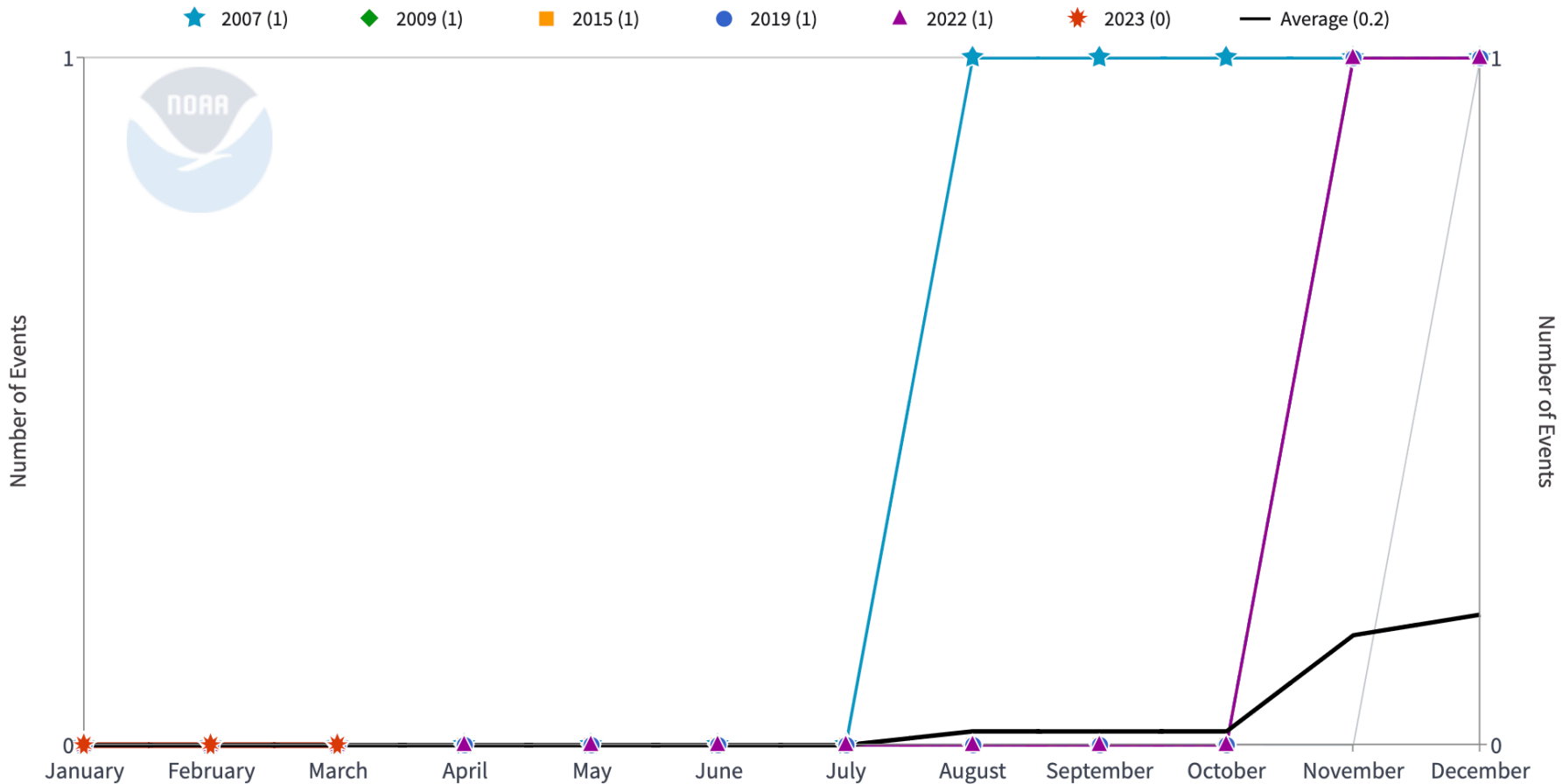
Alaska

Frequency

Update

CPI-Adjusted Unadjusted

### 1980-2023 Alaska Billion-Dollar Disaster Event Count (CPI-Adjusted)



Updated: April 10, 2023

Event statistics are added according to the date on which they ended. Powered by ZingChart





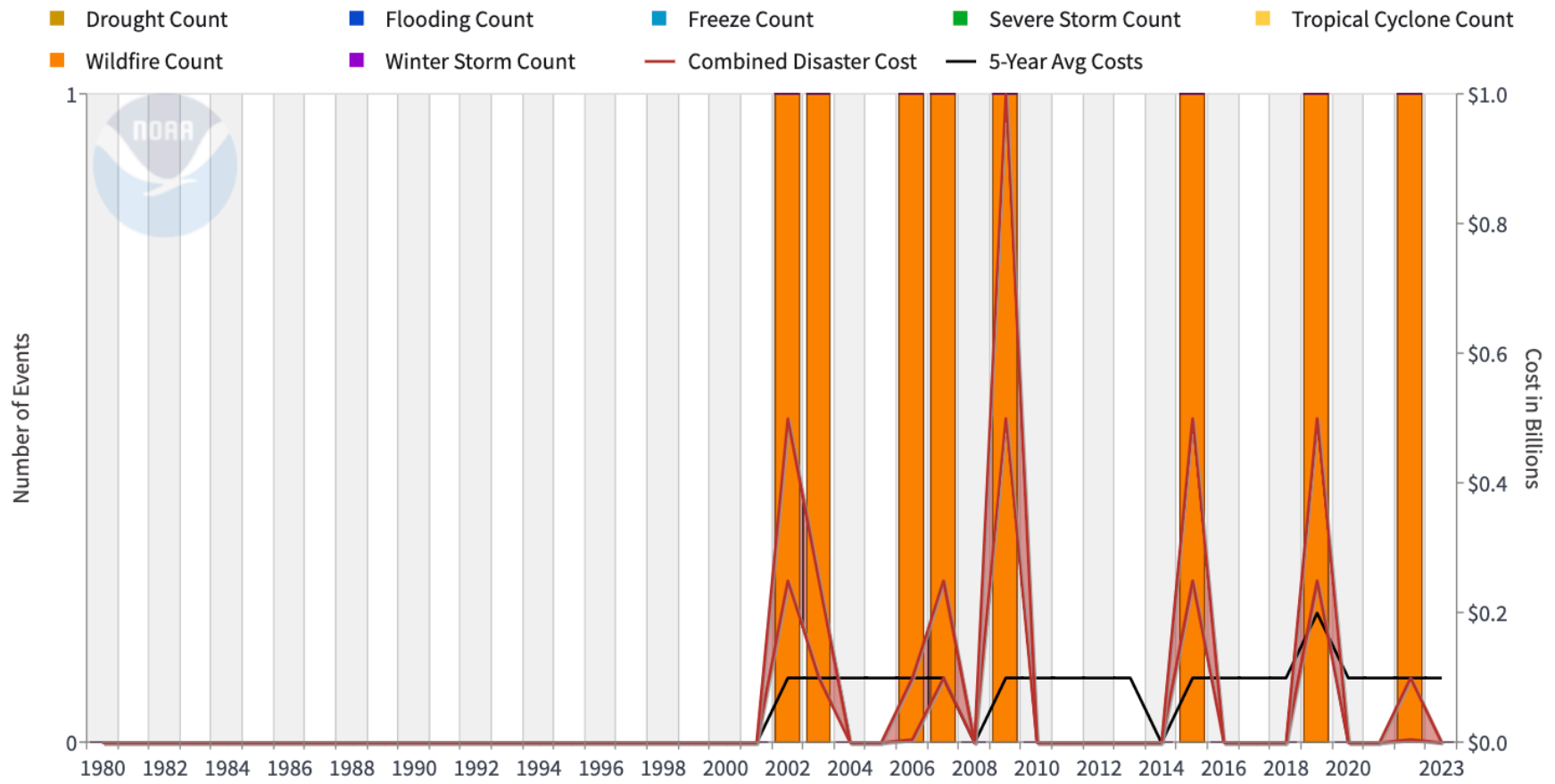
- All Disasters
- Drought
- Flooding
- Freeze
- Severe Storm
- Tropical Cyclone
- Wildfire
- Winter Storm

Alaska

Update

CPI-Adjusted Unadjusted

**Alaska Billion-Dollar Disaster Events 1980-2023 (CPI-Adjusted)**



Updated: April 10, 2023

Powered by ZingChart



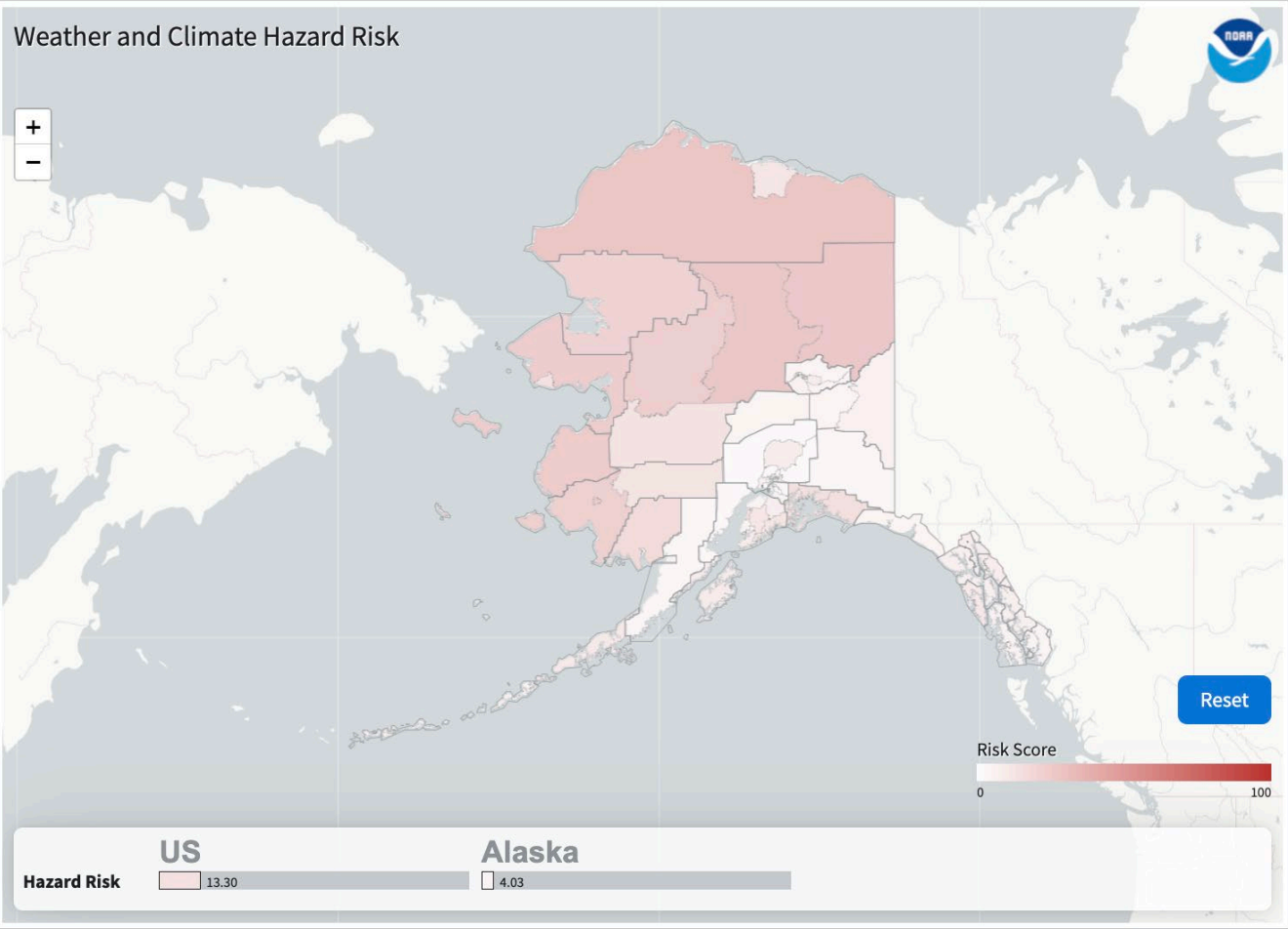
- All Disasters
- Drought
- Flooding
- Freeze
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- Tropical Cyclone
- Wildfire
- Winter Storm

Update

Hazard Risk

Data Opacity: 100%

Alaska



Data for the above maps are accessible via [FEMA National Risk Index \(NRI\)](#), [Social Vulnerability Index \(SoVI\)](#), [Climate Impact Lab](#), and [CDC Social Vulnerability Index](#).



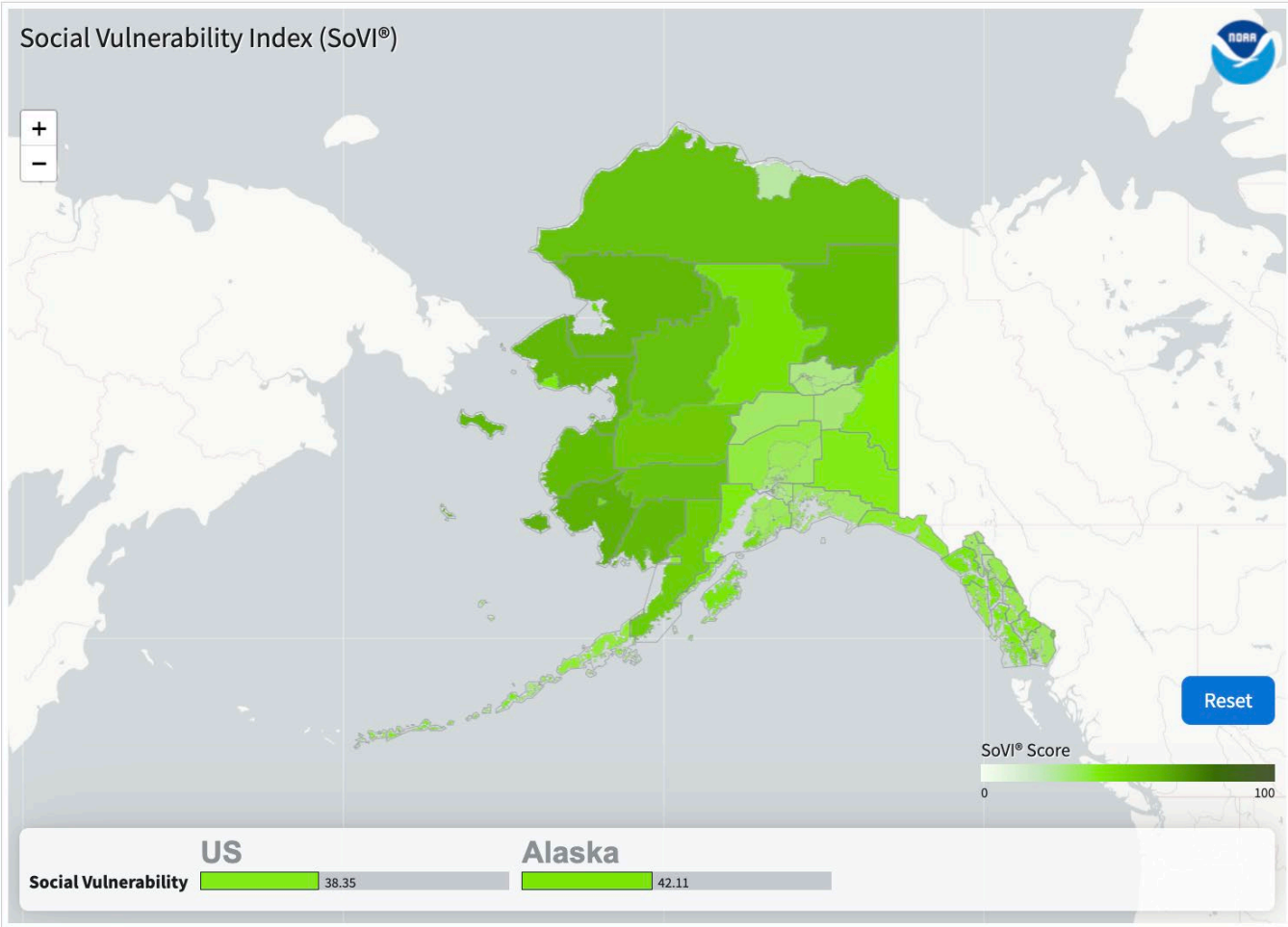
- All Disasters
- Drought
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Update

Social Vulnerability

Data Opacity: 100%

Alaska



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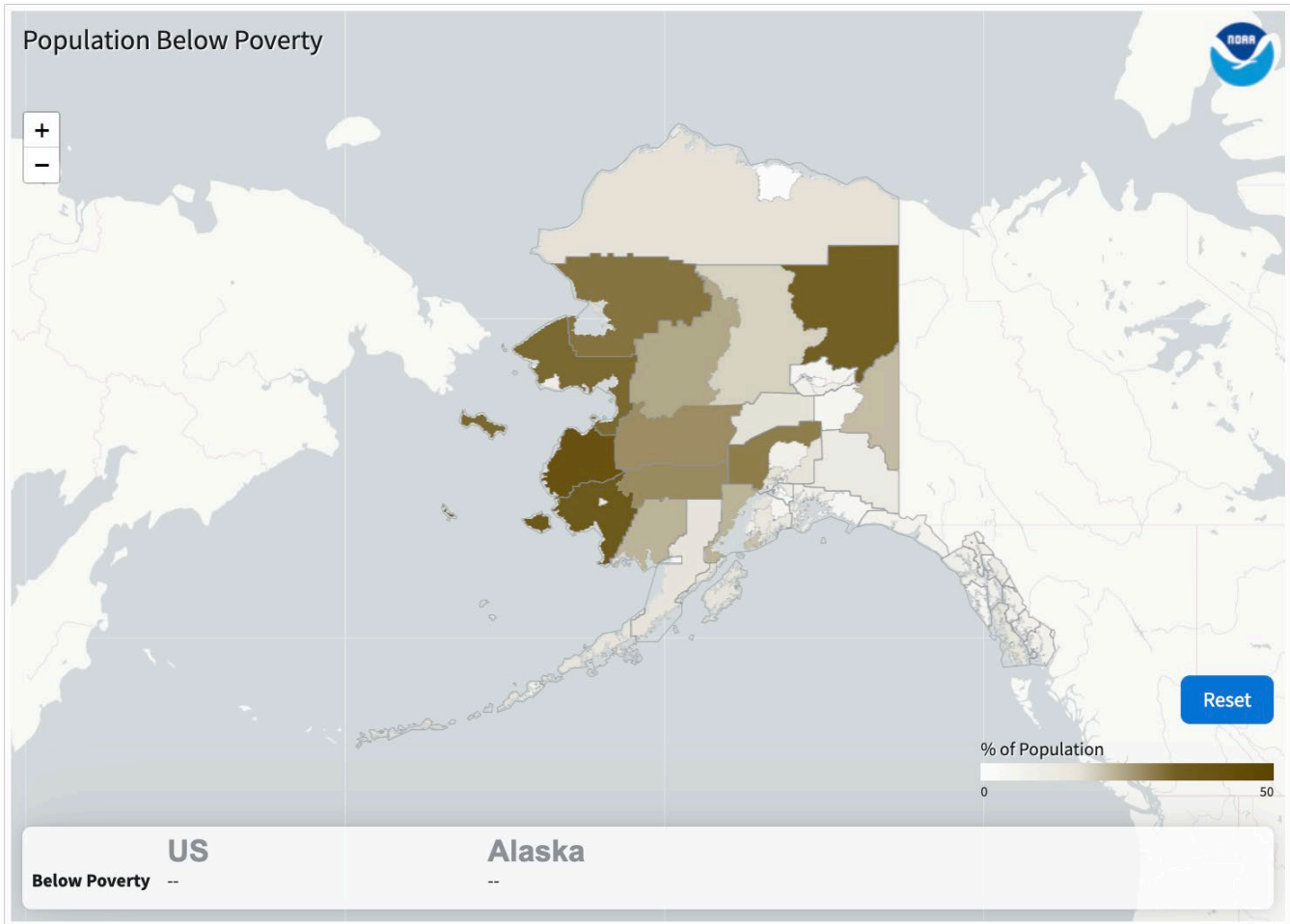
- All Disasters
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Update

Below Poverty

Data Opacity: 100%

Alaska



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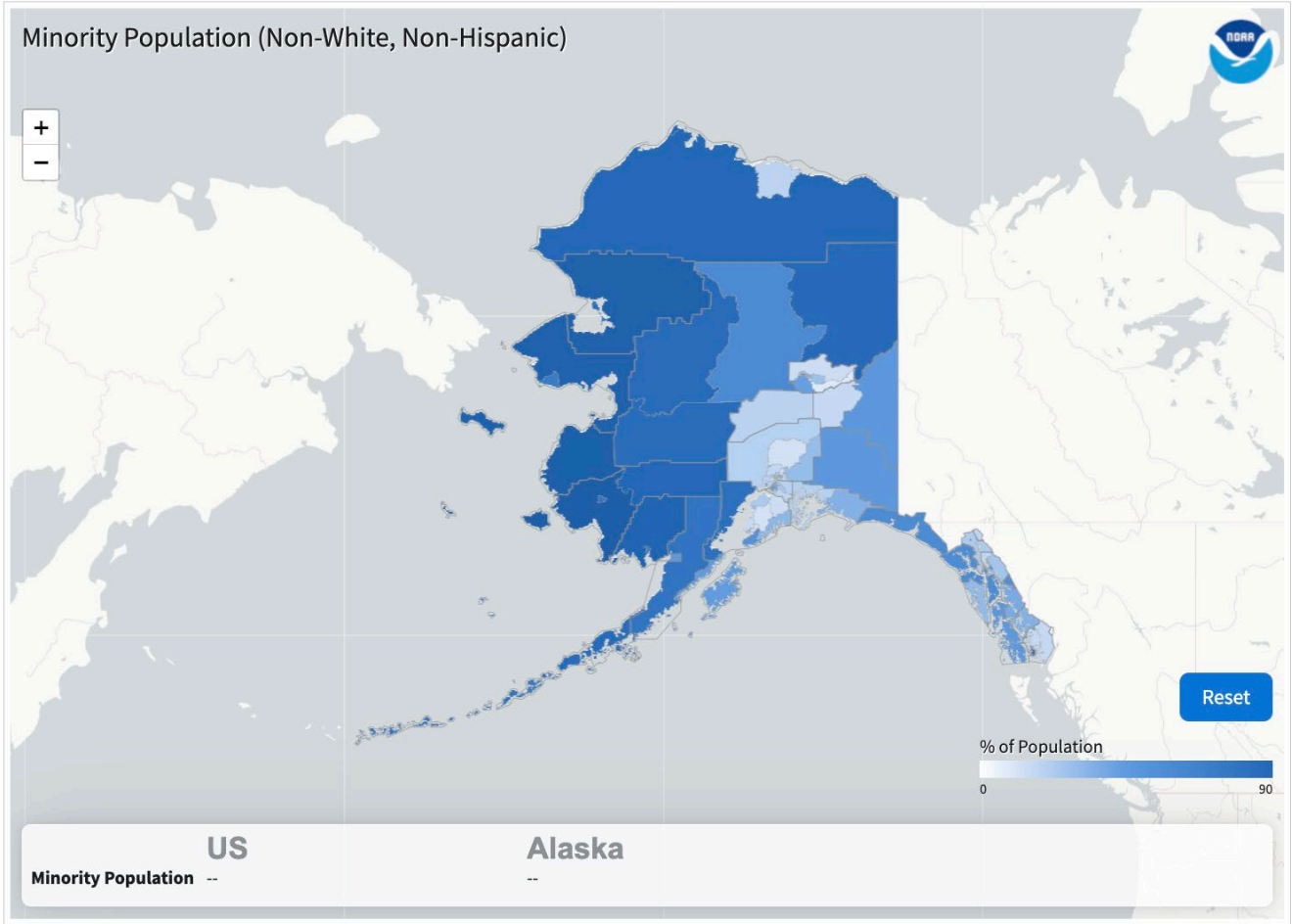
- All Disasters
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Update

Minority Population

Data Opacity: 100%

Alaska



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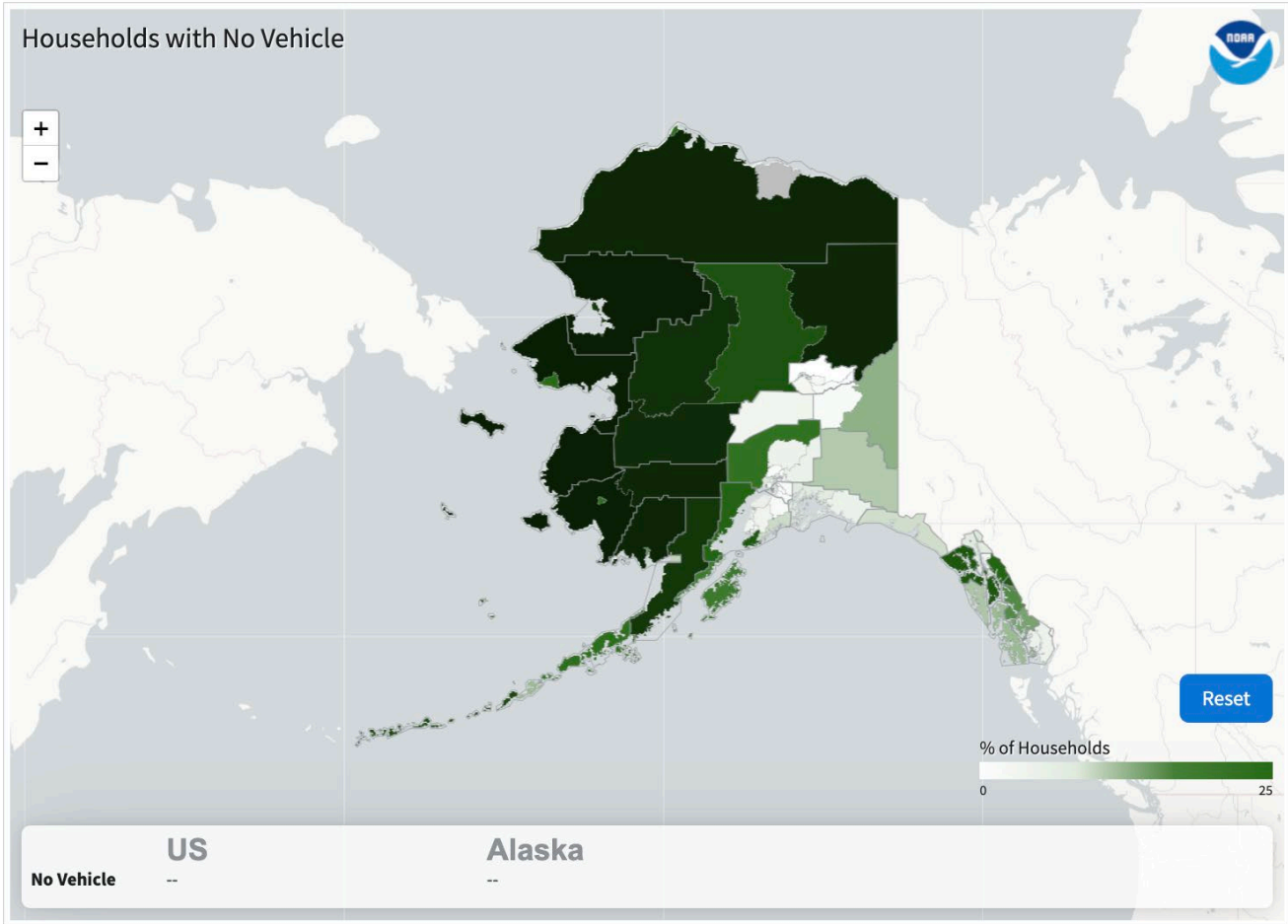
- All Disasters
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- Winter Storm

Update

No Vehicle

Data Opacity: 100%

Alaska



Data for the above maps are accessible via [FEMA National Risk Index \(NRI\)](#), [Social Vulnerability Index \(SoVI\)](#), [Climate Impact Lab](#), and [CDC Social Vulnerability Index](#).





# Regional peculiarities

Cost of access within the state (Lack of roads)

Cost of getting materials to the state from L48

Extreme seasonality

Cold regions processes (permafrost, ice jams, glacial outbursts)

Valuation and accounting for costs: a lot of people don't participate in the economy the same way they do in L48

Communities aren't always structured like they are in the L48



# NESDIS/NCEI Regional Climate Services Roles

Gathering regional requirements from user engagement in the climate-related economy

Subject matter expertise and broad regional knowledge

Working with NCEI resources and prioritization to improve existing data products for our regions and advocate for new ones

Work with state, federal, and tribal partners to illuminate risk and build resilience



# Questions?

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