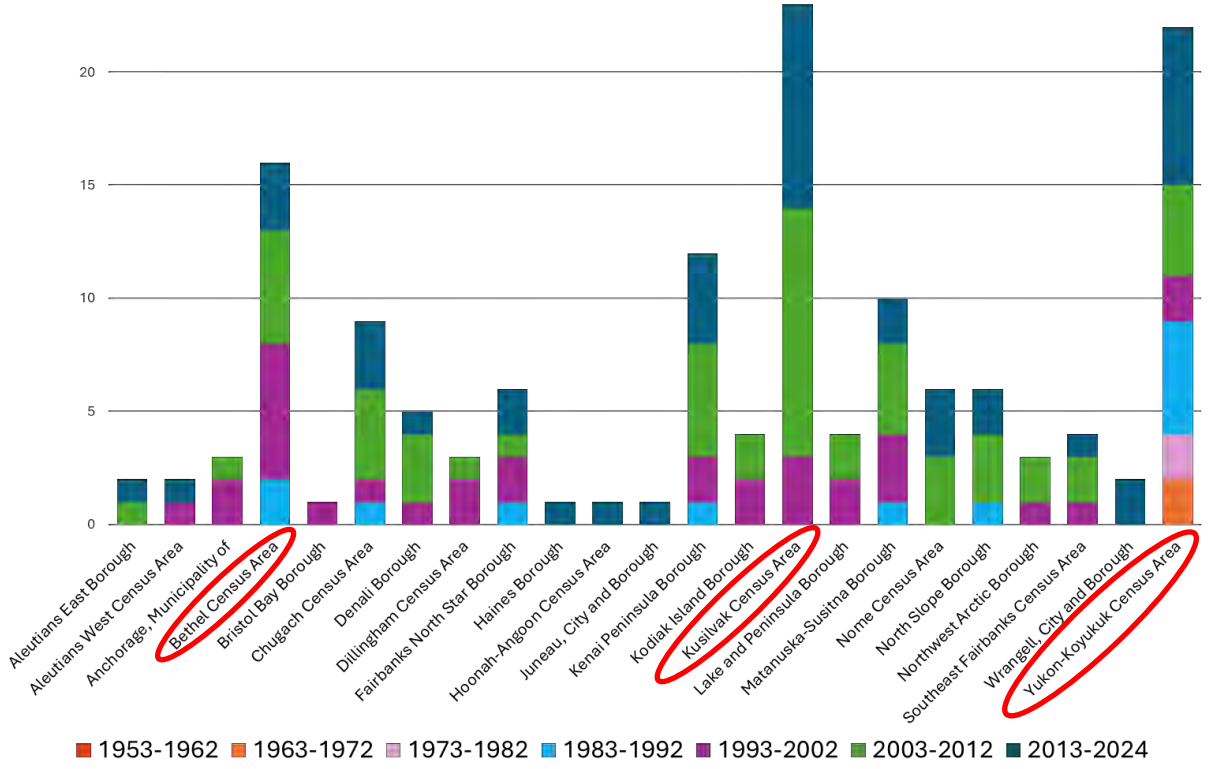
Chapter Four: Assistance to Environmentally Threatened Alaska Native Villages

During FEMA Region 10's 2017 Mitigation Summit, a number of stakeholders from federal, state, and non-governmental organizations met to discuss the possibility of developing a Risk Mapping, Assessment and Planning (Risk MAP) approach that focuses on Alaska Native communities who are increasingly being impacted by environmental threats such as flooding, erosion and permafrost degradation.

As illustrated in Figure 4 of the Introduction (page 5), over the last several decades, the number of presidentially-declared disasters in Alaska has increased dramatically. The majority of these disasters are caused by flooding and severe storms. Over the past decade, most of these events have occurred in the Bethel, Kusilvak and Yukon-Koyukuk census areas (see Figure 33, below). These census areas are comprised of small, remote, predominantly Alaska Native communities. The communities are especially vulnerable because they are located within Alaska's vast unorganized borough where there is no regional form of government to provide services and other resources to address disaster events. Only 9 of the 87 Alaska Native villages within these three census areas participate in the National Flood Insurance Program (NFIP). More than half of the villages within these census areas are ineligible to participate in the NFIP because they are not incorporated municipalities. Storm events are increasingly putting these communities at risk to loss of life and property. Recent studies indicate that the frequency and intensity of these storms is likely to increase, especially in western Alaska (Terenzi, 2014).

Figure 33: Alaska Federally-Declared Disasters, Floods or Storms with Floods, by Borough/Census Area 1953-2024



Data Source: https://www.fema.gov/api/open/v2/DisasterDeclarationsSummaries.csv. Current as of September 30, 2024

Risk MAP's approach to building community resilience by increasing local understanding of risk, and enhancing local decision-making to take action against risk has great potential for these communities. It is very difficult for a community to know how to respond to hazards without clear understanding and guidance on the nature of the hazard, what the current and predicted impacts are, and what options there are to address the hazard.

A number of efforts have taken place to address severe flooding, erosion and other natural hazards in Alaska's rural communities. Several key observations and needs have been identified through these efforts:

- Assistance to imperiled communities should be based on a fair and defensible methodology which prioritizes communities by level of threat and need
- The community must be a key player in the decision-making process
- Imperiled communities (and the agencies assisting them) need quantifiable data from which to make informed decisions
- A coordinated, interdisciplinary approach to address community threats is essential to increasing community resilience

Prioritization is the first step in the Risk MAP process. States are asked to develop a quantitative approach to prioritize communities to determine which communities FEMA will study. The State of Alaska developed a prioritization methodology to guide the study of NFIP-participating communities in Alaska. The approach used to prioritize imminently-threatened Alaska Native villages is based on level of threat and need through the Alaska Statewide Threat Assessment.

Interagency coordination is basic to the Risk MAP process, which relies upon partnerships between federal, state, tribal and local government stakeholders. The State of Alaska Risk MAP Coordinator has organized and facilitated interagency working groups (also known as village planning groups) over the past decade for the communities of Newtok, Kivalina, Shaktoolik and Shishmaref. DCRA, the agency responsible for coordinating the State of Alaska's Risk MAP Program, is tasked by two State of Alaska Administrative Orders (AO 231 and AO 239) "to act as the state coordinating agency to coordinate with the other state and federal agencies to propose long-term solutions to the ongoing erosion issues in... affected coastal communities..."

Developing a Strategy

1. Prioritization Methodology

In March 2017, the Denali Commission funded the U.S. Army Corps of Engineers Alaska District, the Cold Regions Research and Engineering Laboratory, and the University of Alaska Fairbanks in a Statewide Threat Assessment Project whose goals was to The goals of this study were to:

1) Assess individual threats to public infrastructure associated with erosion, flooding, and thawing permafrost in Alaska communities
2) Evaluate the combined threat imposed by interactions between erosion, flooding, and thawing permafrost in Alaska communities; and
3) Provide guidance to decision makers regarding the technical information required to develop mitigation or adaptation strategies related to those threats.

The final product of this effort was published by the Denali Commission in November 2019. The rankings and groupings developed under the Threat Assessment are intended to identify those communities requiring additional data collection and risk assessment, with the intent that stakeholder agencies build upon the information presented in the assessment, and collaborate to develop advanced data hosting, design, and decision support tools intended to foster a unified approach to mitigating Alaska's infrastructure challenges. The recommendations for Alaska's future study needs for 2020-2022 (Chapter Nine), are based on this information.

2. Stakeholder Engagement

Potential Stakeholders to the Alaska Native Village Risk MAP process include the Alaska Silver Jackets Team, the State Hazard Mitigation Advisory Committee, Alaska Governor's Office (Tribal Affairs), Bureau of Indian Affairs, Denali Commission, NOAA, HUD, Alaska Native Tribal Health Consortium, NOAA, Arctic Executive Steering Committee Community Resilience Working Group, Native American Rights Fund, State and Federal Department of Transportation, EPA, Western Alaska LCC and Alaska Native Claims Settlement Act (ANCSA) Regional Non-Profit Organizations.

Inter-disciplinary partner engagement will be especially important because FEMA doesn't directly address many of the hazards (or other resilience needs) impacting Alaska Native Villages such as:

- Erosion
- Permafrost Degradation
- Food security
- Human health impacts
- Changing weather conditions
- Community capacity

3. The Risk MAP Process

A unique Risk MAP process will be required to meet the needs of the Alaska Native villages for which we conduct Risk MAP studies. Some suggestions are outlined below:

Pre-Discovery

FEMA and the State will work with the Alaska Native village to understand the needs, resources, and capabilities to support the community in risk reduction and resilience efforts. Ideally, the Risk MAP process would be tied with the Hazard Mitigation Plan update process. The Data Collection and Analysis Phase will begin prior to the Discovery Meeting and continue afterwards once the needs of the village are identified (see Post-Discovery Data Collection and Analysis, below).

Discovery Interview

A telephone interview will be conducted with various stakeholders (regional, state, federal) to share current information, current and past projects, historical knowledge, and to identify who the best people are to attend the in-person Discovery meeting.

Discovery Meeting

The State Risk MAP Coordinator and a few key stakeholders will conduct an in-person Discovery meeting in the village. The purpose of the Discovery meeting is to gather information on the community's perspective about local natural hazards and their risk. This information will be used to prioritize risk and vulnerability assessments and mitigation planning assistance.

Considerations for the meeting include:

- Need for interpreter in villages where English is the second language
- Number of stakeholders attending (We don't want to outnumber attendees)
- Culturally-appropriate ways to present information
  - Community gathering/potluck
  - See Discovery Report suggestion under Risk MAP Products and Tools, below)

Post Meeting Coordination and Project Scope Development

This will be a collaborative effort to identify how we can meet the community's resilience needs and how we can align FEMA's effort with other ongoing efforts.

Post-Discovery Data Collection and Analysis

During this phase of the project, funding will be secured, local multi-hazard data will be collected, and risk and vulnerability assessments will be conducted to evaluate the nature, immediacy, probability and severity of each hazard.

Data Collection and Analysis will be a collaborative effort between a number of stakeholders in order to meet the community's resilience needs. The discussion should include:

- Ways to incorporate local/traditional knowledge with science
- How to incorporate local observation as part of the process. Both the Alaska Native Tribal Health Consortium and the Alaska Division of Geological and Geophysical Surveys have local observer efforts and there is real value in training local observers to document change throughout the study process.

Risk MAP Products and Tools

Discovery Report: a supplement to the report would be more helpful for many communities. DCRA has found that providing a map-sized document which can be hung in a public space, allowing community residents to gather and discuss is often more useful than a multipage report. The traditional Discovery Report could still be prepared to meet the needs of agencies. An example of a translated document can be found here:
https://silverjacketsteam.nfrmp.us/LinkClick.aspx?fileticket=6b_0S-nFCso%3d&portalid=0

Resilience Meeting

The Resilience Meeting provides the community with the opportunity to meet with subject matter experts to discuss how the information, tools and products of the Risk MAP process can be used to inform future planning efforts, reduce risk, and increase local resistance to disaster. A decision on next-steps to implement resilience actions is key to this meeting.

As with the Discovery Meeting, it may be necessary to have an interpreter and to hold the meeting in a community gathering/potluck format. Use of visuals outlining next steps (that can be left in the community) are helpful.

Alaska Coastal Resilience Partnership

Building Capacity and Conducting Coastal Risk Assessments in Remote Alaska Native Communities

The Alaska Division of Community and Regional Affairs (DCRA) Risk Map Program, the Alaska Division of Geological and Geophysical Surveys (DGGS) Coastal Hazards Program, and the Alaska Native Tribal Health Consortium (ANTHC) Center for Environmentally Threatened Communities have joined in the **Alaska Coastal Resilience Partnership** to work with Alaska communities facing coastal flood and erosion hazards with a project titled "Building Capacity and Conducting Coastal Risk Assessments in Remote Alaska Native Communities." The project is funded by the National Fish and Wildlife Foundation with match from the DGGS, ANTHC, and the Denali Commission. The State Risk MAP Coordinator is participating in this effort as part of her Risk MAP Statement of Work.

The project will take an innovative, comprehensive, efficient, culturally sensitive, and forward-looking approach to building capacity and conducting urgently needed coastal risk assessments for flooding and erosion in 44 remote Alaska Native communities, assisting with the development of informed local resilience strategies, mitigation solutions and the future design of restoration projects.

The project is important because a recent **Statewide Threat Assessment** prepared for the Denali Commission found that 144 remote Alaska Native Communities are at some degree of infrastructure damage from the environmental threats of erosion, flooding, and permafrost thaw. Completing site-specific data collection, risk assessments, and planning is critical to inform local decisions about reducing risk from erosion and flooding. The project will include the following tasks:

Baseline Data Collection to support Flood Modeling

The project focuses on bringing all coastal communities in northern and western Alaska to the same level of baseline data by strategically filling remaining gaps in baseline data and updating datasets that are outdated. Coastal geologists will travel to 20 communities to:

- Install water level sensors or erosion monitoring equipment with 14 communities *(five of which are match from DGGS) to* support the National Water Level Observation Network and a low-bandwidth website managed by DGGS for flood and erosion hazard information that links to published materials, real-time, and monitoring data developed for individual communities;
- Collect lidar in six communities where digital surface models are not sufficient for flood modeling
- Collect single-beam sonar bathymetric data, UAV-collected orthoimagery, high water mark, and first-floor elevation GNSS-survey data for critical infrastructure in 20 communities *(nine are match from the Alaska Ocean Observing System)*

Coastal Erosion and Flood Risk Assessments

- Leverage an ongoing project to map historical erosion rates and project future shorelines on infrastructure at 44 communities (all are match from Denali Commission);
- Develop coastal storm inundation records and risk assessment maps, reports, and an online tool with 33 communities to inform community planning and the development of mitigation solutions *(nine are match from DGGS);*

Coastal Flood Modeling

The project leverages the baseline data collection and coastal erosion and flood risk assessment activities to conduct storm surge and sea level change modeling at the four highest risk communities, developing future inundation extents of 5-, 10-, 25-, 50-, and 100-year return intervals and projected shorelines for years 2050 and 2075.

Community Planning and Technical Assistance

Project staff will work closely with 14 communities to coordinate with local leaders to complete:

- A community survey, conducted by a local coordinator to gather community input of environmental threats, community priorities and inform short and long-term strategies to address environmental threats;
- A reconnaissance-level engineering assessment to assess immediate mitigation needs, inform a near-term action plan with near-term project development and funding acquisition for imminent actions and additional storm surge modeling *(all are match from ANTHC and DGGS. Project partnership provided by DCRA/Risk MAP);*
- Long-term flood and erosion mitigation project development and planning that leverages baseline data collection ,coastal erosion and flood risk assessment, and coastal flood activities, resulting in an infrastructure protection strategy, and a pipeline of fundable projects for which grant application assistance will be provided (*all are match from ANTHC. Project partnership provided by DCRA/Risk MAP).*

Figure 34: Flooding in the Village of Golovin, September 2022

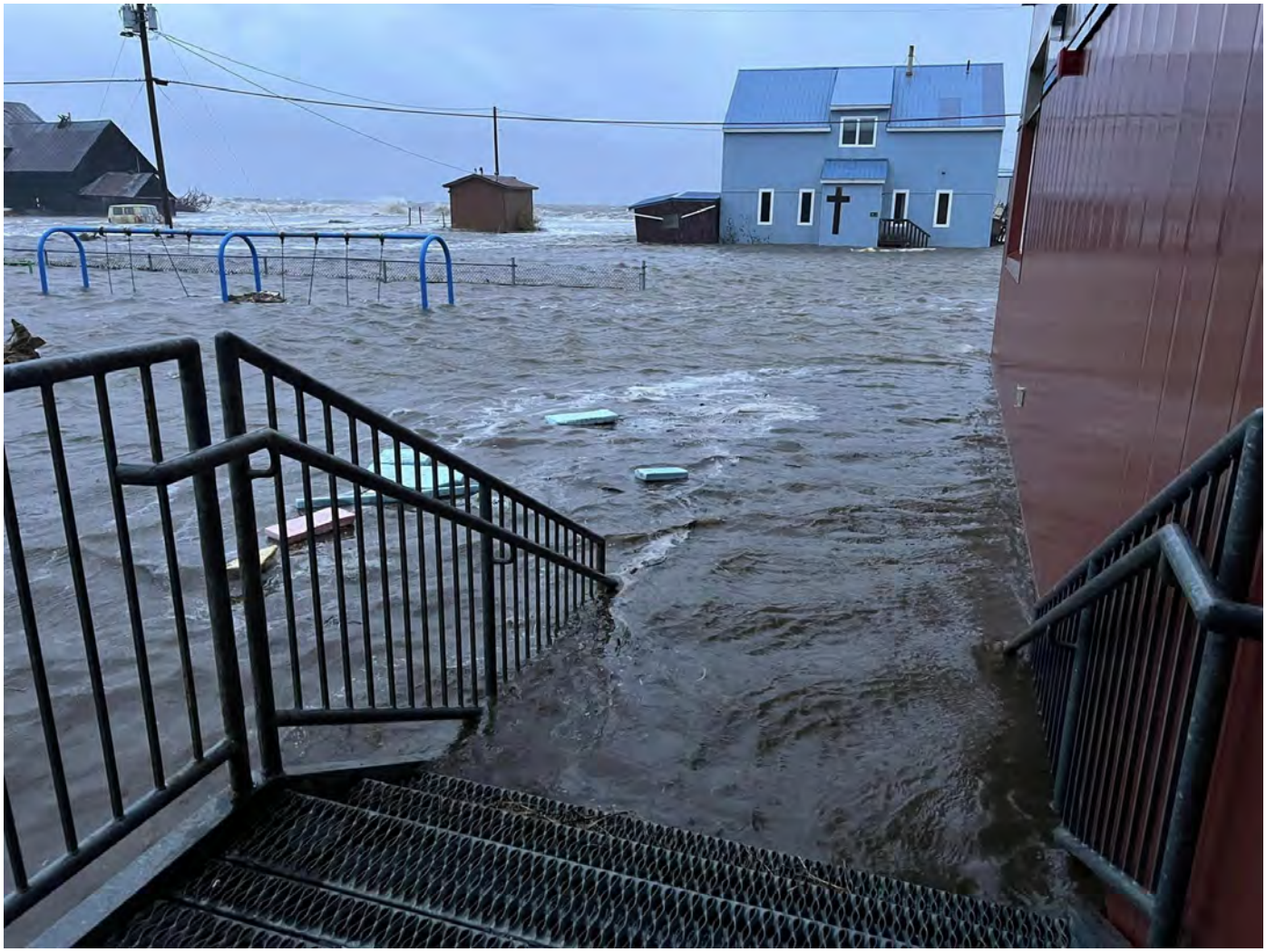


Photo: *Josephine Daniels of Golovin*