



ALASKA CIAP STATE TIER 1-10:
**GEOHAZARD EVALUATION &
GEOLOGIC MAPPING FOR COASTAL
COMMUNITIES**



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What are coastal geohazards & why is the State mapping them?

Many of Alaska's coastal communities are involved in mitigation or adaptation efforts in response to natural hazards

The State and local governments require sound baseline data to fuel informed decision-making

Triggers:

- Storms
- Seismic events
- Human activity
- Permafrost thaw
- Relative sea level change

Hazards:

- Beach erosion
- Landslides/slope failure
- Wave attack
- Flooding
- Tsunami
- Ivu/ice push



Bluff Failure
Kivalina, AK

(Kinsman 2010)



Ivu (Ice Push)

Nome, AK - May 2004 (Tom Busch 2004)



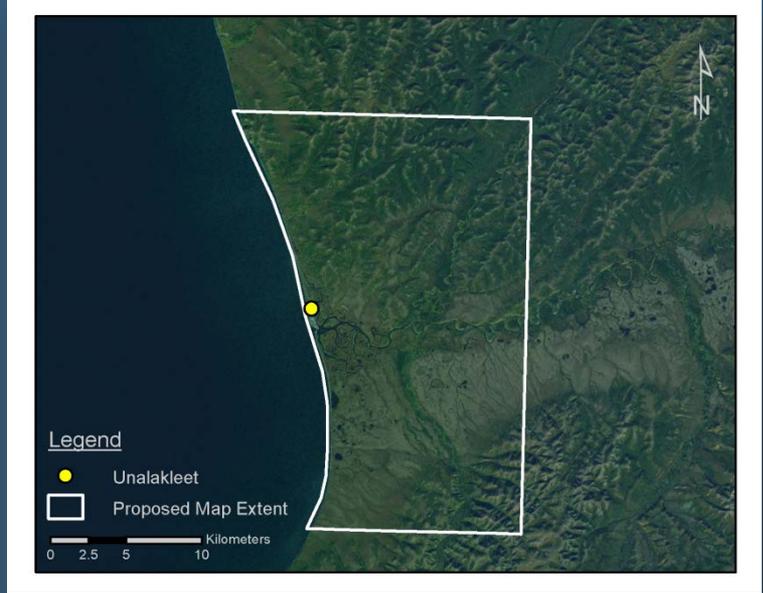
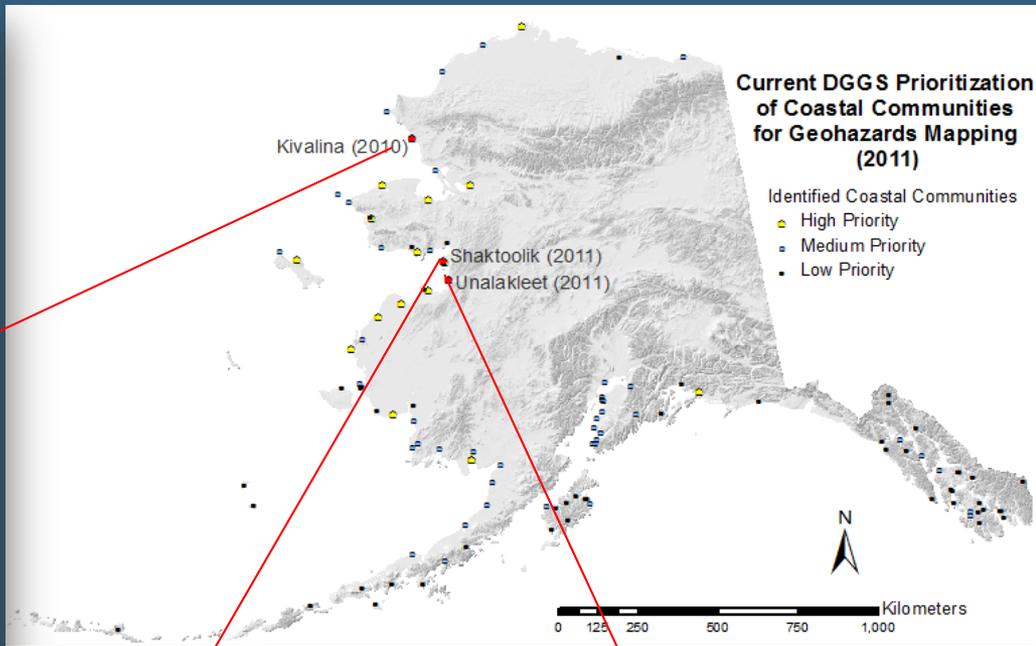
Storm Surge

Shaktoolik, AK – July 2011 (Kinsman 2011)



Tsunami Damage

Kodiak, AK – March 1964 (noaa.gov)



~30 miles of coastline per community

9+ communities by 2013



U.S. Army Corps
of Engineers
Alaska District

Study Findings and Technical Report

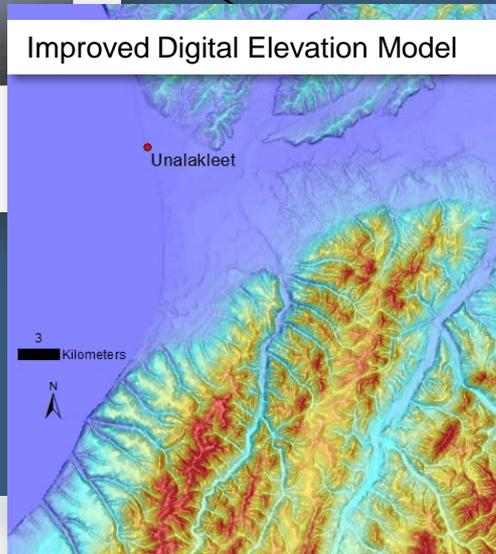
Alaska Baseline Erosion Assessment



Division of the community of Erosion

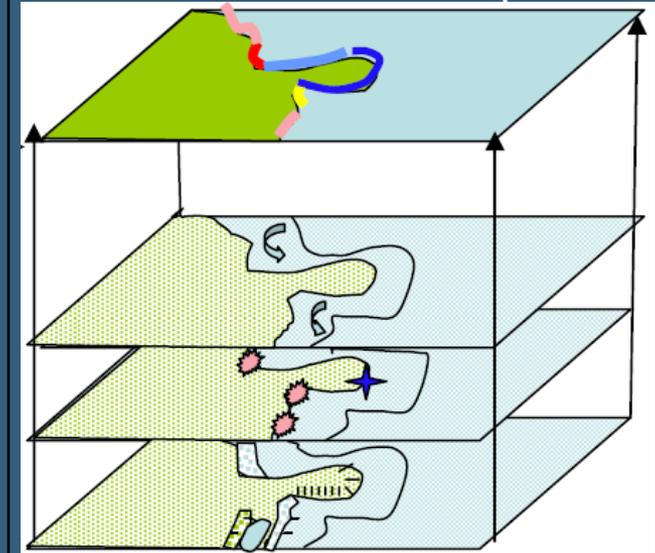
Outside reports, maps, model results, expert and resident knowledge

Improved Digital Elevation Model



Synthesis

Coastal Classification and Hazard Bands/Ribbons/Lines/Strips



(RESPONSE & BRGM, 2006)

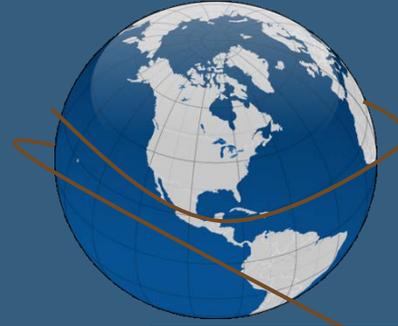
Composite Coastal Hazard Maps for Alaskan Communities

Included Information:

- Geomorphology & Coastal Processes
- Historically Recorded Hazards
- Existing Defenses
- Local Knowledge

Field investigations including baseline data collection & ground truthing

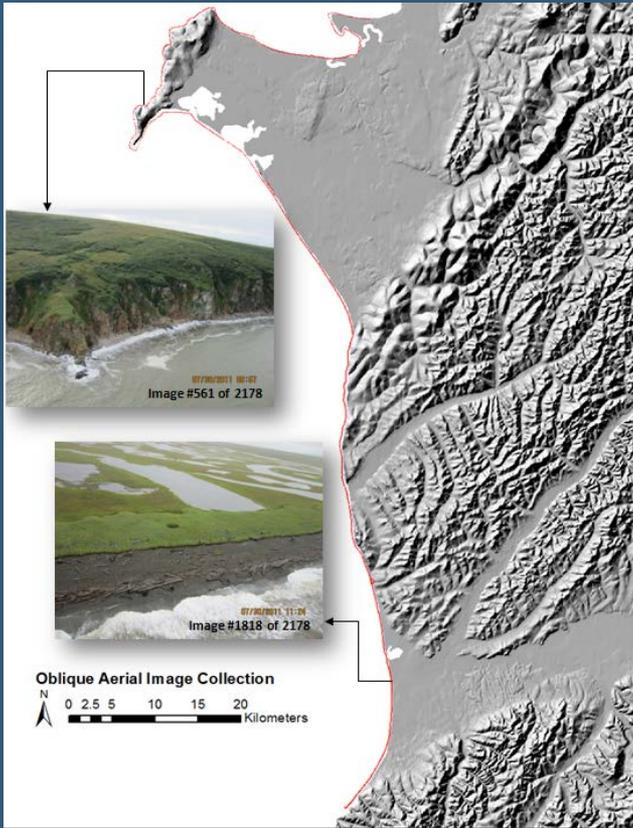




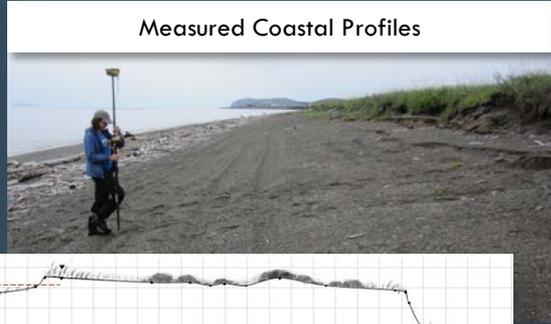
~ 6,600 mile coastline
> 40,000 mile tidal shoreline

What ShoreZone can do for coastal geohazard evaluation:

- Baseline data for pre-event conditions
- Rapid identification of areas for detailed survey
- Seeds geomorphology classification fields in hazard maps
- Facilitates collaboration – “virtual site visits”



Littoral Patterns & Grain Size



Measured Coastal Profiles

