How far will the river go?

ADAPT YK MEETING AUGUST 6-7, 2019
JACQUELYN OVERBECK
Alaska Division of Geological & Geophysical Surveys Coastal Hazards Program

Kotlik, Alaska
State of Alaska

Our mission: Determine the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources, the locations and supplies of groundwater and construction material, and the potential geologic hazards to buildings, roads, bridges, and other installations and structures (AS 41.08.020).

Erosion and Flooding on the coast are caused by:
- Permafrost thaw
- Coastal storms occurring in an ice-free ocean
- Relative Sea level rise
- Changes to ocean conditions

Additional considerations for River communities:
- Changes in precipitation
- Ice Jam flooding

87% of all Alaska Native communities experience flooding and/or erosion
IMPACTS ON COMMUNITIES

Community-based monitoring of erosion at Quinhagak Sewage Lagoon

Flooding at Kwigillingok

Historical flood events at Hooper Bay

Community-based monitoring of erosion at Kotlik riverfront

Damage to boardwalks at Kotlik from small storm

Newtok, Alaska 2015
Erosion event at Akiak, source KYUK


Riverine Erosion at Napakiak, Alaska

Erosion at Napakiak, Alaska is shown between orthomagesy collected circa 2010's and August, 2015. Recent data are shown overlaid the historical imagery and are made transparent. 2015 imagery are available at https://intergation.alaska.gov/. Cross shore profiles have been drawn between riverbanks in each photo and changes measured along profiles. Data were prepared by the Alaska Division of Geological & Geophysical Surveys Coastal Hazards Program, Jacqueyn Ovebeck
November 15, 2016
Channel migration study of Emmonak, Alaska

http://dggs.alaska.gov/pubs/id/30114

Shoreline Change Analysis of Nunam Iqua

Preliminary Flood Impact Level Mapping at Hooper Bay

Road Access
DATA GAPS

Coastal Erosion Data Gaps

Data gaps have not been quantified for riverine communities, only tidally influenced riverine communities.

Coastal Flood Data Gaps

Baseline data layers currently available for flood mapping and forecasting in northern and western Alaska communities.

Action Items

Quantify the Risk

• Collect additional baseline data and conduct modeling
  • Employ community monitoring such as through Facebook www.facebook.com/AlaskaWaterLevelWatch
  • Continued state and regional partner coordination:
    • Calista & AVCP provided feedback to the Alaska Coastal Mapping Strategic Plan survey to represent regional needs for the Yukon-Kuskokwim Delta.
    • By providing a voice for what is needed, oftentimes federal or state investment can be justified.

• Join datasets with local knowledge and modeling
  • Partnership between the state and local/regional governing bodies for grants, common grants:
    • BIA Tribal Resilience
    • FEMA Cooperative Technical Partner Grants
    • Foreseeable management outcome.