Alaska Collaborations in Response to Changing Water Levels

3rd Sea-Level Rise Summit
Connected Futures from Alaska to Florida

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COLLABORATIVE RESPONSE TO CHANGING WATER LEVELS: PURPOSE

How high did the water get during the coastal storm last month?

Where is local mean sea level relative to land?

How low is the tide expected to be at 5 PM next Tuesday?
20 State disaster declarations due to coastal storms since 1978
4 presidential disaster declarations in just the last 10 years
Flood season: August-November typically

Alaska ceased participation in the Coastal Zone Management Program in July 2011
~12% of AK communities do not participate in the National Flood Insurance Program

Slide [modified] from N. Kinsman 2014
COLLABORATIVE RESPONSE TO CHANGING WATER LEVELS: CHALLENGES

Technology Gap

- Non-standard modifications
- Site access
- Extensive assembly and calibration
- Communication requirements (high speed internet)

Barriers to Operation

- Vast size of state
- Transportation network
- Weather conditions
- Available coastal infrastructure for placement
- Unknown sedimentation patterns

Data Sharing

- Uncoordinated installs to-date
- Multitude of data formats
- Opportunities for cost-sharing and leveraging support
COLLABORATIVE RESPONSE TO CHANGING WATER LEVELS: EXISTING ASSETS

Network Gaps for the National Water Level Observation Network

ALASKA

FLORIDA

(NOAA NOS, 2008)
COLLABORATIVE RESPONSE TO CHANGING WATER LEVELS: KEY COLLABORATIONS

Common Priorities:
- Navigation
- Resources & Infrastructure Vulnerability
- Storm Tracking and Ocean Model Validation

Institutions and Collaborations:
- Alaska Sea Grant
- Arctic Domain Awareness Center
- University of Alaska Fairbanks
- National Weather Service River Forecast Center
- NOAA CO-OPS
- National Park Service
- Cooperative
- Landscape Conservation
- Alaska Native Science and Engineering Program
- Silver Jackets Flood Risk Management Team
- U.S. Army Corps of Engineers
- State of Alaska
- Alaska Ocean Observing Systems
- Private Sector Businesses
- Businesses
- Business
- Business
- Business
- Business

Specialized Programs:
- Silver Jackets Flood Risk Management Team
- U.S. Army Corps of Engineers
- State of Alaska
- Alaska Ocean Observing Systems
- Common Priorities:
COLLABORATIVE RESPONSE TO CHANGING WATER LEVELS: KEY COLLABORATIONS

Example Collaboration:

Alaska Ocean Observing Systems

State of Alaska Division of Geological & Geophysical Surveys

National Weather Service

Location Selection & Water Level Gap Identification

Sensor Design → Sensor Install → QA/QC → Real-time data stream → Storm surge validation → Tidal datum extraction

State of Alaska Division of Geological & Geophysical Surveys
NEXT STEPS FORWARD: FILLING THE GAPS

Wales
Kotzebue
Platinum

Kotzebue
Wales
Unalakleet
Tununak
Platinum

AOOS
Alaska Ocean Observing System

STATE OF ALASKA
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
NEXT STEPS FORWARD: FILLING THE GAPS
NEXT STEPS FORWARD: FILLING THE GAPS

More Collaboration

Eroding bluff threatens road

OBSERVATION: The bluff side has been eroding since 2015. The road is close to the bluff side, which is causing concern to residents. This erosion has been affecting a nearly 100-year-old house and a new home has been built to meet the new height. We usually have this type of weather all year, until September, but it started a few weeks ago. This erosion is endangering the homes in this area. The entire bluff side is slipping into the sea. Observations were made in June 2015. S. B. T.

RESOURCE: NOAA National Weather Service Alaska: The objectives of the hydrologic service program of the NWS are to provide forecasts of floods and property damage caused by flooding; provide the nation with timely measurements of river and flood conditions; maintain the necessary research to implement and improve forecast techniques; provide hydrological data for local application in water resources planning; floodplain management and operational programs. NWS Alaska Pacific River Forecast Center:

RESOURCE: Alaska Flood Management Policy: Events of interest to individual structures, roads, airports, utility infrastructure such as sewer and water systems, and communication (i.e. telephones, television) may be at risk. This policy can be obtained from the federal government. Alaska also offers a number of emergency preparedness programs to prepare developed areas near rivers or cliffs, are encouraged to consider the following warning, damage, and evacuation policies, and action.

More Observations

NWLON Station

2016-2018 Planned

Current Locations

Kaktovik

North Slope

Unalakleet

Emmonak

Bethel

Dillingham

2016-2018 Planned

Current Locations

NWLON Station
THANK YOU

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CIAP
Coastal Impact Assistance Program

AOOS
Alaska Ocean Observing System

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