Webinar: Current Coastal Change Research and Priority Information Needs in Western Alaska

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Outline

• Introduction: *Why conduct a coastal change project synthesis?*

• Methods:
  – Coastal change project definition
  – Project search
  – Synthesis of project information

• Results

• Summary
  – Utility for coordination and learning
  – Recommendations
Coastal Change Impacts:

- Saltwater intrusion
- Changes to shore-fast ice
- Coastal erosion
- Damage to infrastructure
- Impacts to drinking water supplies
- Changes to traditional subsistence use
• Reviewed the current state of the coast from a systems perspective.

• Developed framework for a conceptual model focused on social-ecological impacts of coastal erosion and inundation.

• Developed key information needs.
Need for more baseline data:

- Coastal mapping
- Wave and wind monitoring
- Tidal benchmarks
- Severe storm patterns
- Ice conditions
- Community observations
- Biogeochemical interactions
- Discover and synthesize existing information
Benefits of a coastal project synthesis:

- Track existing projects
- Incorporate project findings
- Gauge remaining research gaps
- Prioritize future project support
Short term goal:  
• Create an accessible report that compiles current coastal change projects occurring in Western AK.

Long term goal:  
• Foster better coordination about coastal change projects.  
• Provide a tool for practitioners and researchers to learn from one another.  
• Identify existing information needs.
Geographic and Temporal Scope of Coastal Projects
Coastal Projects Definition:

- Coastal drivers
- Shoreline projects
- Coastal habitat
- Nearshore projects
- Estuary projects
- Coastal wildlife projects
- Subsistence species projects
Identify Existing Projects:

- Online database search:
  - NSF
  - AOOS
  - USGS

- Internet Word Search

- Online Call for information
Identify Existing Projects:

- Contact coastal stakeholders requesting information
- “Word of Mouth”
- Confirm projects with key experts
Response Rate:

- 130 coastal stakeholders via email
- 35% response rate
- 37 individuals reviewed our drafted list of projects
<table>
<thead>
<tr>
<th>Project ID:</th>
<th>Keywords:</th>
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<th>Geographic Scope:</th>
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**Human system projects:**

**Biological system projects:**

**Oceanographic system projects:**

**Landscape-Geophysical projects:**
Human system projects:
• Subsistence
• Local observation
• Coastal change adaptation

Oceanographic system projects:
• Currents/waves
• Biophysical processes
• Storm patterns
• Sea ice
• Tidal

Biological system projects:
• Birds
• Marine mammals
• Fish
• Vegetation
• Coastal/nearshore habitat

Landscape-Geophysical projects:
• Coastal erosion
• Shoreline mapping
• Bathymetry
• Hydrologic
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Mapbox Website:

- Spatial points represent the locations of each project.
- Unique colors were used to identify topic areas.
- To differentiate large-scale projects that represent broad geographic regions, we used larger shaped markers.
Identifying information needs:

1) Ocean to shore:
   • coastal mapping
   • wave and wind monitoring
   • tidal benchmarks
   • storm surge patterns
   • ice conditions
   • community observations

2) Nearshore:
   • eelgrass communities
   • evaluate existing models of nearshore processes

3) Bathymetry

http://www.aoos.org/workshops-and-reports/
86 Total Coastal Change Projects

- Human Systems Projects N=22
- Biological System Projects N=33
- Landscape and Geophysical System Projects N=17
- Oceanographic System Projects N=14
Biological system projects:

- Birds n=13
- Marine mammals n=9
- Fish n=7
- Vegetation n=4
- Coastal/nearshore habitat n=5
Human system projects:

- Subsistence n=12
- Local observation n=8
- Coastal change adaptation n=8
Landscape-Geophysical system projects:

- Coastal erosion n=8
- Shoreline mapping n=8
- Bathymetry n=2
- Hydrologic n=3
Oceanographic system projects:

- Currents/waves n=8
- Biophysical processes n=4
- Storm patterns n=6
- Sea ice n=5
- Tidal n=2
Spatial Distribution of Projects in Western AK:

- 210 project sites.
- Northern coastline housed the majority of project sites (n=99).
- Almost twice as many as the central (n=61) and southern coastline (n=50).
Recommended needs:

- ~33% of current projects met a recommended need.
- Most key recommendations fell under oceanographic or landscape/geophysical projects.
- Workshop participants accurately identified key needs.

[http://alaskafisheries.noaa.gov/shorezone/](http://alaskafisheries.noaa.gov/shorezone/)
• Key recommendations were underrepresented in the final database.
  o Bathymetry
  o Tidal benchmarks

• Key recommendations that are currently funded and collecting information.
  o Utilize community observations for storm surge modeling
Utility for Coordination and Learning:

• Resources that allow stakeholders to better understand and coordinate around current research efforts.

• Learning between projects and communities.
  o research outcomes
  o methods that have worked

• Identified similar projects as well as projects that could be complementary to one another.
Future Recommendations:

Please add your information!!!

http://goo.gl/forms/UZ1lcFkHbG
Recommendations:

• Develop project objectives with the regional stakeholders.

• Diversify outreach for collecting project information.

• Strategize the temporal scope of the project.

• Track the utility of these resources in the future.
Visit our website!!!!

- Project Database
- Final Report
- Link to our mapbox site
- Online project form

https://accap.uaf.edu/W_AK_LCC_Coastal_Change_Research
Questions:
clbrown12@alaska.edu