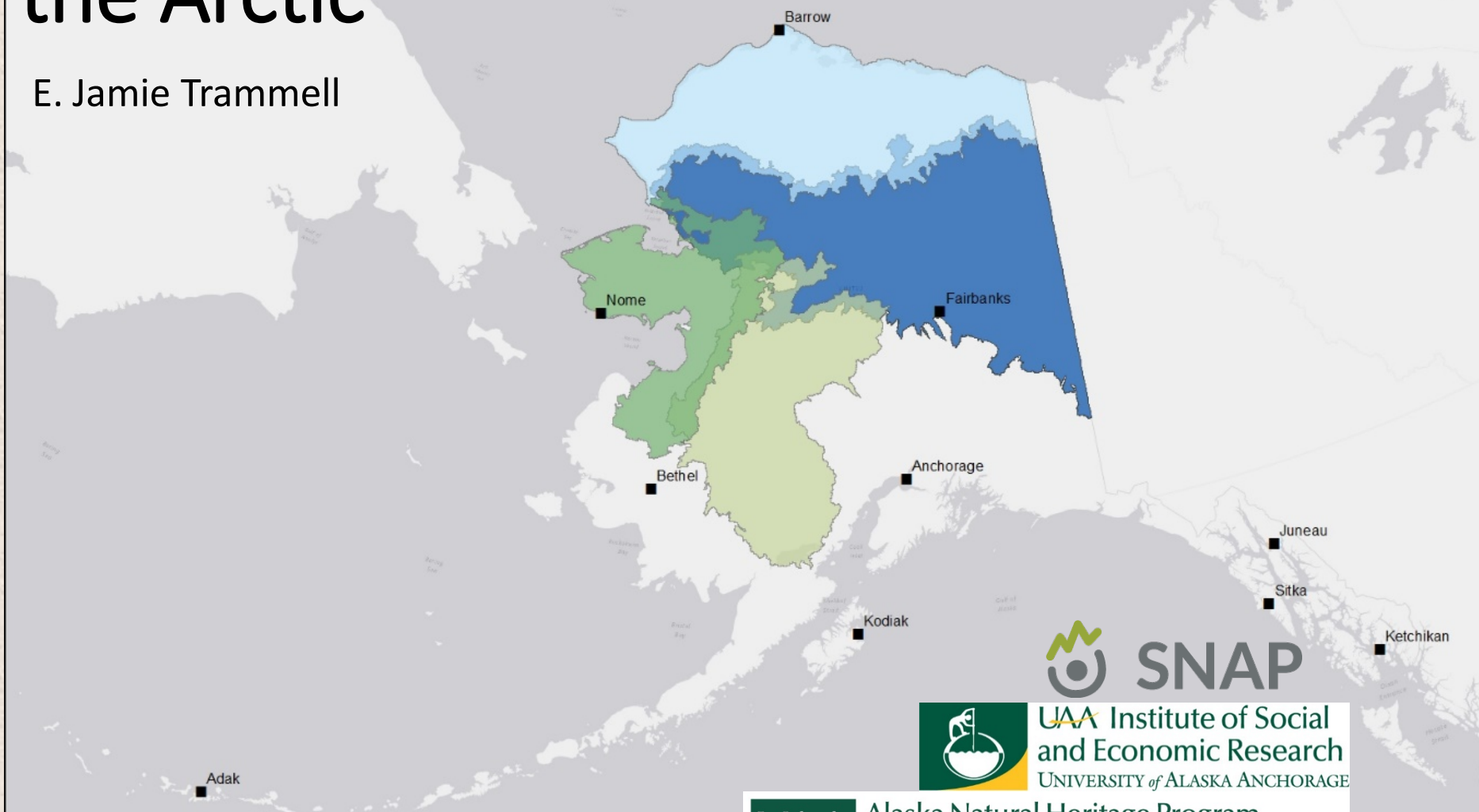






# Landscape change and management in the Arctic

E. Jamie Trammell



## Alaska Ecoregional Assessments

-  Seward Peninsula
-  North Slope
-  Yukon Kuskokwim
-  Central Yukon



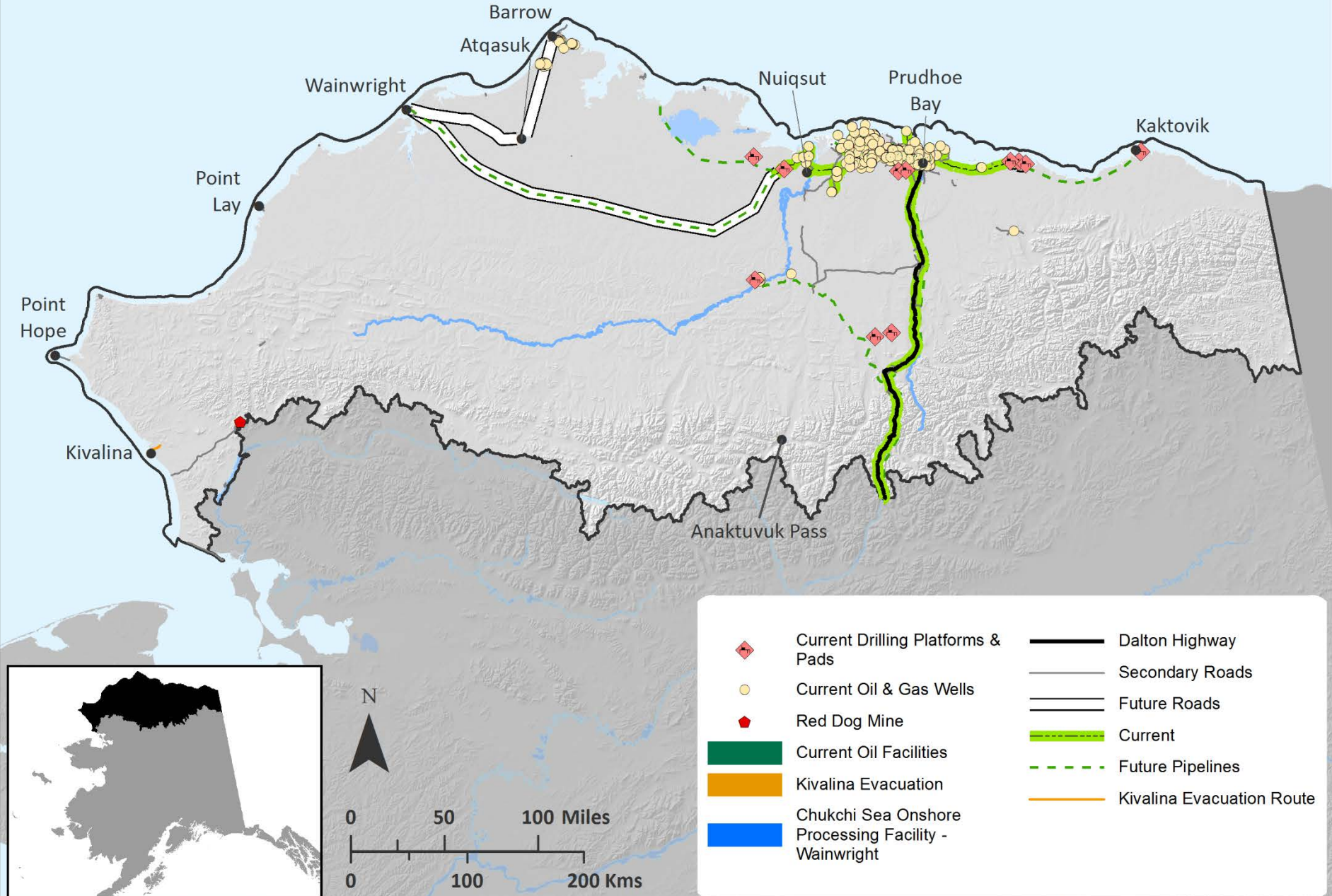
**UAA Institute of Social and Economic Research**  
UNIVERSITY of ALASKA ANCHORAGE



**Alaska Natural Heritage Program**  
**Alaska Center for Conservation Science**  
UNIVERSITY of ALASKA ANCHORAGE

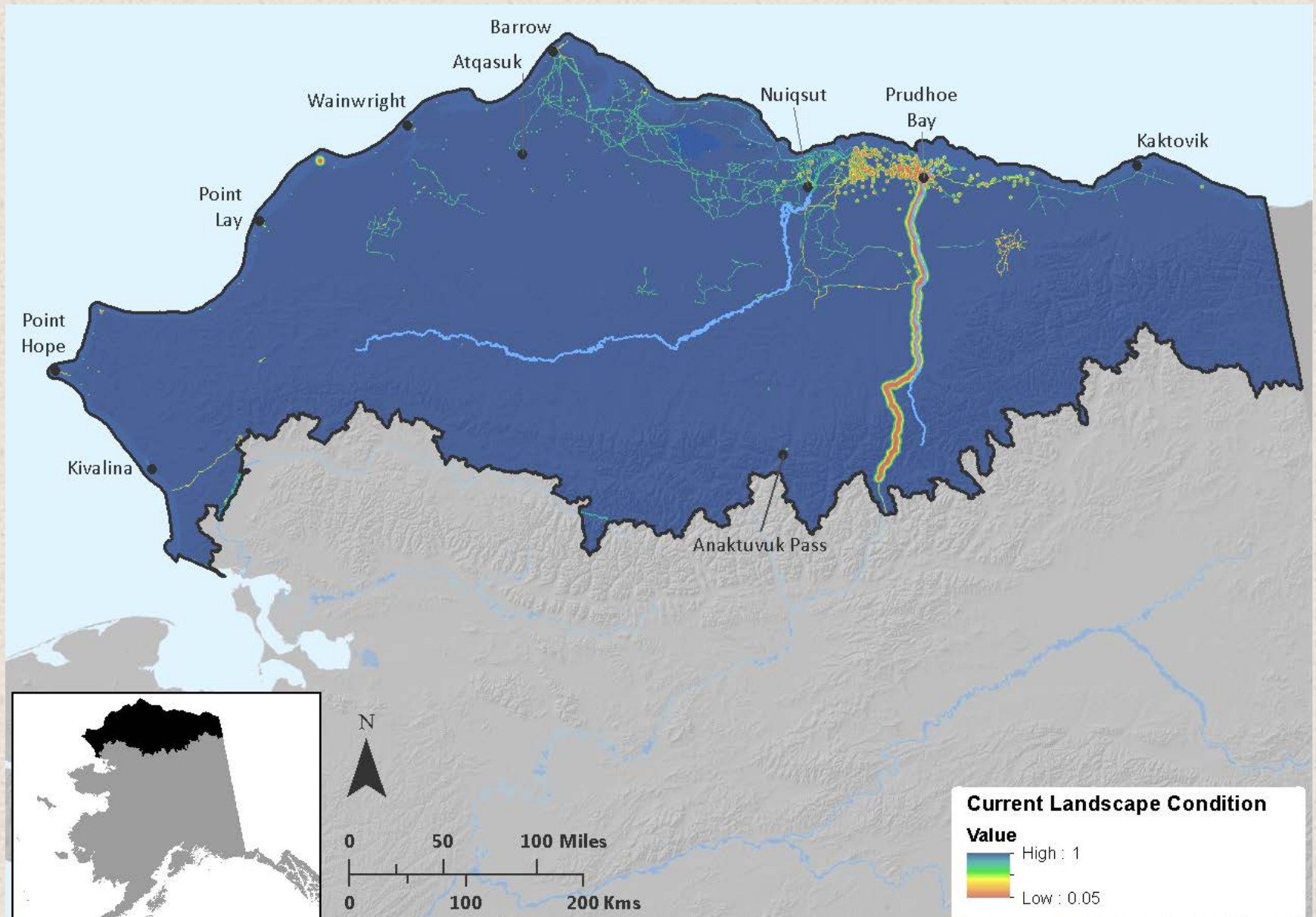


# Future human development

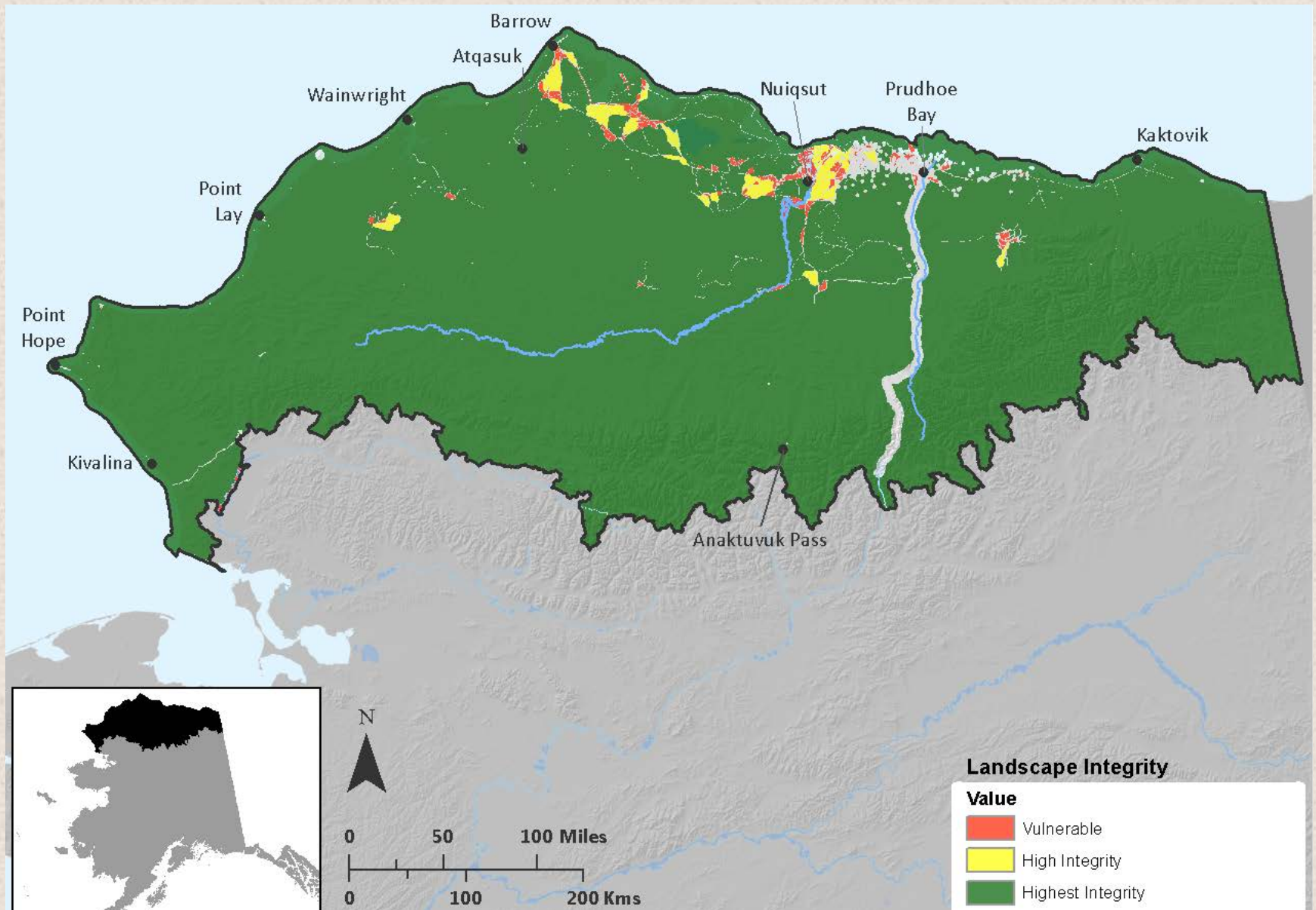


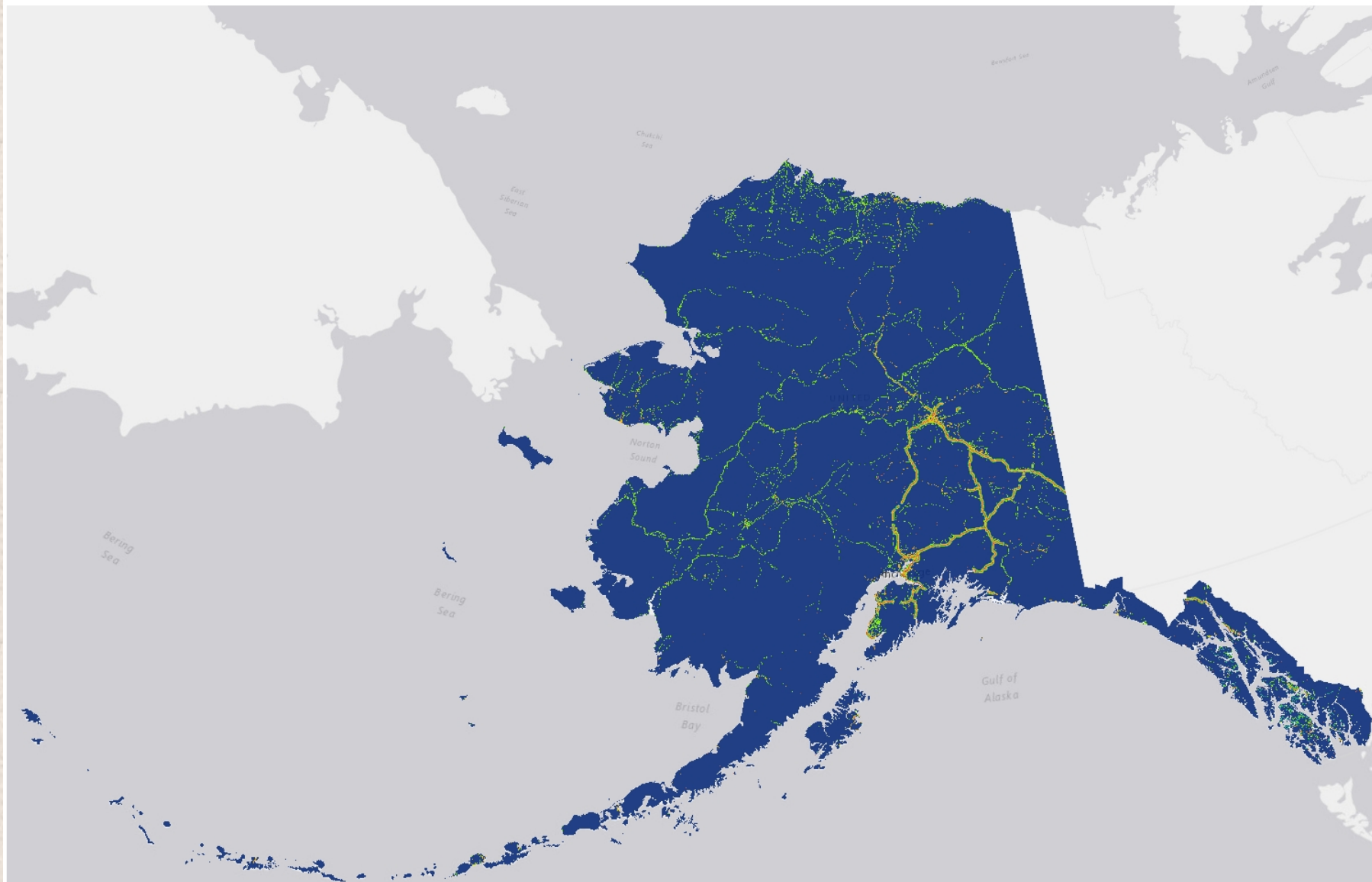
- |  |  |  |                           |
|--|--|--|---------------------------|
|  | Current Drilling Platforms & Pads                    |  | Dalton Highway            |
|  | Current Oil & Gas Wells                              |  | Secondary Roads           |
|  | Red Dog Mine   |  | Future Roads              |
|  | Current Oil Facilities                               |  | Current                   |
|  | Kivalina Evacuation                                  |  | Future Pipelines          |
|  | Chukchi Sea Onshore Processing Facility - Wainwright |  | Kivalina Evacuation Route |

# Landscape condition



# Landscape integrity





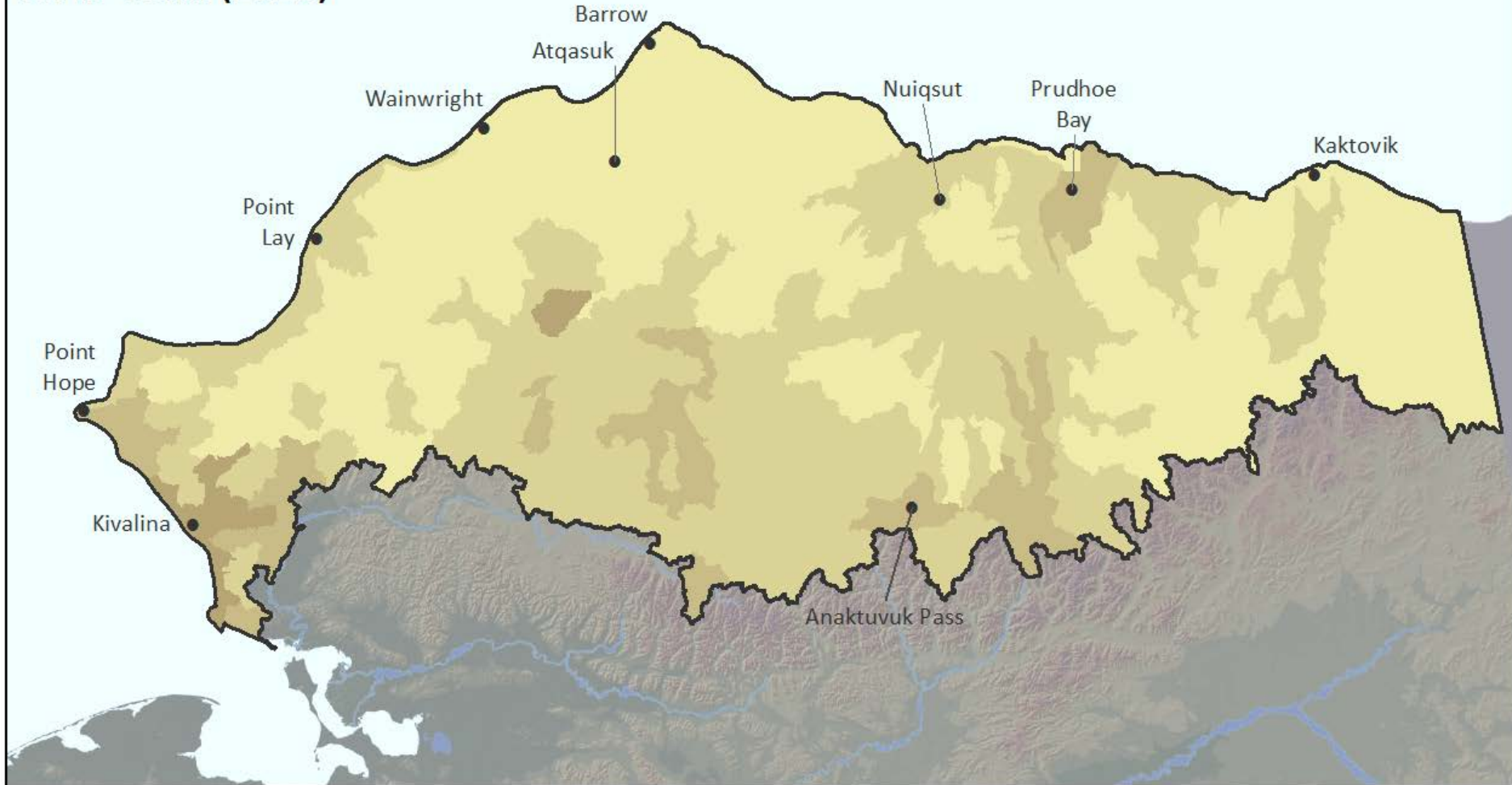
### Landscape Condition

Very Low   Low   Moderate   High   Very High

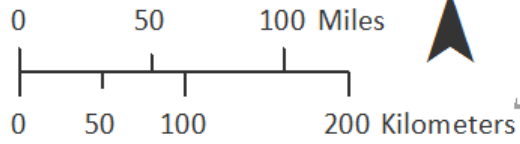
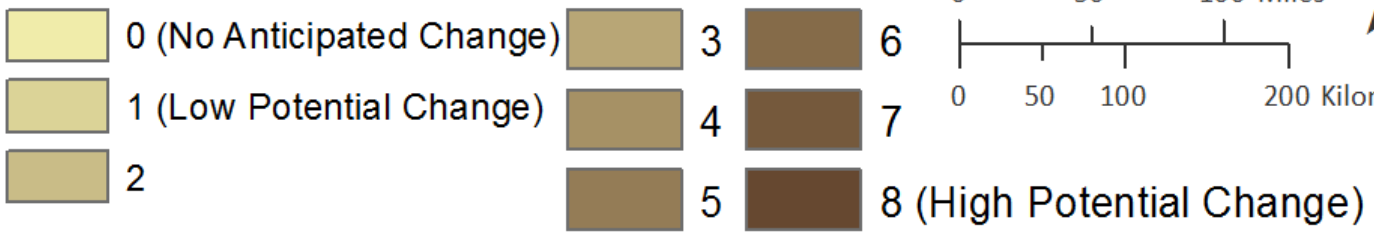
0   200   400   800 Kilometers



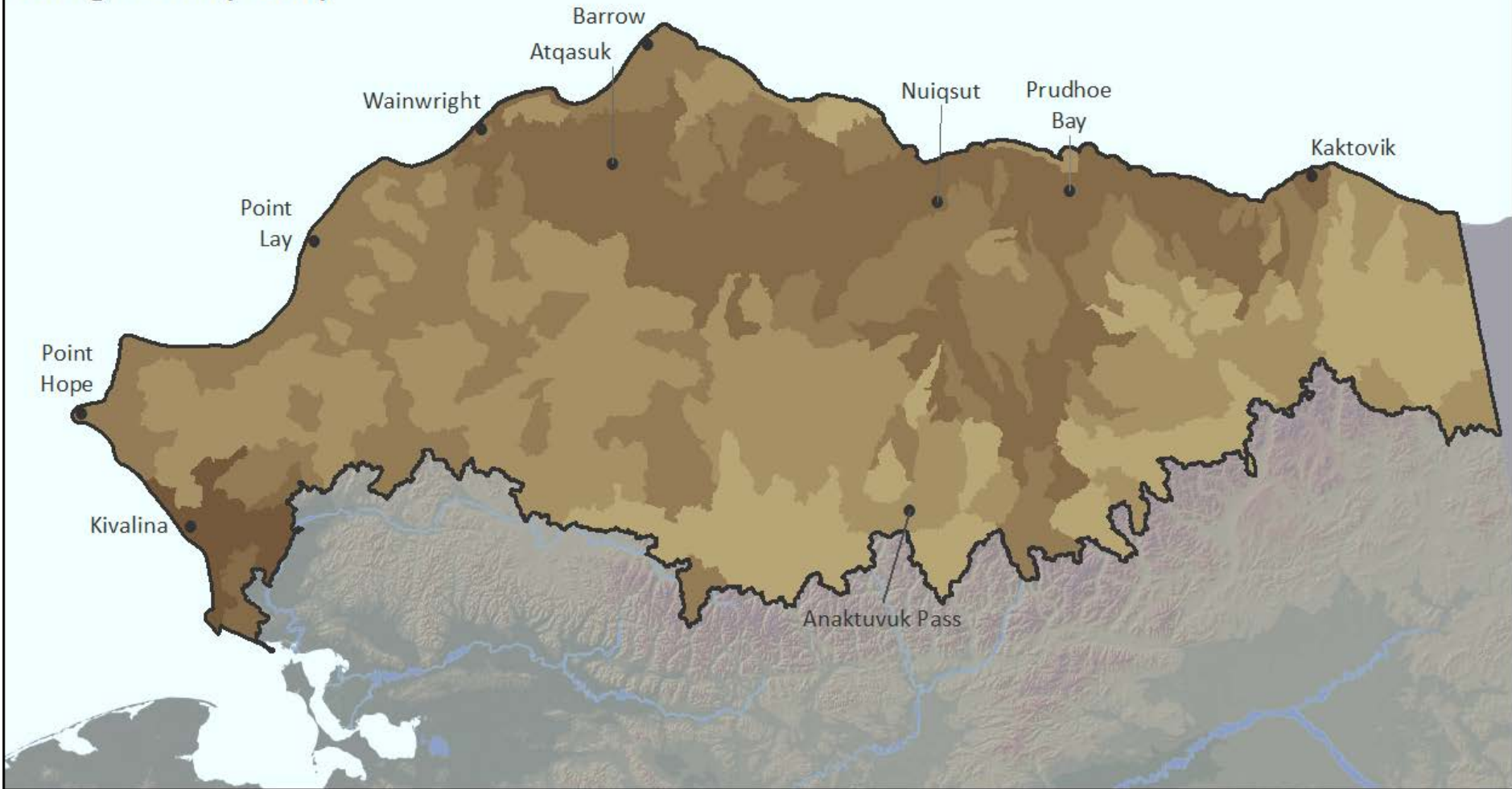
# Near-Term (2025)



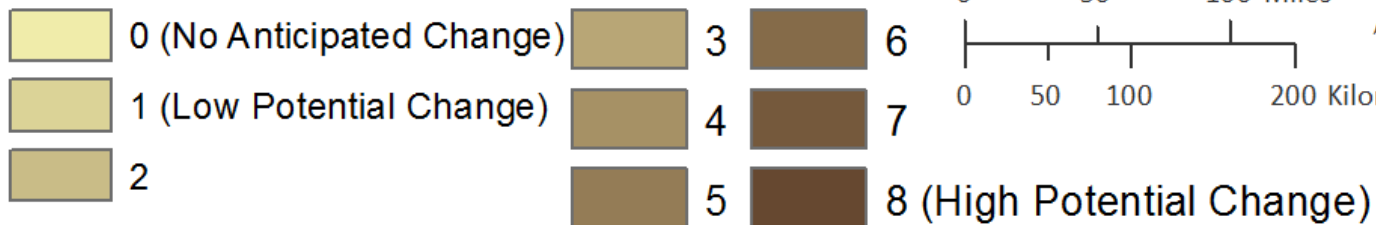
## Cumulative Impacts in the Near-Term and Long-Term Future



# Long-Term (2060)



## Cumulative Impacts in the Near-Term and Long-Term Future

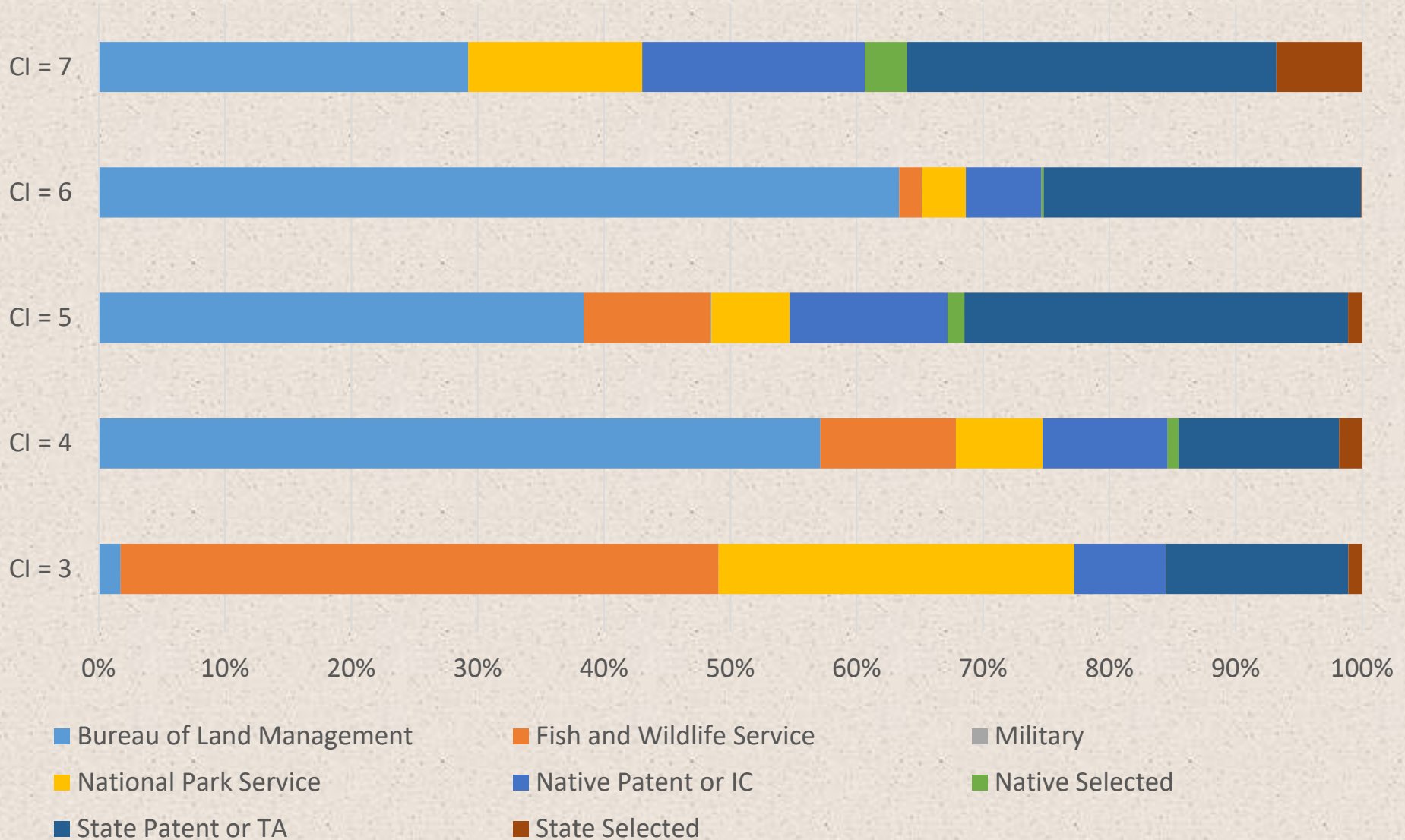


0 50 100 Miles

0 50 100 200 Kilometers

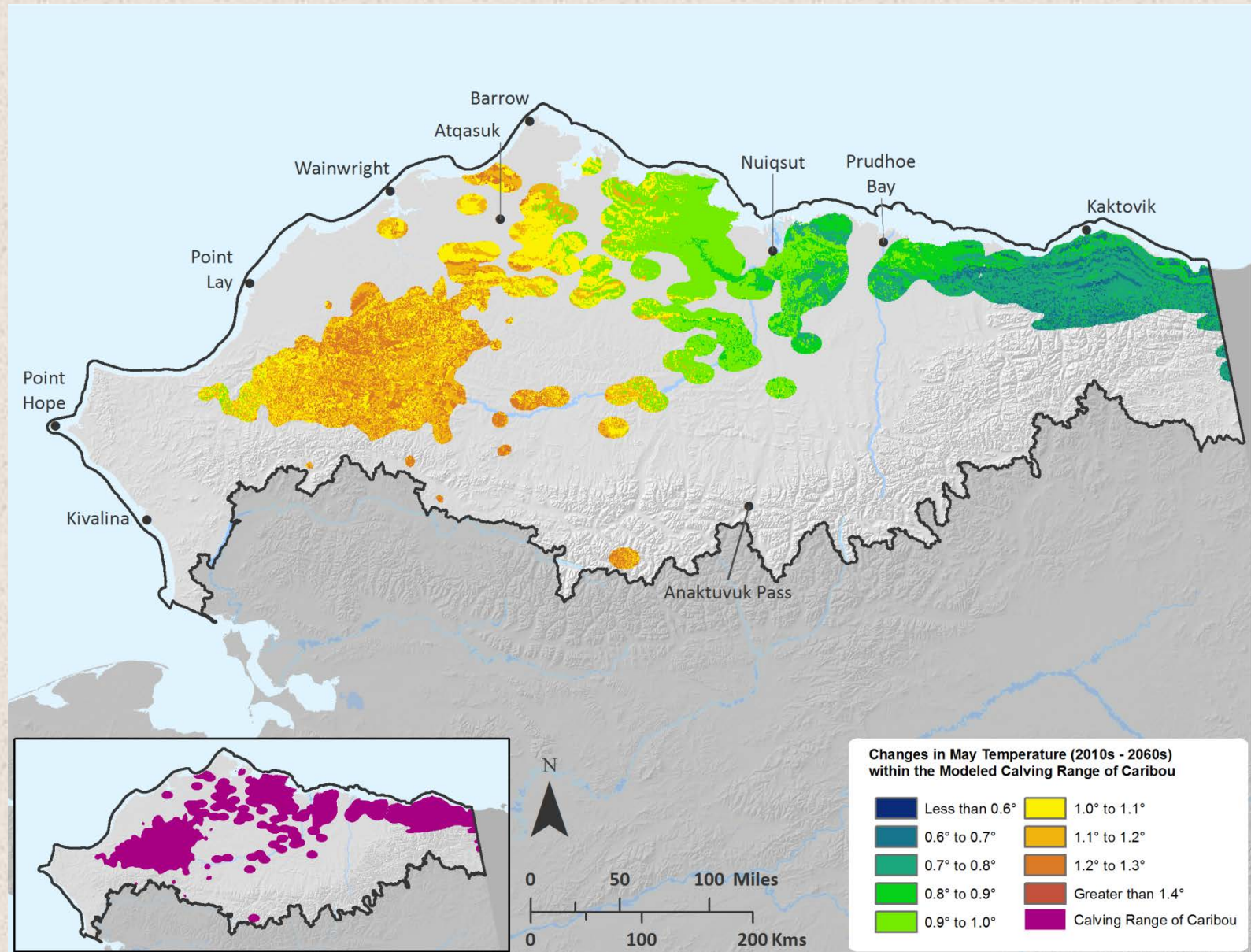


# Management implications





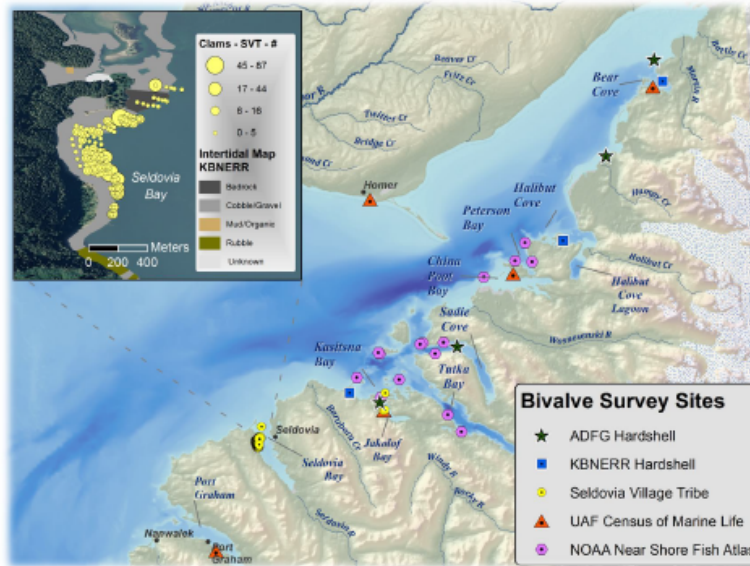
# Ecosystem Intactness



# Baseline Habitat Assessment:

By utilizing available information we are in the process of synthesizing landscape-level information needed for the development of bivalve conservation strategies for Kachemak Bay. Specifically, we are creating a continuous physical habitat map of the Bay by harmonizing detailed intertidal zone mapping done by the Research Reserve over the past decade with high resolution subtidal characterizations from NOAA's recent Hydrolalooza bathymetric and benthic sampling efforts.

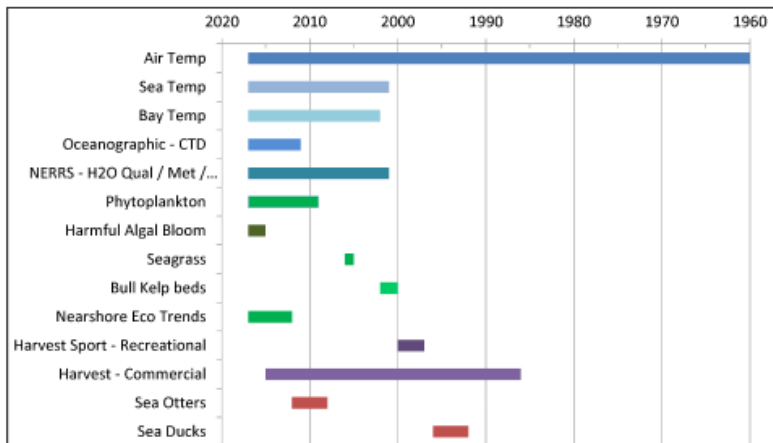
## Input: Partner Field Data



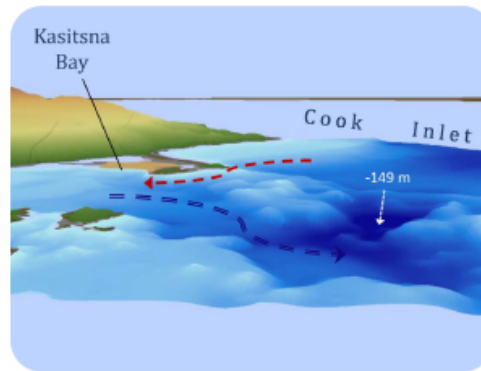
## Output: Integrated data from multiple sources in a single data frame



## Input: Archived Data










## Input: Synthesized Bathymetry Data








## Threats - individual

### Status, Cause


-  Active, Dams (61)
-  Active, Garbage/Solid Waste (105)
-  Active, Industrial Effluent (599)
-  Active, Mining (75)
-  Active, Temp. Water Use Permit (0)
-  Active, Oil and Gas Development (3)
-  Active, Urban Sewage (194)

### Threat Summary

#### Total Active

-  1 - 5 (74)
-  6 - 15 (39)
-  16 - 28 (9)
-  29 - 49 (3)
-  50 - 91 (2)

### Threat Summary

-  Threat Summary (1,781)

