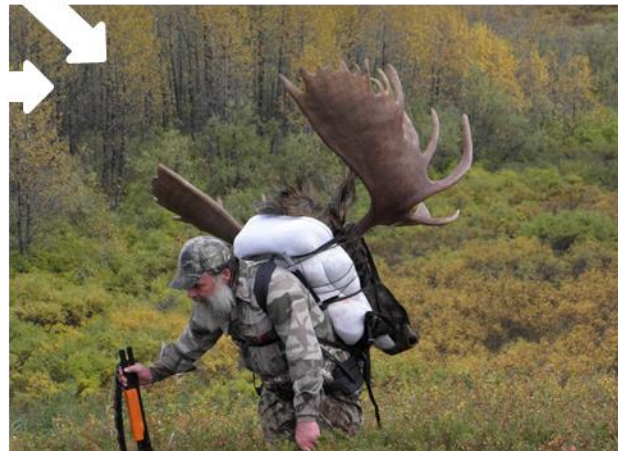


# Climate Change Impacts on Availability of Game Resources

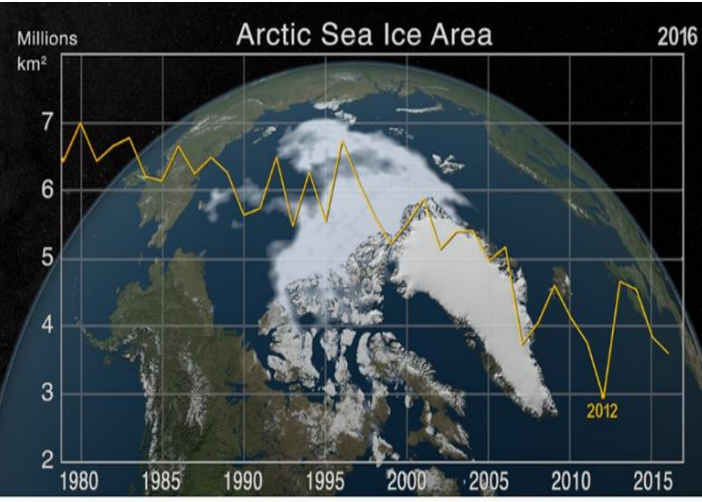
Dr. Todd J. Brinkman, Asst. Professor, Institute of Arctic Biology, UAF

Contact: [tjbrinkman@alaska.edu](mailto:tjbrinkman@alaska.edu)





# The story begins with climate change...




# Overarching Research Question

- How are changes in the environment affecting the availability of fish and wildlife resources that are critical to the nutrition, culture, identity, and economies of northern societies?







Community-based research to facilitate  
coproduction of knowledge



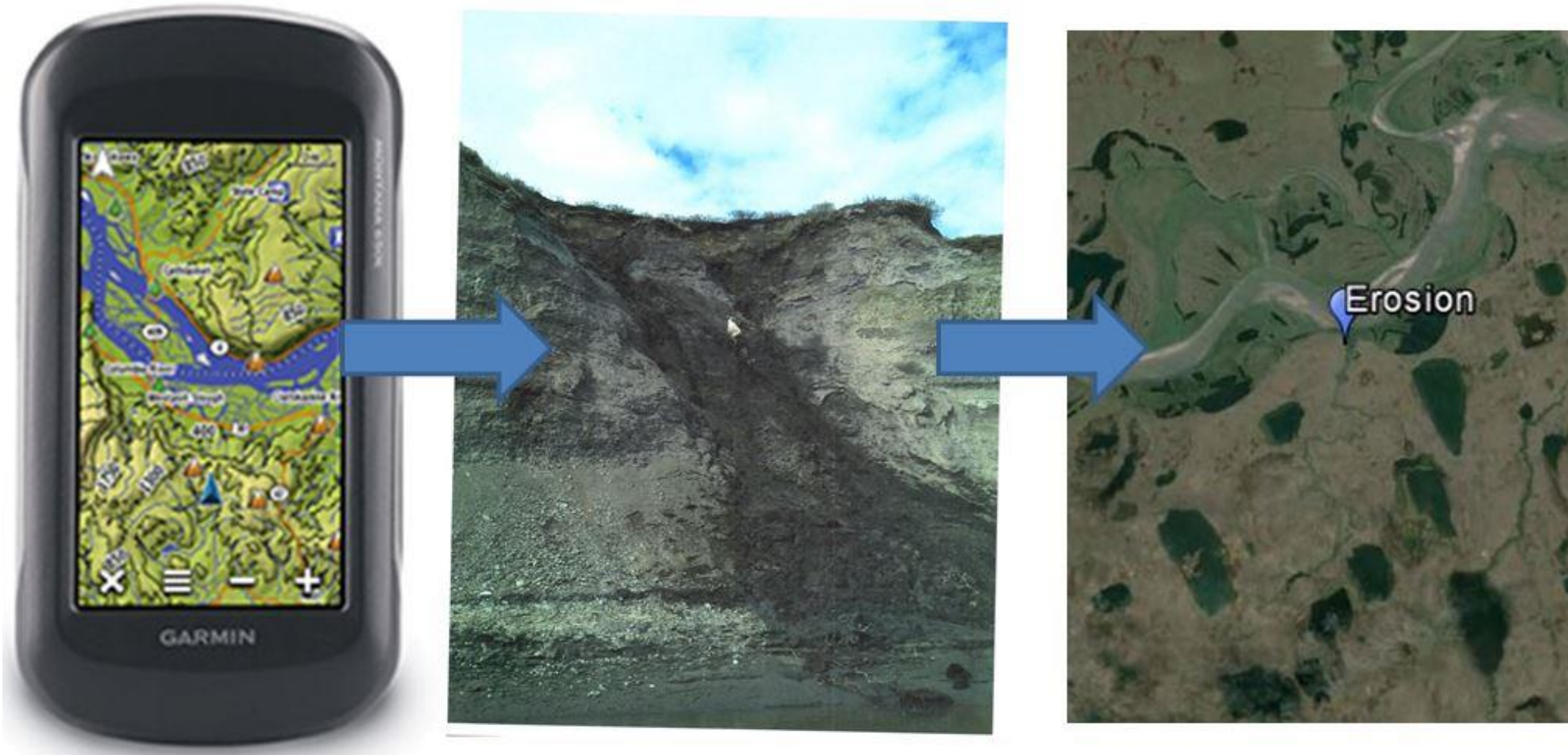
$$\text{abundance} + \text{access} + \text{seasonal distribution} \\ = \text{Availability}$$

Arctic communities climate impacts on access as a critical challenge to availability (Brinkman et al. 2016 *Climatic Change*)

Climate impacts on	Decreasing Resource Availability	No Change	Increasing Resource Availability
Abundance & Distribution	11%	73%	16%
Access	53%	47%	0%



# Community-based monitoring





**Ice Conditions:**  
presence/absence,  
thickness, and quality of  
riverine and lacustrine  
ice (including aufrice)



**Snow Conditions:**  
presence/absence,  
depth, and  
consistency of snow



**Water Levels:** Amount  
and depth of water  
present aquatic or  
terrestrial travelways



**Vegetative community composition:**  
Changes in vegetative communities,  
including species composition, growth  
rates/patterns, phenology, and fire-  
related disturbance and succession



**Erosion:** Loss of soil and  
mineral material by water,  
wind, and thermokarst.

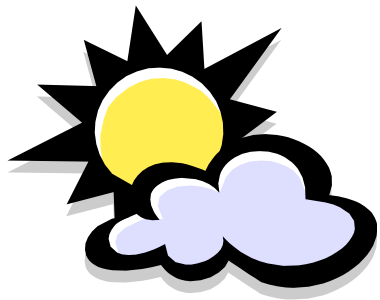


**Other:** Environmental conditions resulting from  
phenological shifts, temperature extremes and  
weather events directly affecting travel  
(including wind)

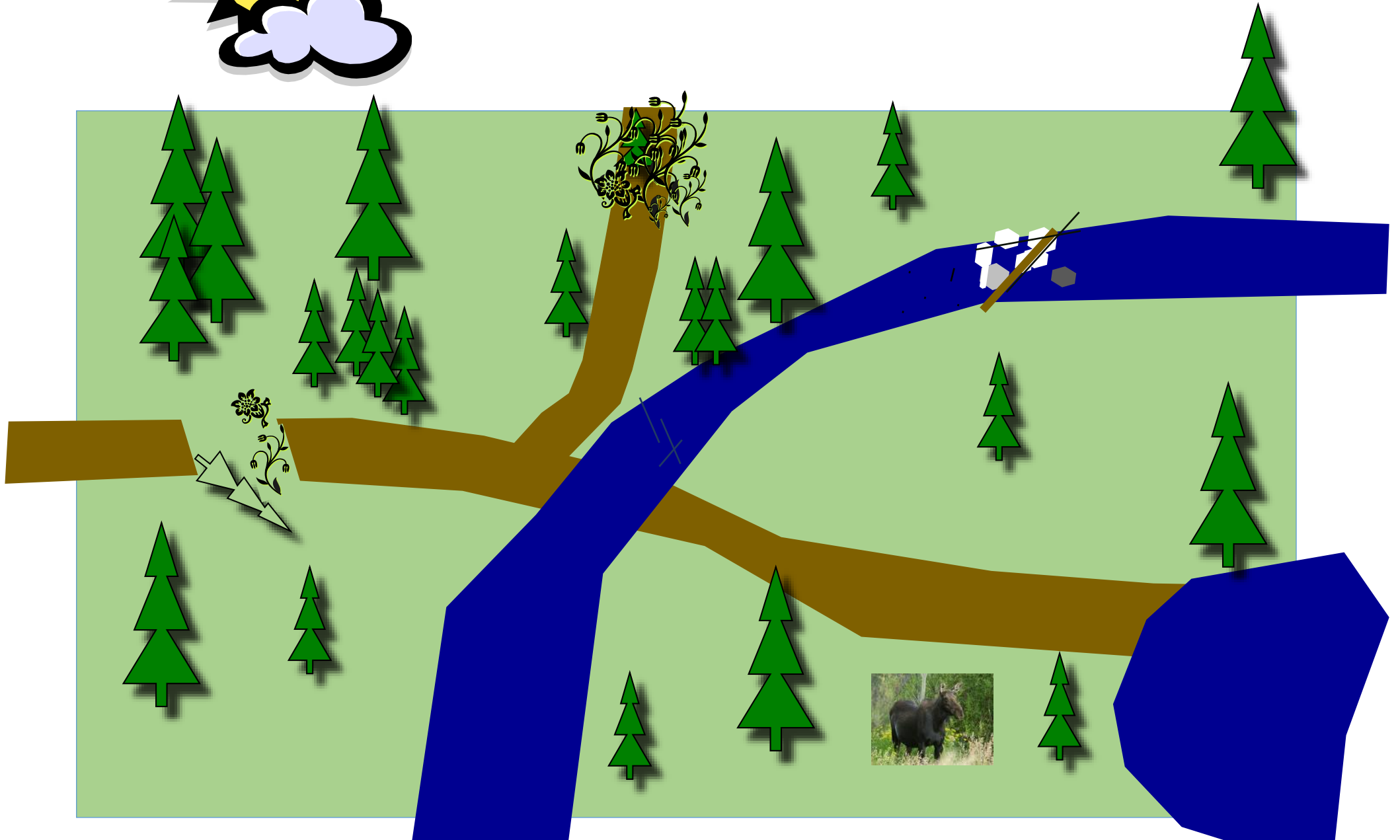


**Sedimentation:** Deposition of soil  
and mineral material by wind and  
water.

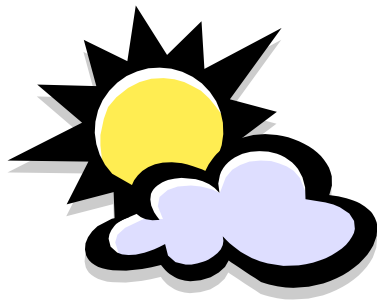
*Many different  
challenges that  
people must try to  
mitigate or adapt to*



# Human-Access-Environment







# Human-Access-Environment



# How are we helping to address these challenges?

- Exploring how both individuals and institutions are responding
- Assessing the effectiveness of those responses
- Seeking ways to dissemination innovation
- Building meaningful collaborations

