



## Topics for Today's Discussion

- Archaeology as a “lens” for viewing the past
- What do we think we know and why?
- Underwater archaeology
- Glacier primer
- Climate, glaciers and sea level change
- Regional/local impacts

What about the Submerged Environment?

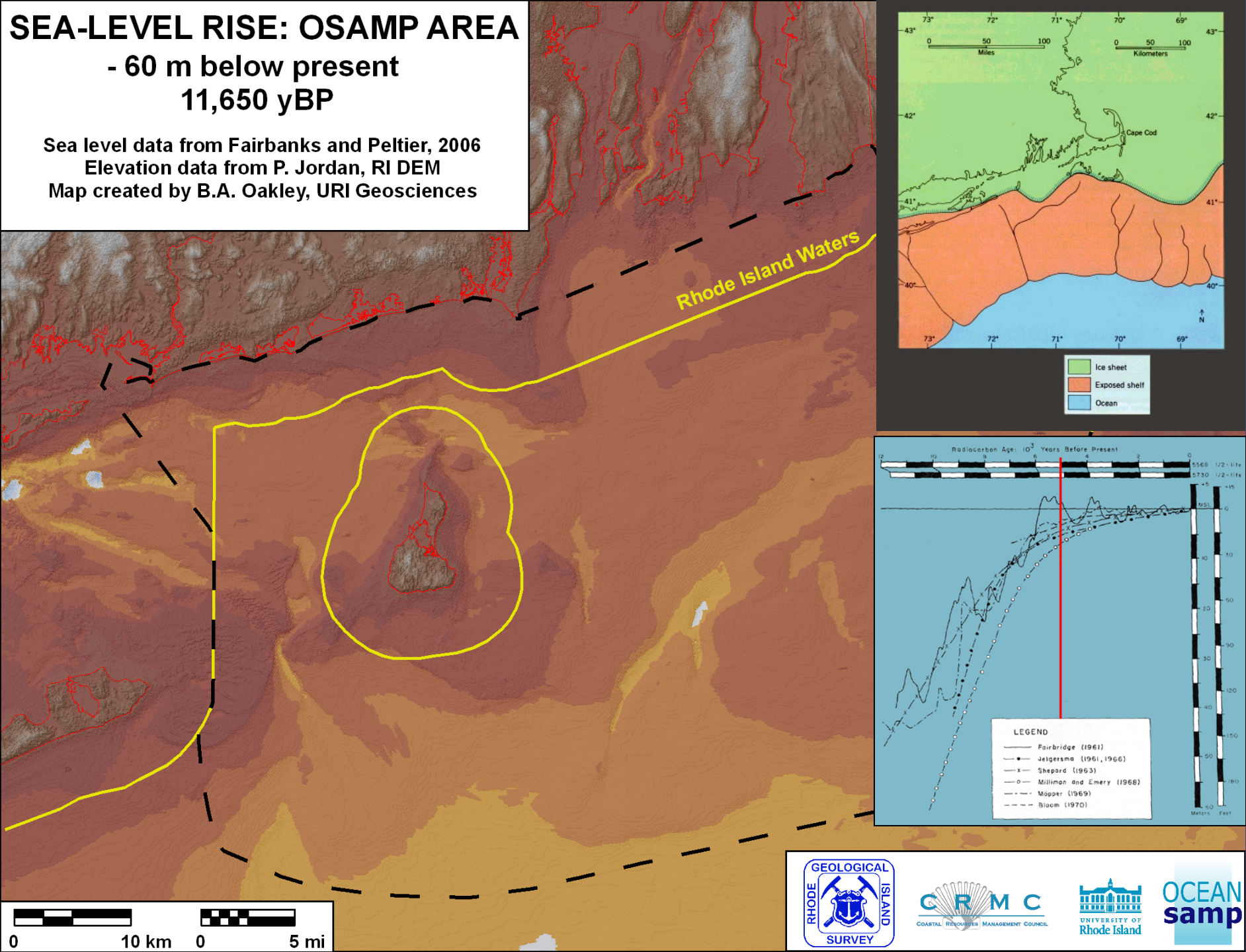




# SEA-LEVEL RISE: OSAMP AREA

- 60 m below present  
11,650 yBP

Sea level data from Fairbanks and Peltier, 2006  
Elevation data from P. Jordan, RI DEM  
Map created by B.A. Oakley, URI Geosciences

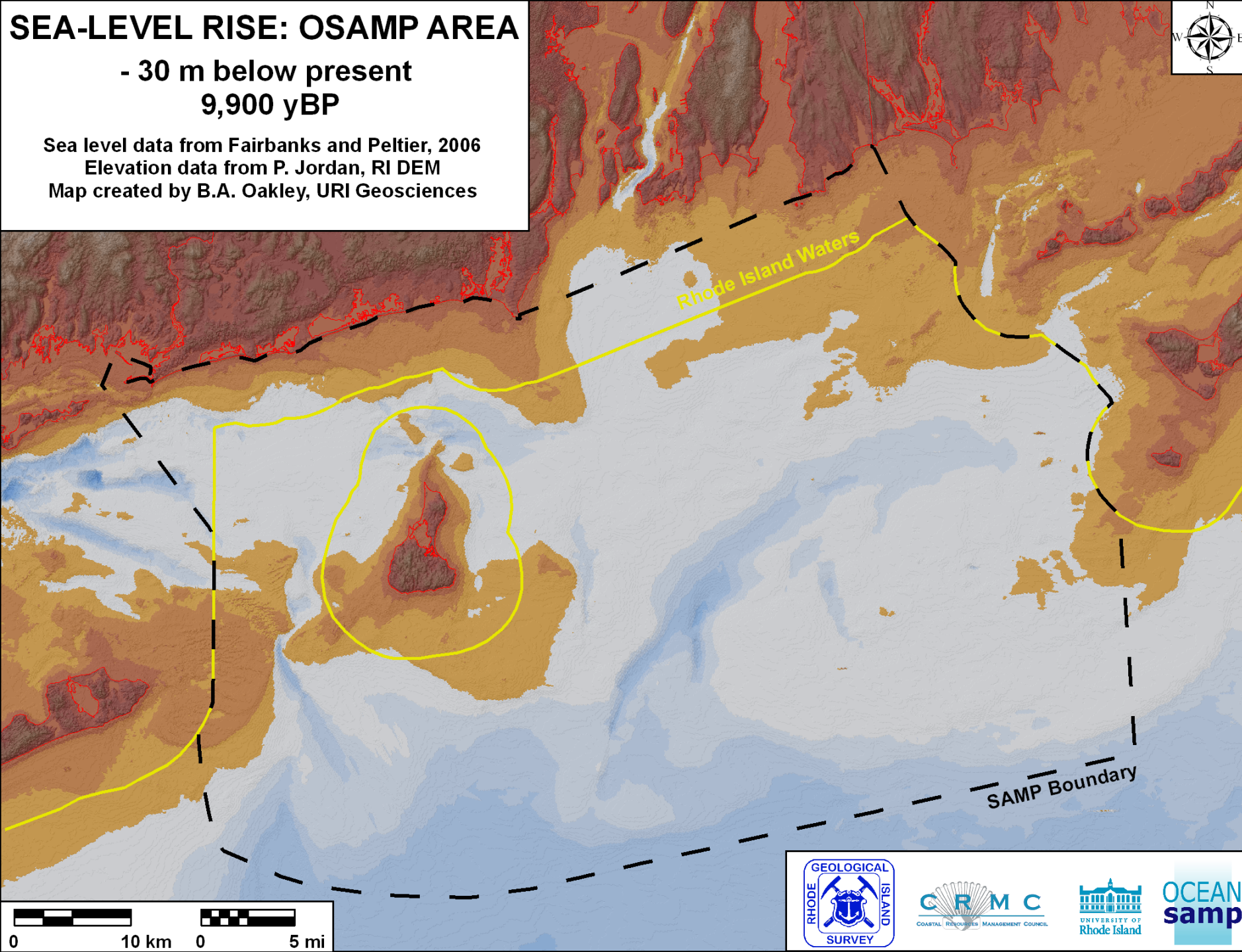




# SEA-LEVEL RISE: OSAMP AREA

- 30 m below present  
9,900 yBP

Sea level data from Fairbanks and Peltier, 2006  
Elevation data from P. Jordan, RI DEM  
Map created by B.A. Oakley, URI Geosciences

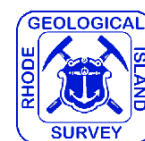
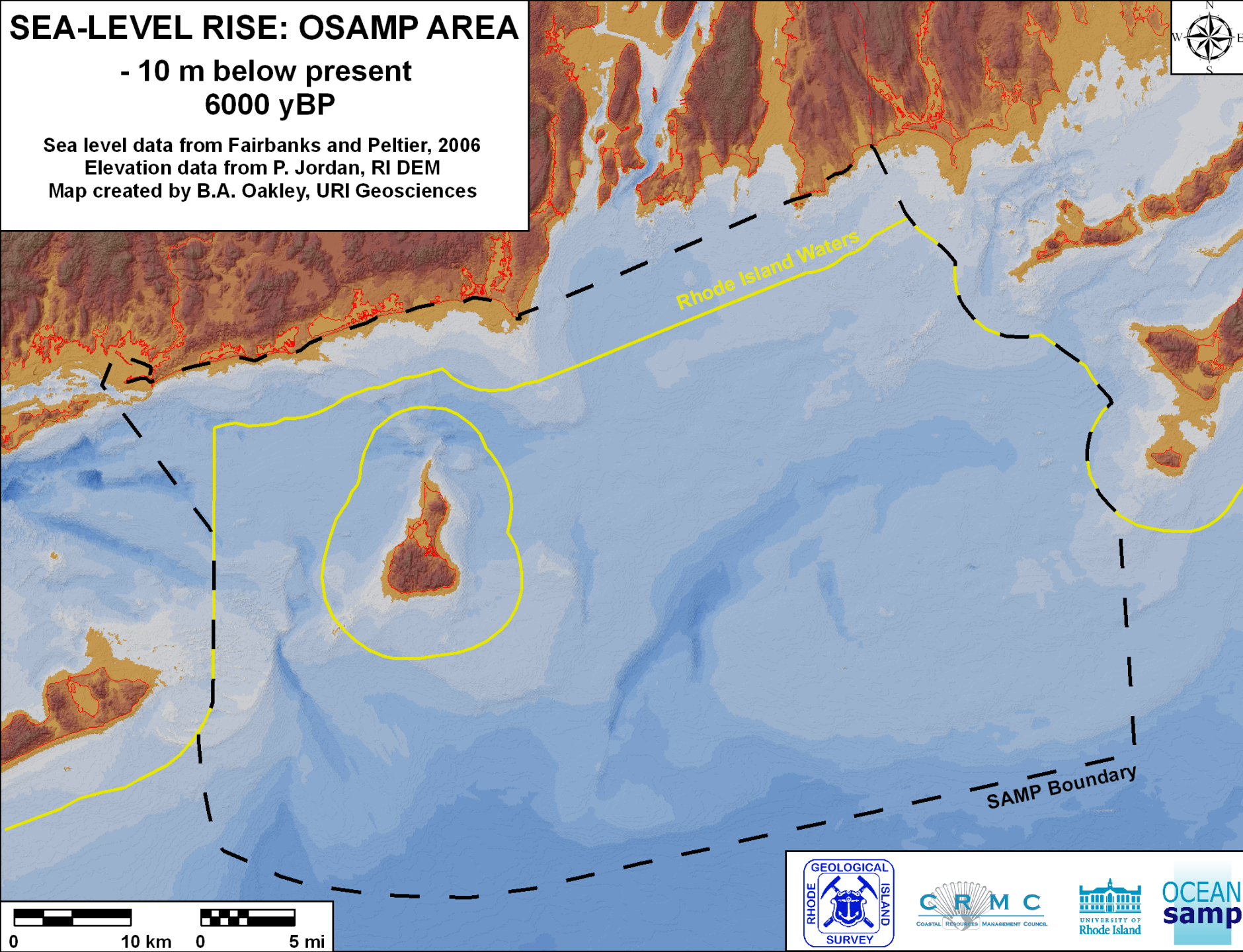




# SEA-LEVEL RISE: OSAMP AREA

- 10 m below present  
6000 yBP

Sea level data from Fairbanks and Peltier, 2006  
Elevation data from P. Jordan, RI DEM  
Map created by B.A. Oakley, URI Geosciences

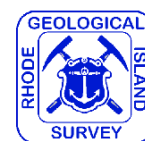
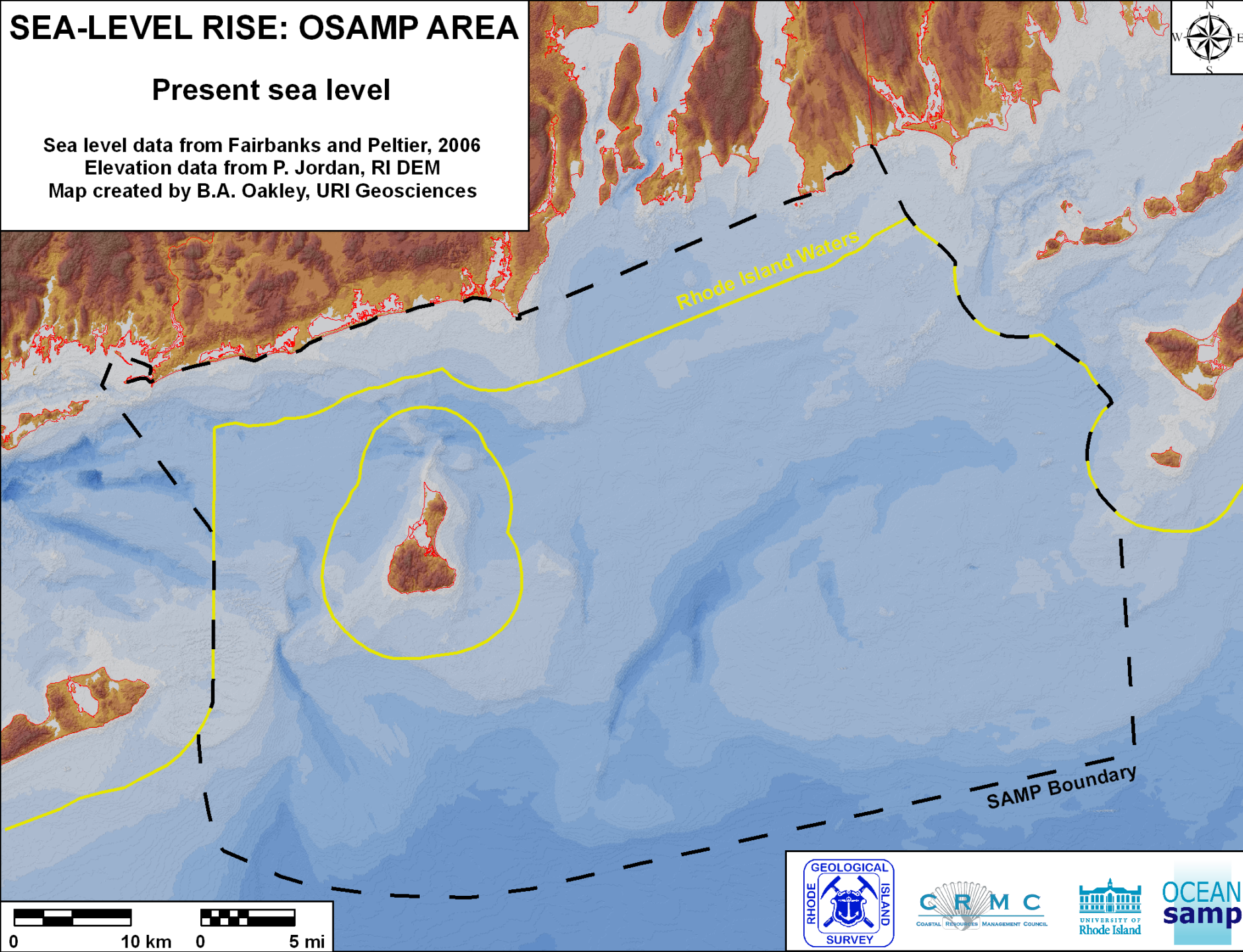




# SEA-LEVEL RISE: OSAMP AREA

## Present sea level

Sea level data from Fairbanks and Peltier, 2006  
Elevation data from P. Jordan, RI DEM  
Map created by B.A. Oakley, URI Geosciences



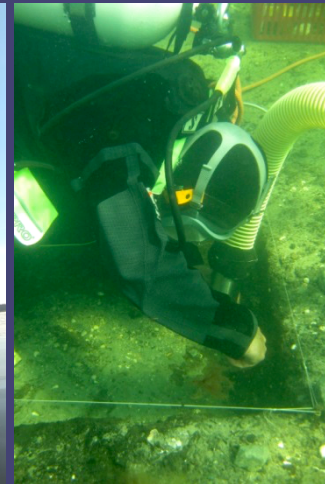
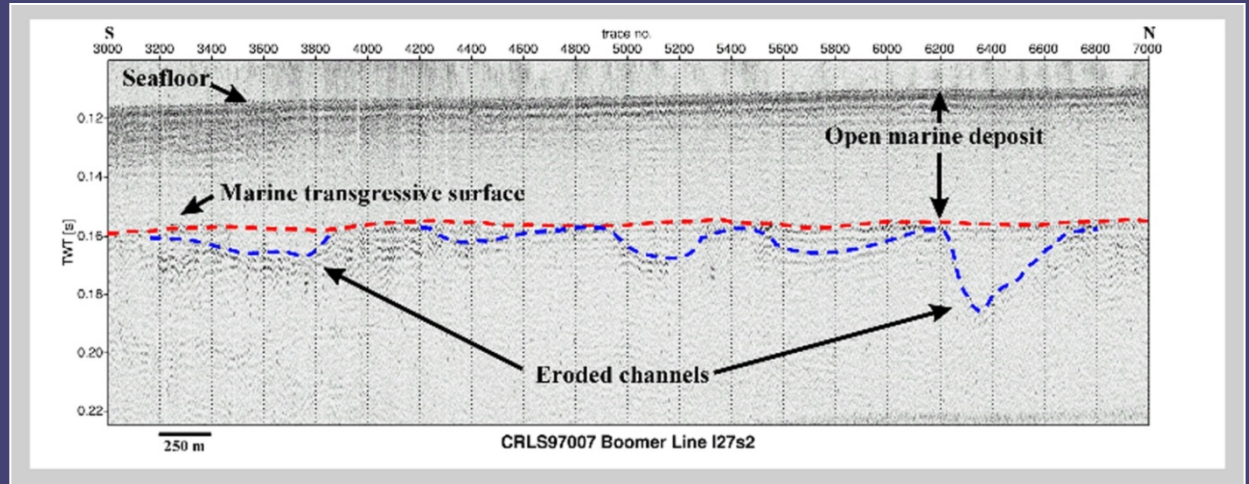
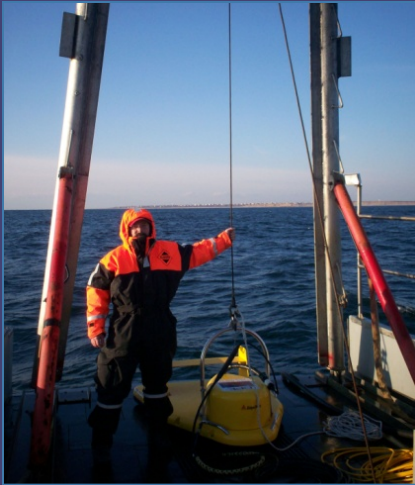




# Finding Submerged Paleocultural Landscapes:

## Marine Remote Sensing & Sediment Sampling

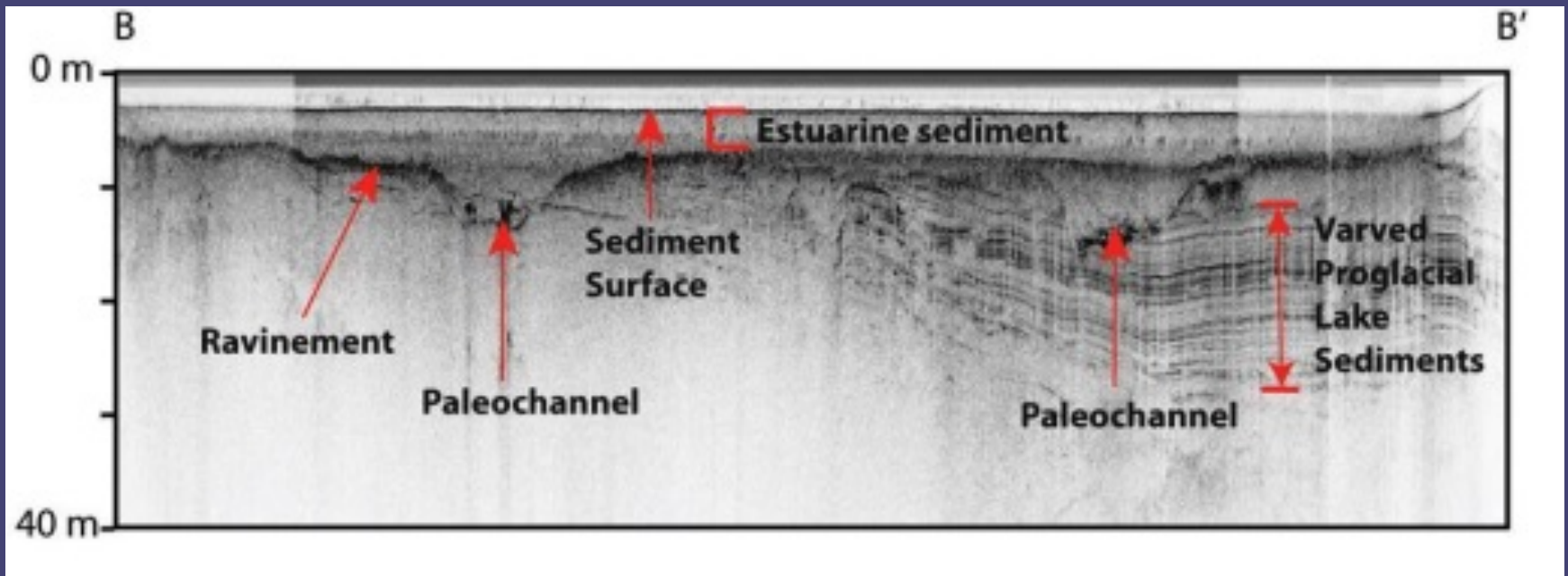
(sidescan sonar, subbottom profiler, multi-beam depth sounder)



(sediment coring and underwater excavation)

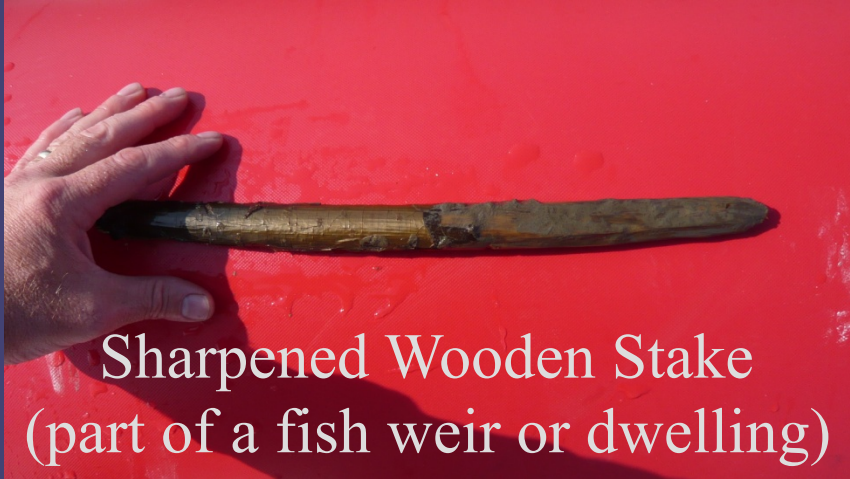


# Submerged Paleocultural Landscape Reconstruction



*Image courtesy of U.S. Geological Survey*

# Organic Preservation in the Submerged Environment



Sharpened Wooden Stake  
(part of a fish weir or dwelling)

Wooden artifacts and ecofacts excavated from a ca. 6,000 year old submerged site in Tudsehage, Denmark.

Require conservation treatment to preserve them.

Charred Cut Firewood



Hazelnuts & Acorns



**When did people arrive in North America?**

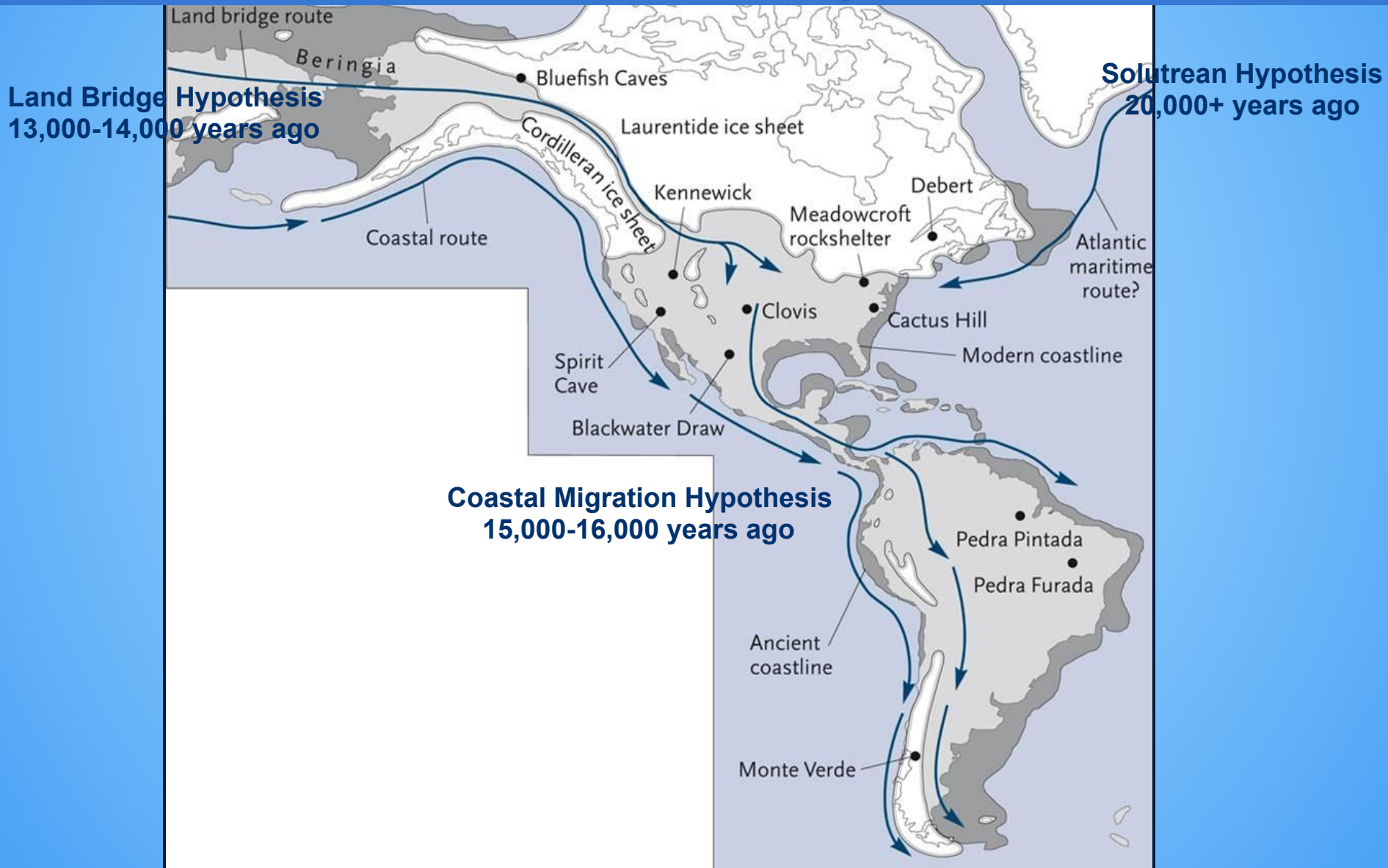
# Clovis Site, New Mexico 1920-30s



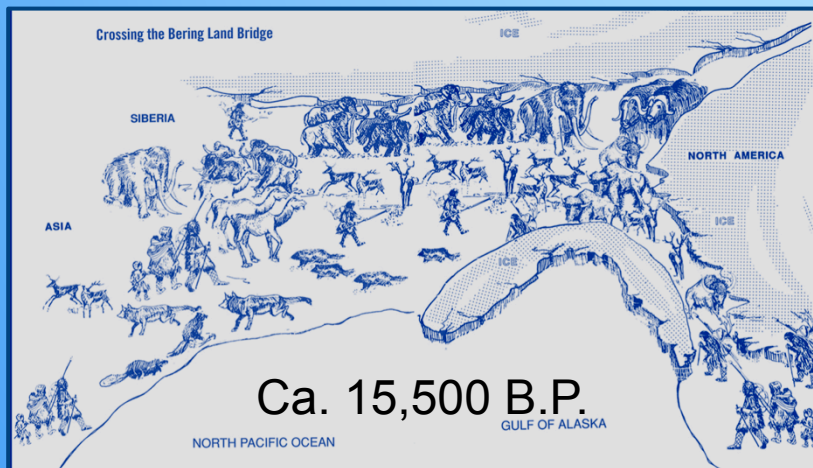
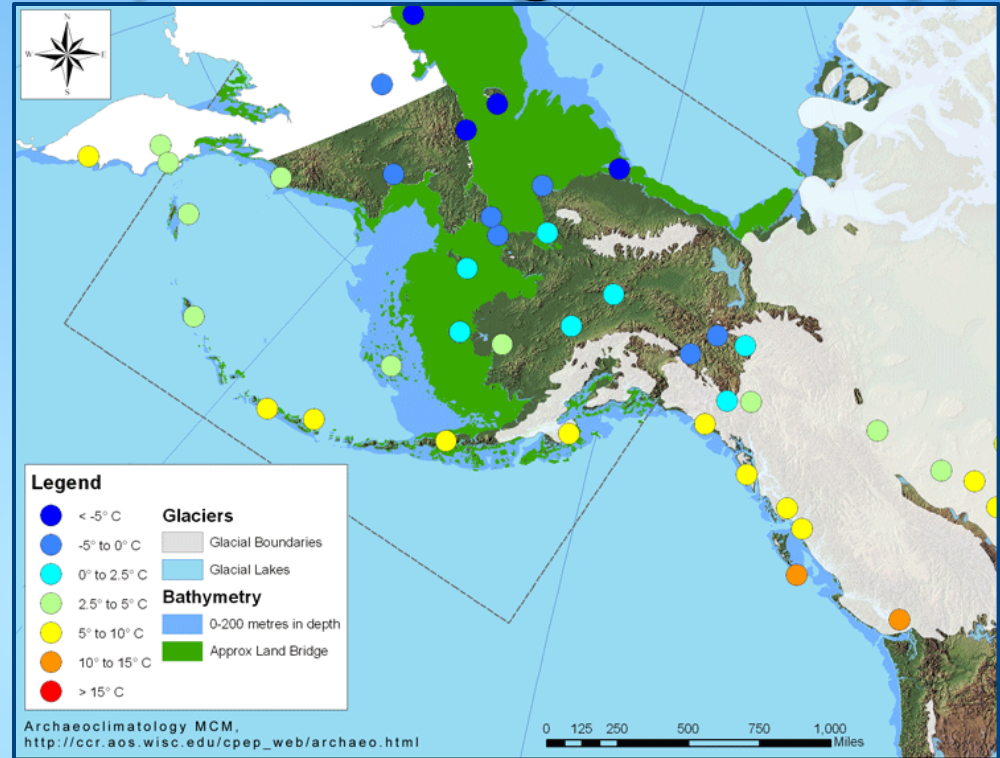
Dates to ca. 13,200 to 12,900 calendar years ago. “Clovis people” were once believed to be the earliest human inhabitants of the Americas and the ancestral relative of most contemporary Native Americans.



# Archaeological Evidence Suggests Population of the Americans was Complicated



# Native American Origins (archaeological theory)







## Fluted Points \*

13,000 cal BP

Points (n = 11,906)

- 1 - 10
- 11 - 39
- 40 - 91
- 92 - 204
- 205 - 423

-75 m Coastline

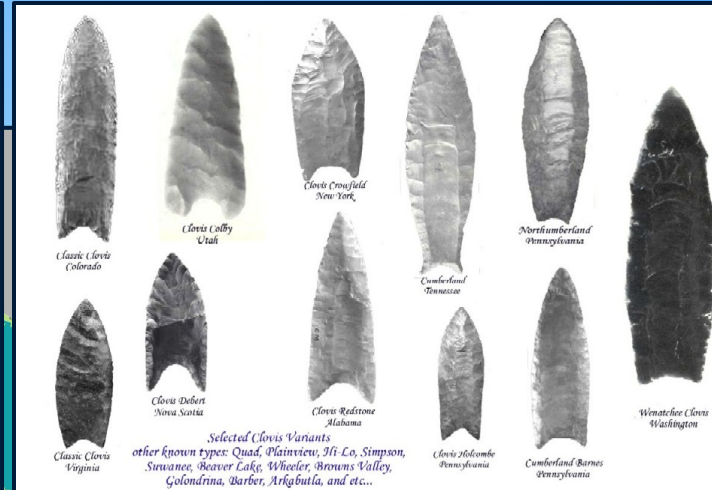
Glacial Ice 12k

Glacial Ice 13k

\* This map encompasses all Clovis and Clovis Variants, plus all untyped fluted forms that have not yet been unequivocally assigned to a later type like Folsom, Barnes, Cumberland, etc., in the database.

**PIDBA**  
http://pidba.utk.edu

0 750 1,500  
Kilometers



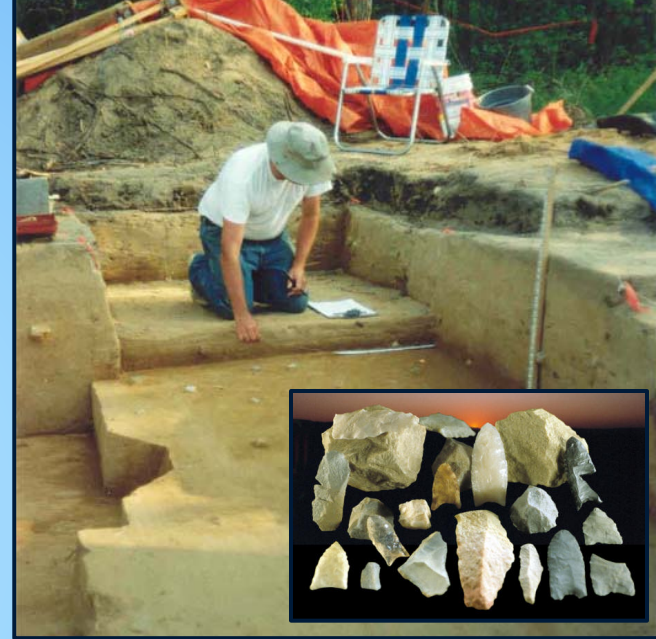


# Could Someone Have Met Clovis?

Meadowcroft Rockshelter, PA  
19,000 to 13,000 y.a.



Cactus Hill, VA 22,000 to 18,200 y.a.

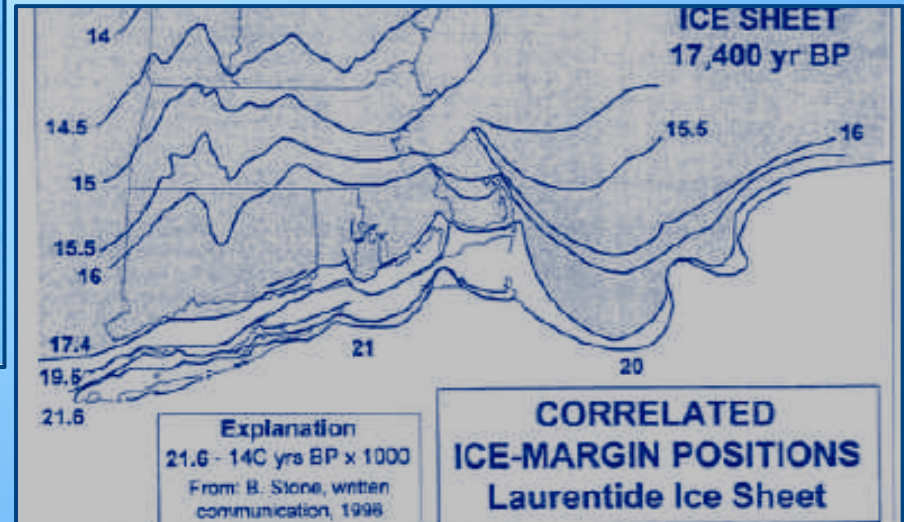
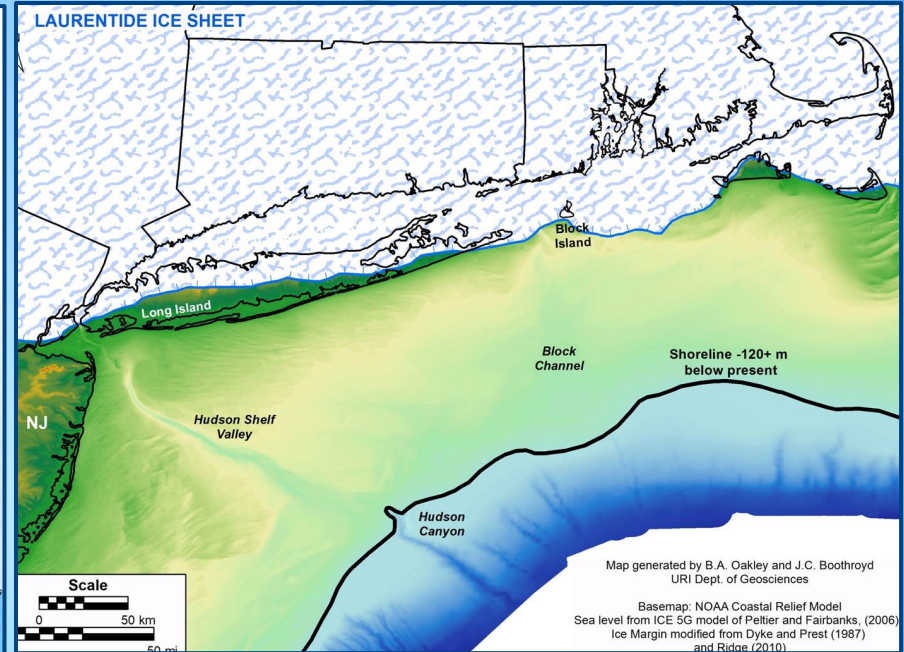
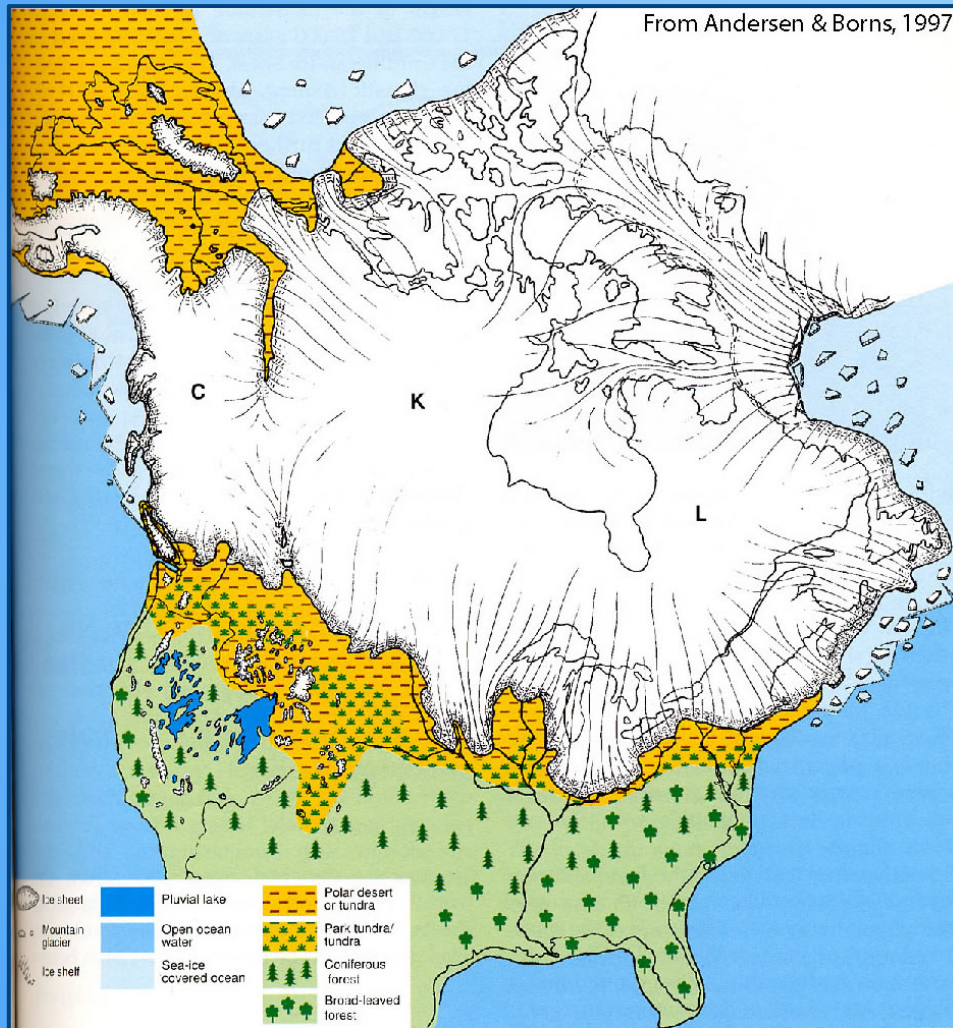


Topper, SC 20,000 to 16,000 y.a.



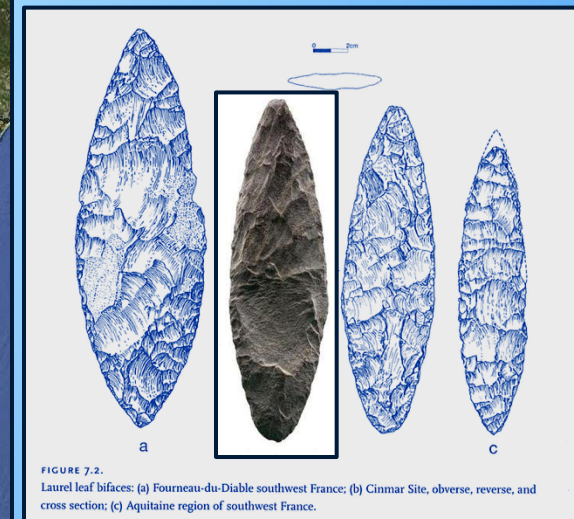
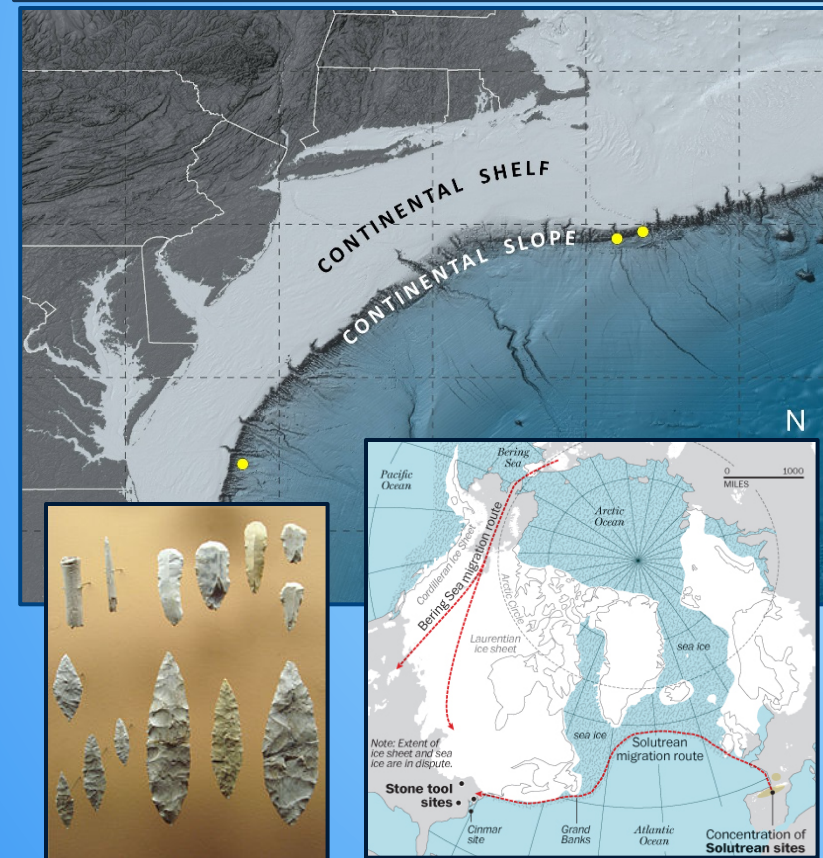
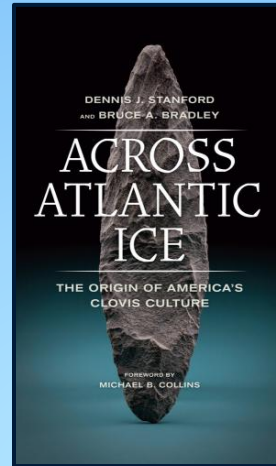
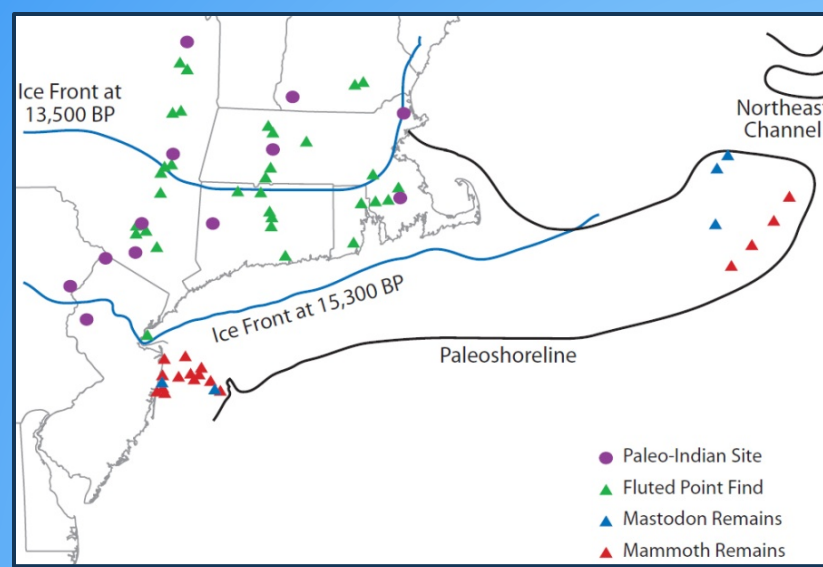


# Pre-Clovis in RI? Maybe - Late Glacial Maximum Glaciation ca. 26,000 ya.



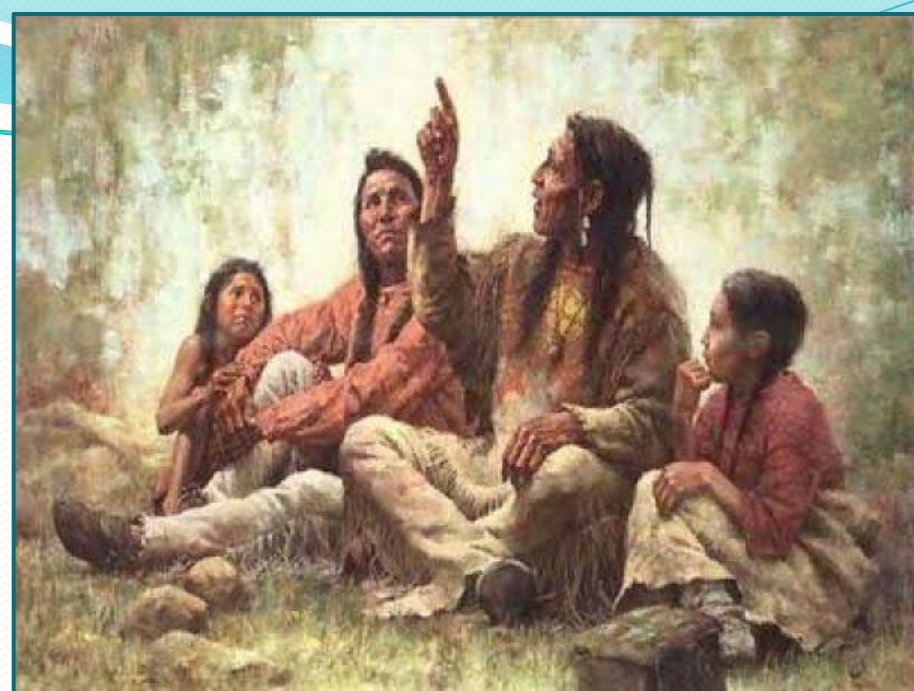


# At least not on land



100 km (62 mi) off shore in 75 m (246ft) of water.  
Collagen C14 date of mastodon ca. 23,000 y.a.







# Who's Past is it and Who Gets to Write its History?

## Narragansett Tribal Oral History

*Informs us that more than 15,000 years ago, the ancient villages of the ancestral Narragansett were out where the ocean is now, and that overnight the ocean's waters began to rise and their people had to evacuate their ancient homes.*

