

Figure 4. Otoliths (bottom row) and sturgeon scute (top row) from the Chouacoet site.



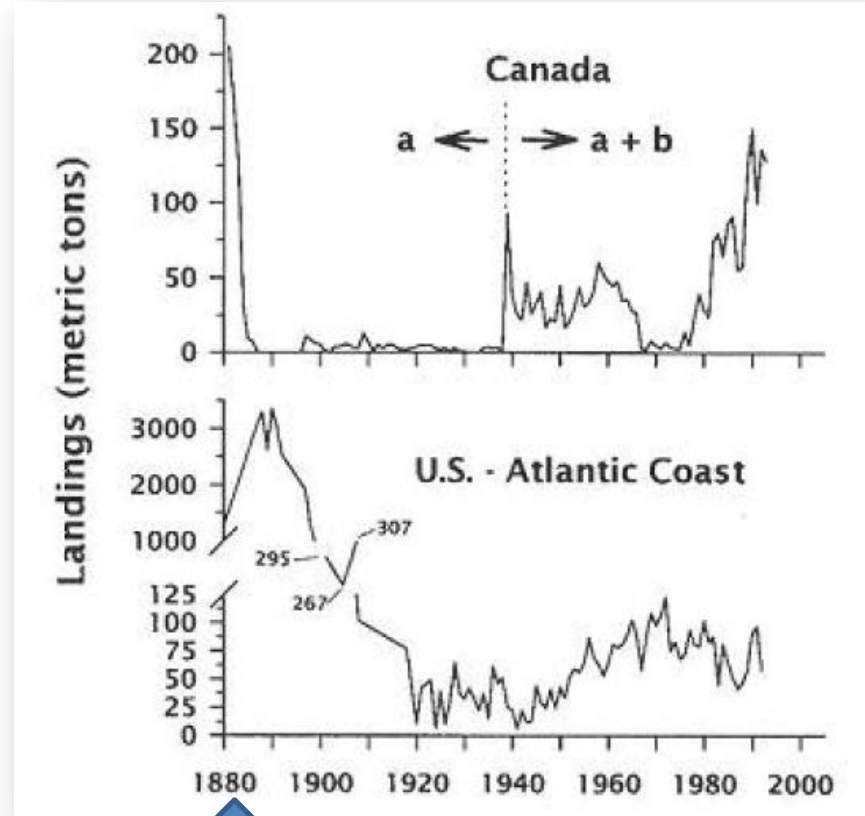
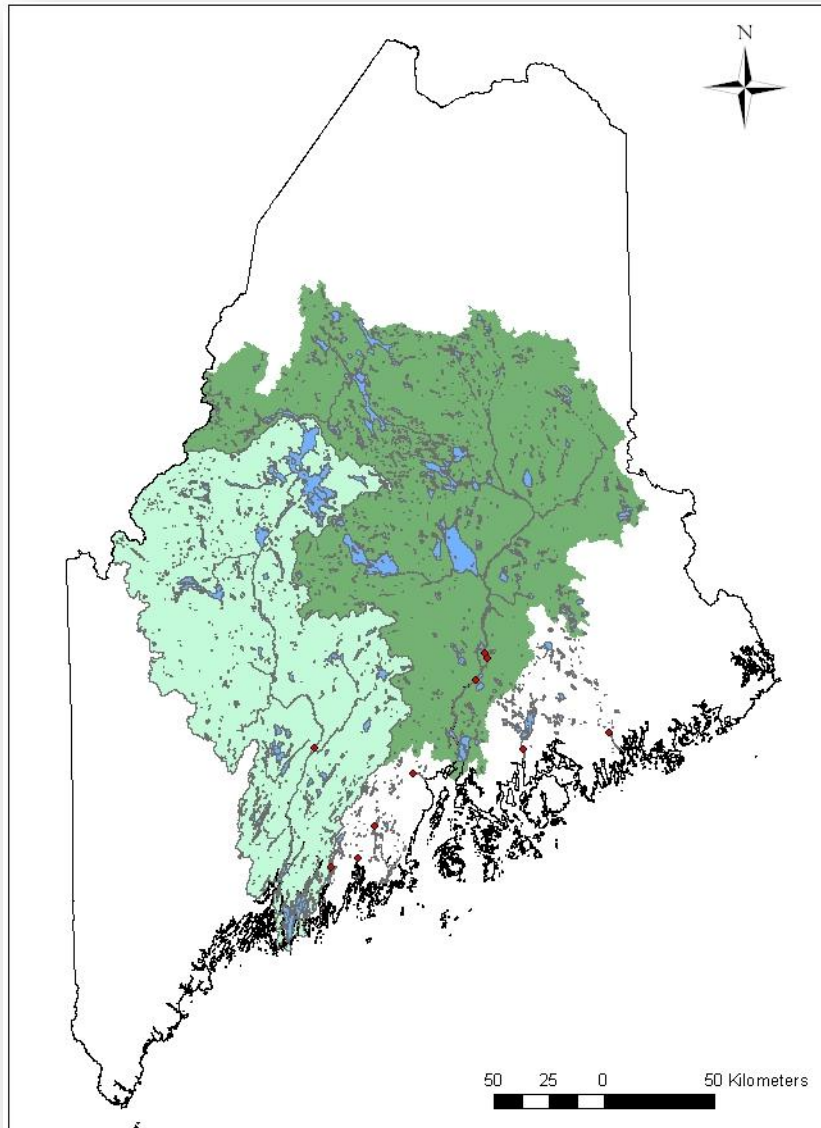
Contemporary and Historic presence of sturgeon in the Gulf of Maine: what can we learn?

Arthur Spiess, Maine Historic Preservation Commission

Gayle Zydlewski , University of Maine

David Halliwell, Maine Department of Environmental Protection

Contemporary (150y) studies of sturgeon in the Gulf of Maine



Population estimate in Kennebec (1849): 10,240 (160 mt)

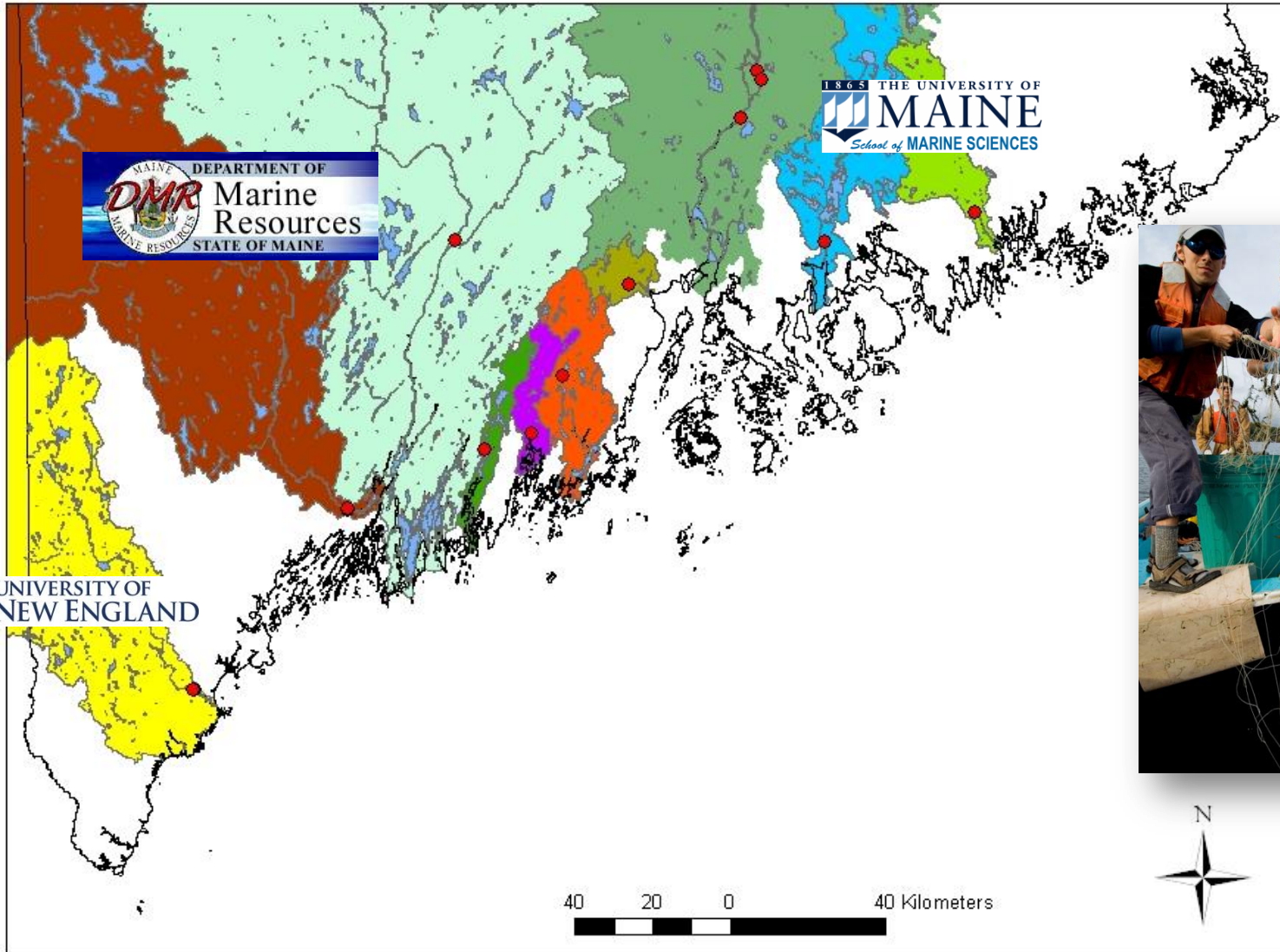
Recent work in the Kennebec

- Shortnose sturgeon in Maine...
 - 1977 – 1981 mark-recapture
 - 7,222 (CI: 5,046 – 10,765) – Squiers et al. (1982)
 - 1998, 1999, 2000 mark-recapture
 - 9,488 (CI: 6,942 – 13,358) – Squiers (2003)
- Atlantic sturgeon in Maine...
 - 336 sub-adults captured (1977-2000)

Work in the Penobscot

- Shortnose sturgeon
 - 2010
 - Winter aggregation/visual: 681 (446 – 1506, 95% CI)
 - Mark-recap estimates:
 - 641 (399 – 1074, 95%CI) 2008
 - 602 (410 – 911, 95%CI) 2009
 - 2011
 - Winter aggregation/visual: 733-1014
 - Mark-recap estimates:
 - 1245 fish (929-1708, 95% CI)
- Atlantic sturgeon
 - 110 sub-adults captured (2006-2012)

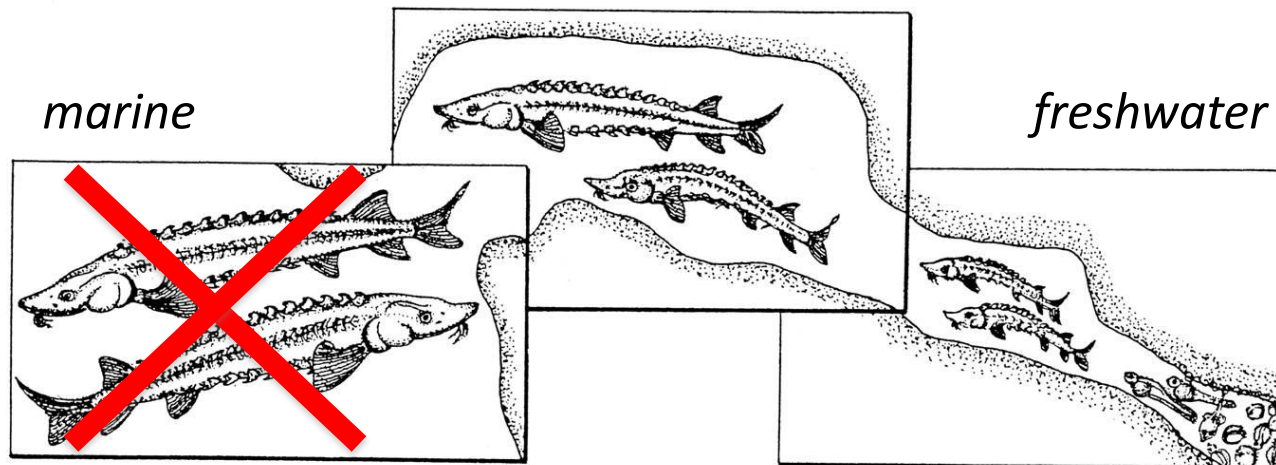
Contemporary studies of sturgeon in the Gulf of Maine



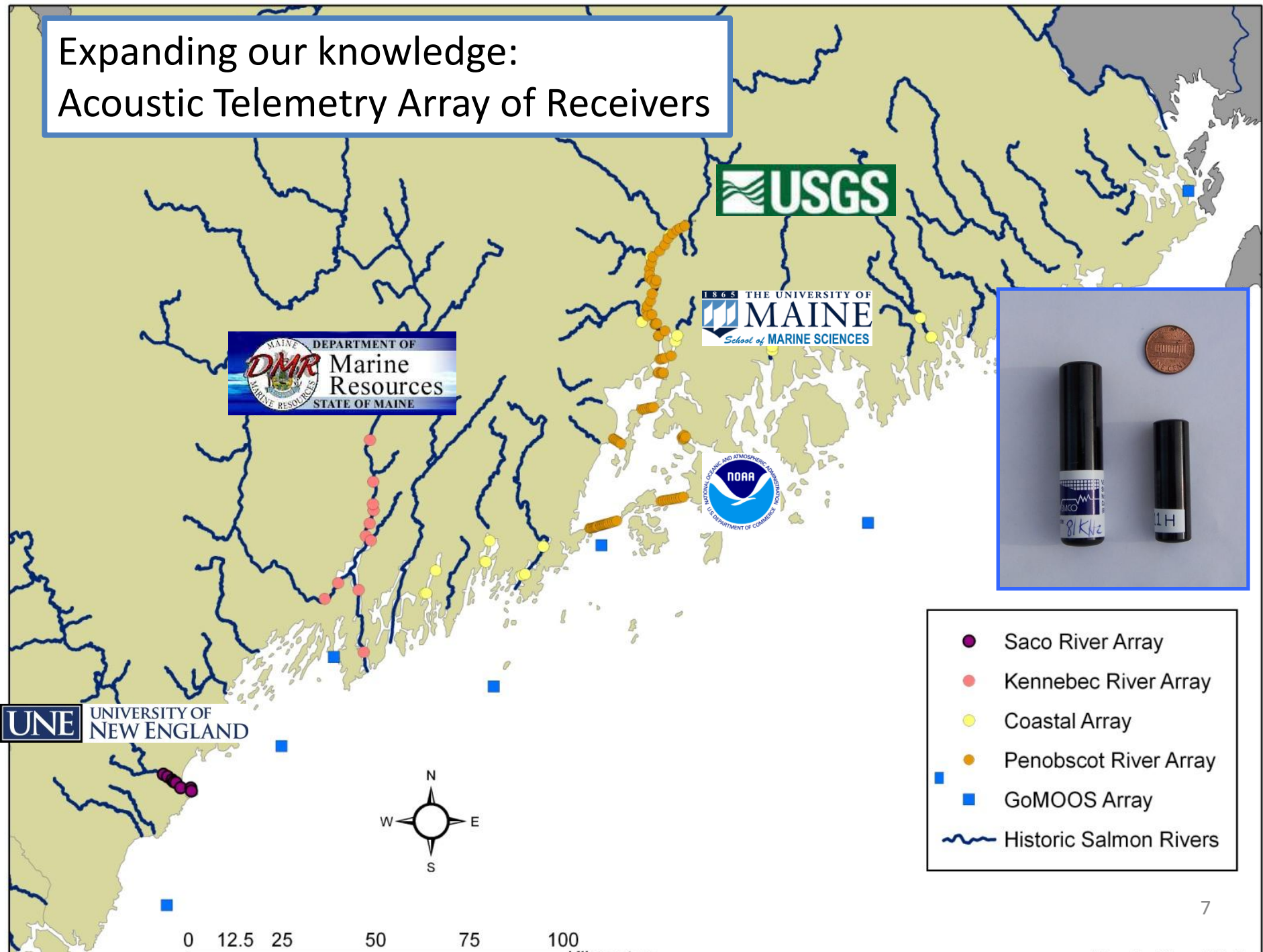
Shortnose Sturgeon Life History

(amphidromous)

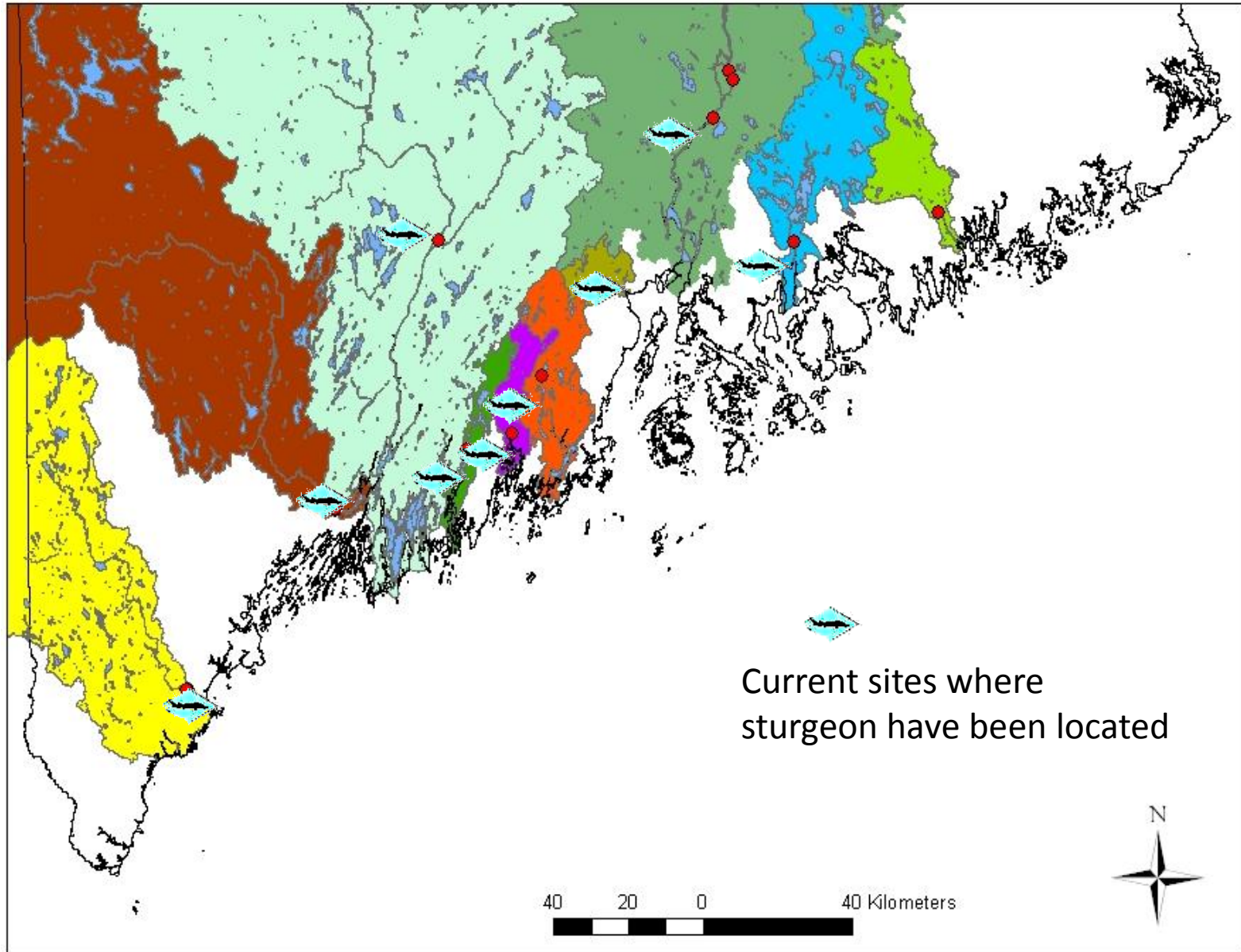
- Spawn in freshwater in spring
- Subadults & adults inhabit river/estuary
- Adults use freshwater for more than spawning
- Not known to make coastal migrations



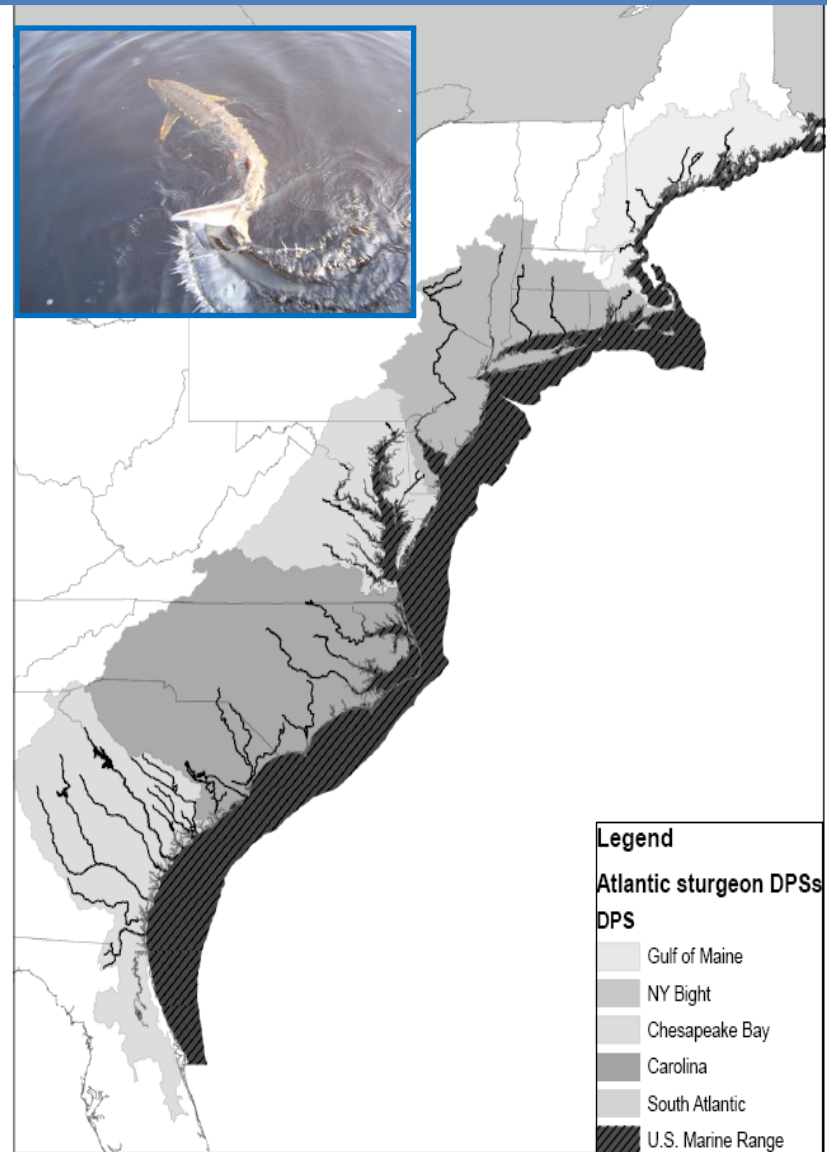
Expanding our knowledge: Acoustic Telemetry Array of Receivers



Gulf of Maine distribution of sturgeon



Contribution to restoration/management



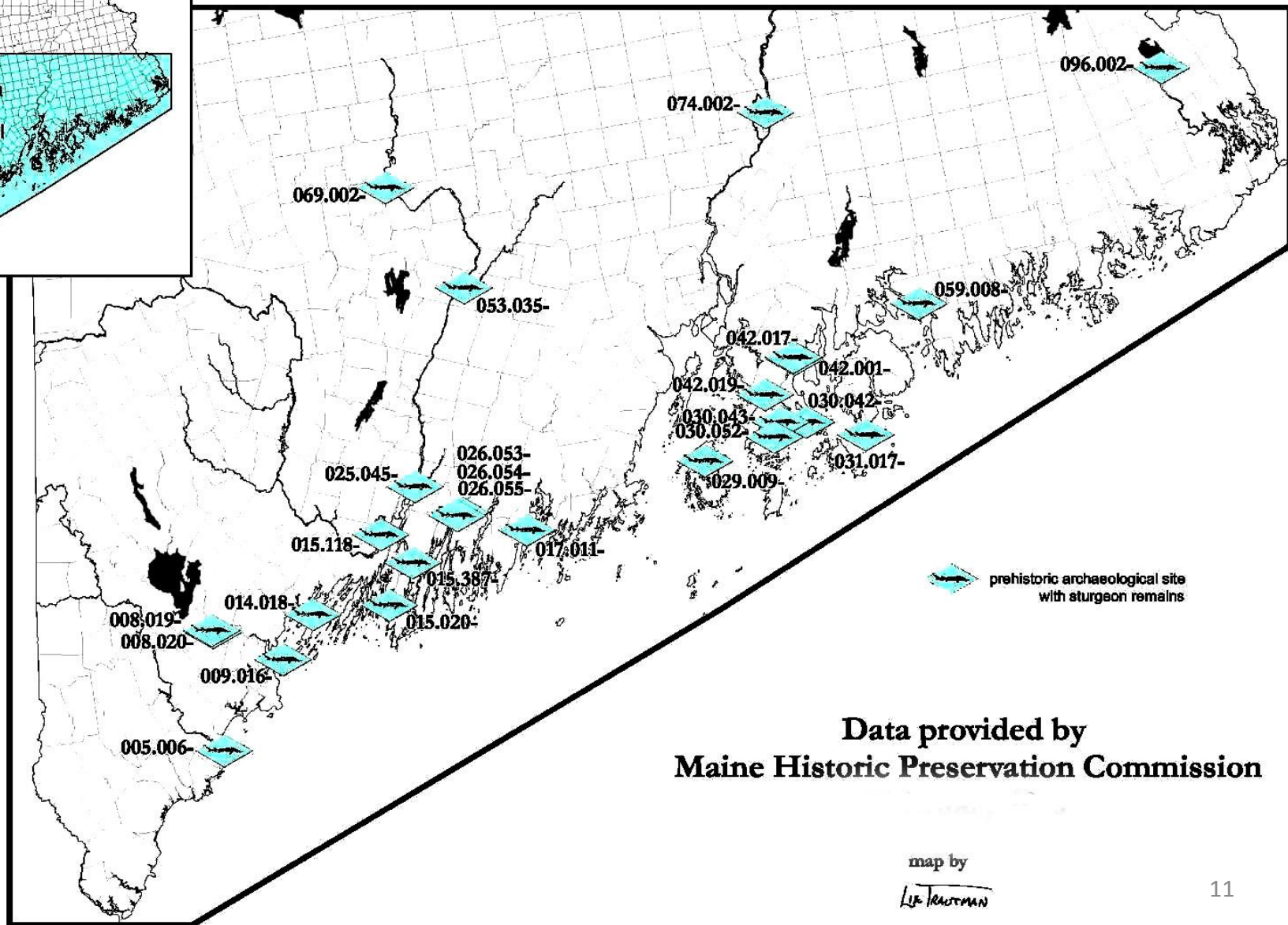
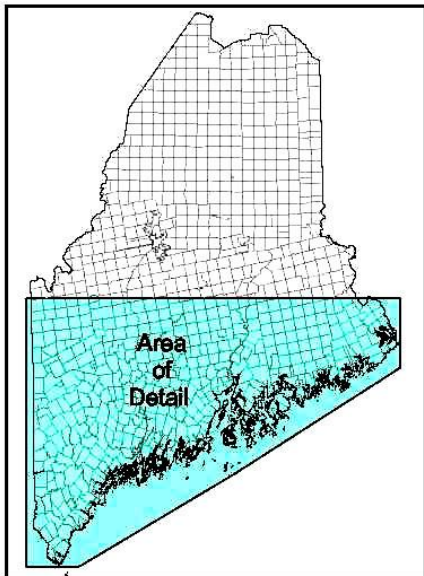
Session goal

Can we use historic and contemporary migration and movement patterns of diadromous fish to establish baseline conditions for restoration or recovery?

Contemporarily:

- Both species use many river systems in Maine
- Surprising for shortnose sturgeon, but is it?

Native American Archaeological Sites in Maine with Identified Sturgeon Faunal Remains



Data provided by
Maine Historic Preservation Commission

map by
Liz Troutman

FOOD BONE PRESERVED



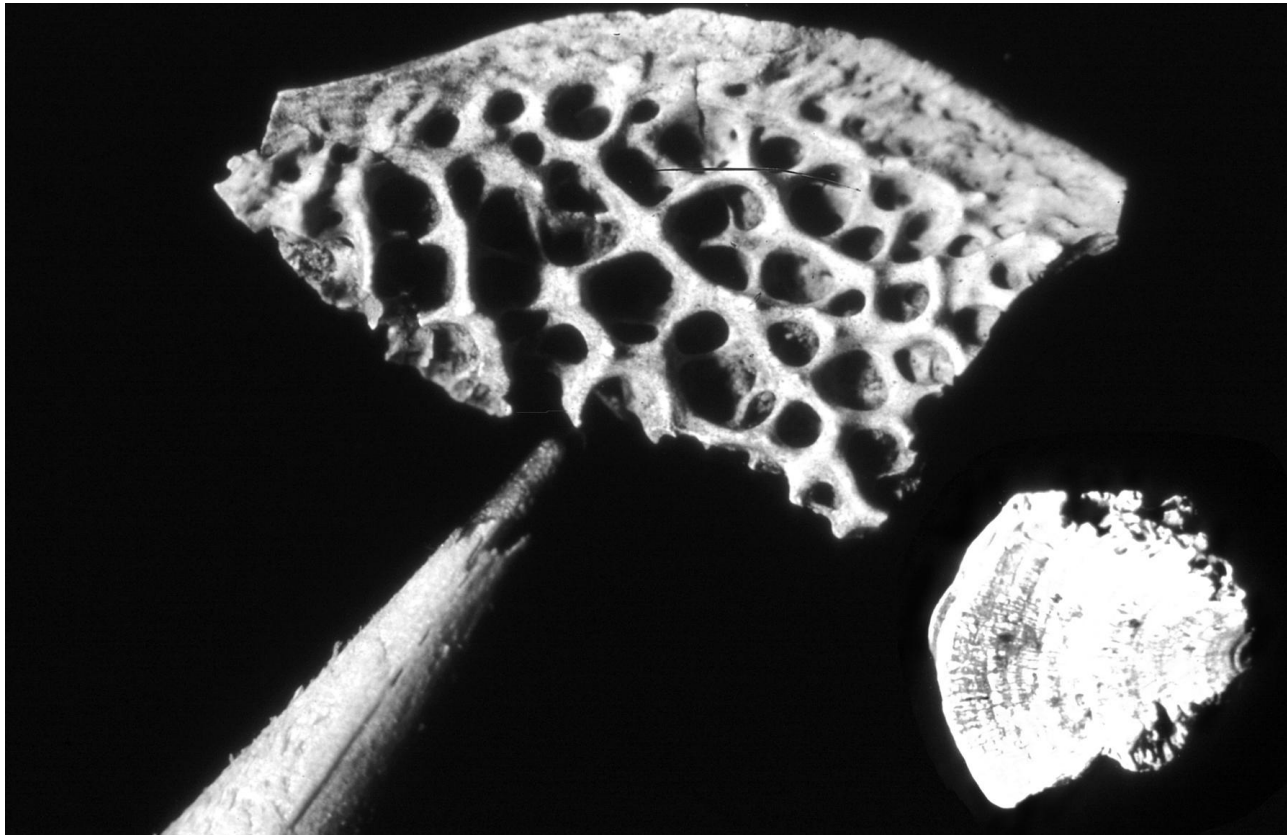
Ewing-Bragdon site (left), Turner Farm (right)

midden = garbage dump

shell midden = camp site debris with shell (preserves bone)

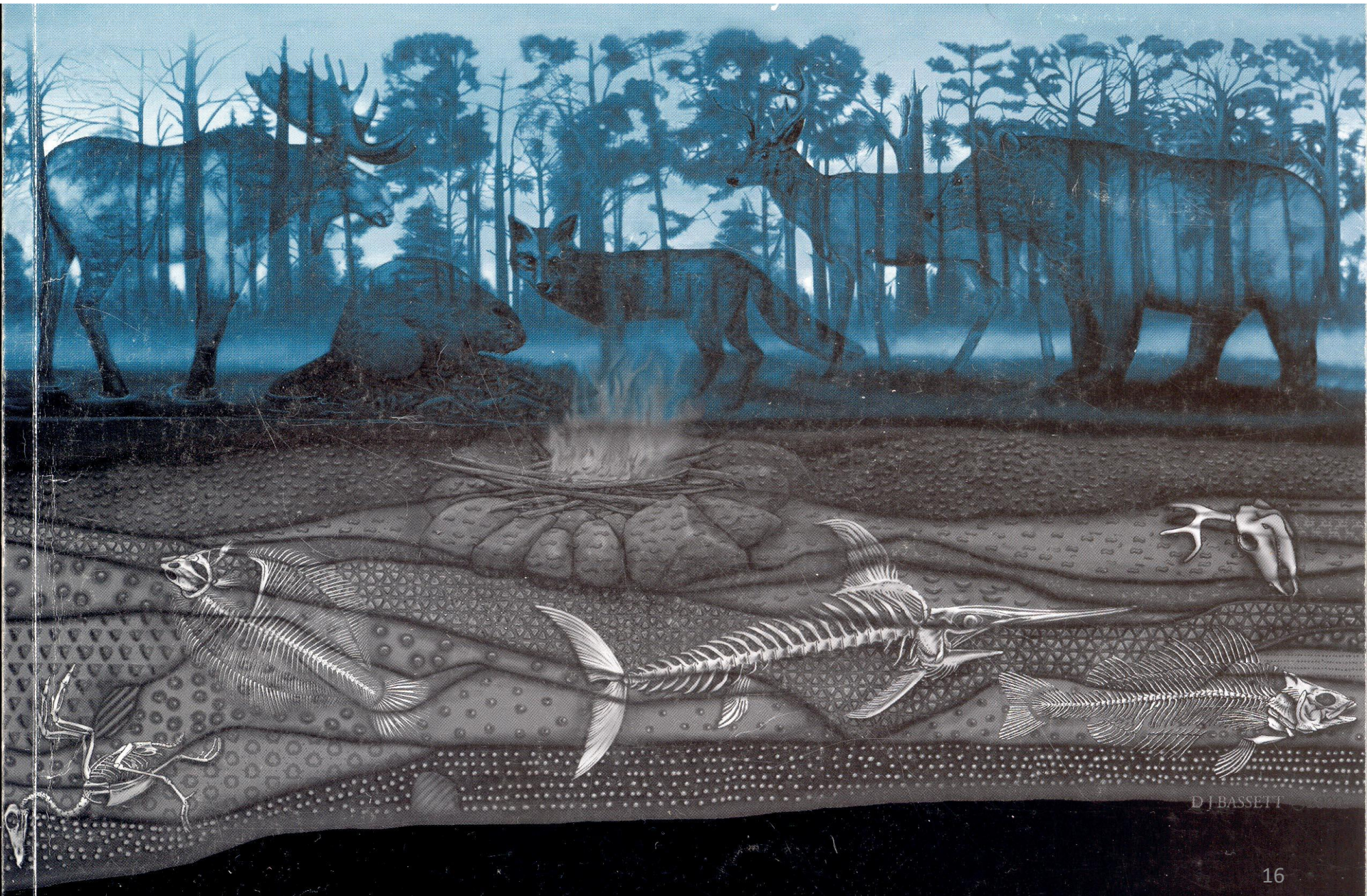


**Calcined (burned) sturgeon scute and salmon
vertebra section**
pencil lead for scale



3000 years old
Winslow
Sebasticook/Kennebec
confluence



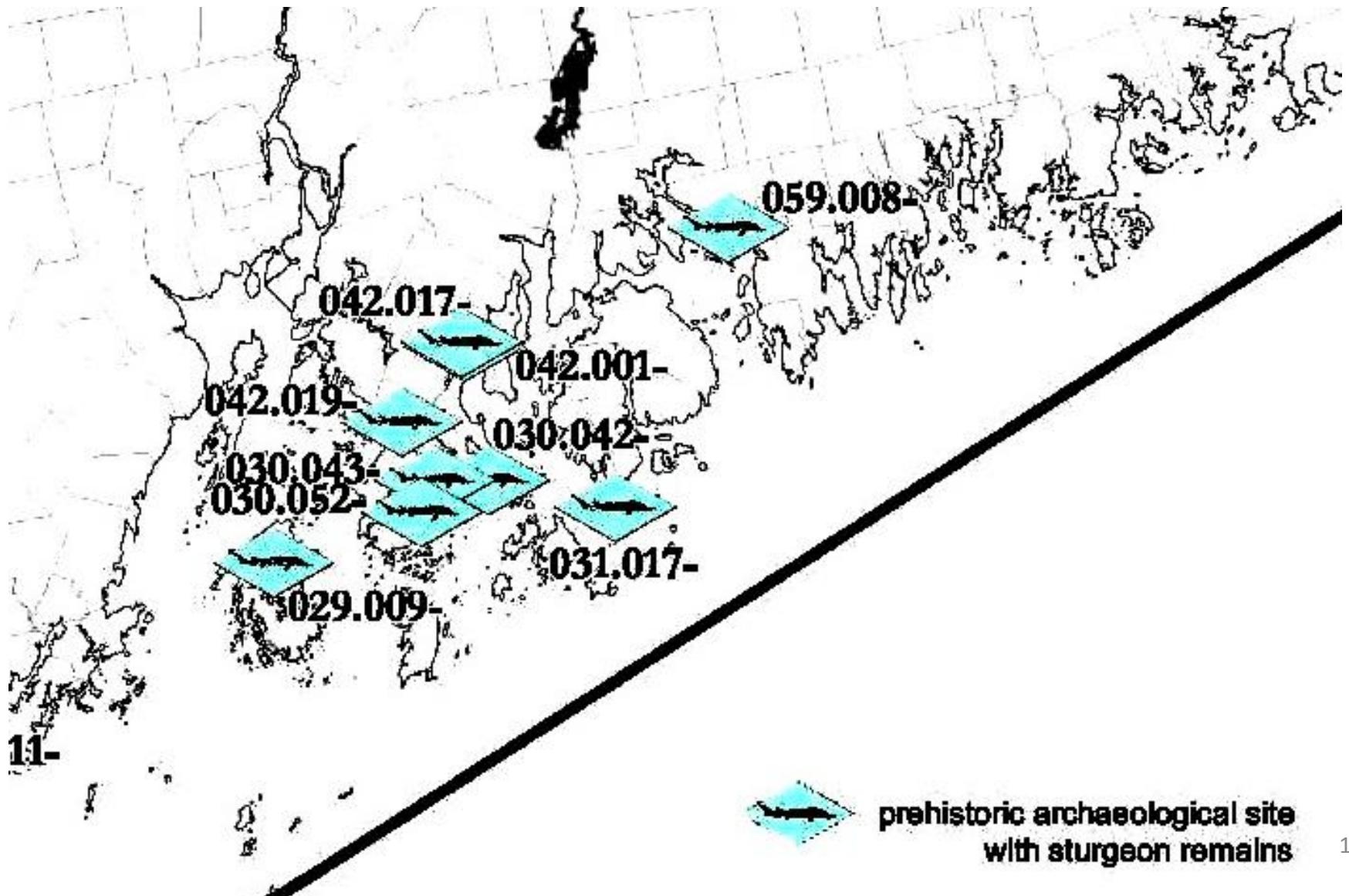


D J BASSETT

Tidal weirs inshore cold water fishery



SITES WITH STURGEON SCUTE ISLANDS AND COAST PENOBSCOT AND FRENCHMAN'S BAYS



ARCHAEOLOGICAL CONCLUSIONS

- Sturgeon movement along the inshore, shallow waters of the Maine coast was common
- Probable cold weather fishery, based on inter-tidal weirs
- Outside of the major rivers/estuaries
- Documents widespread sturgeon movement along coast for 3000 years at least



Session goal

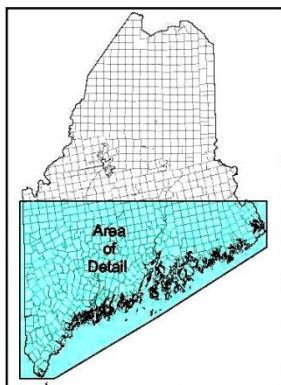
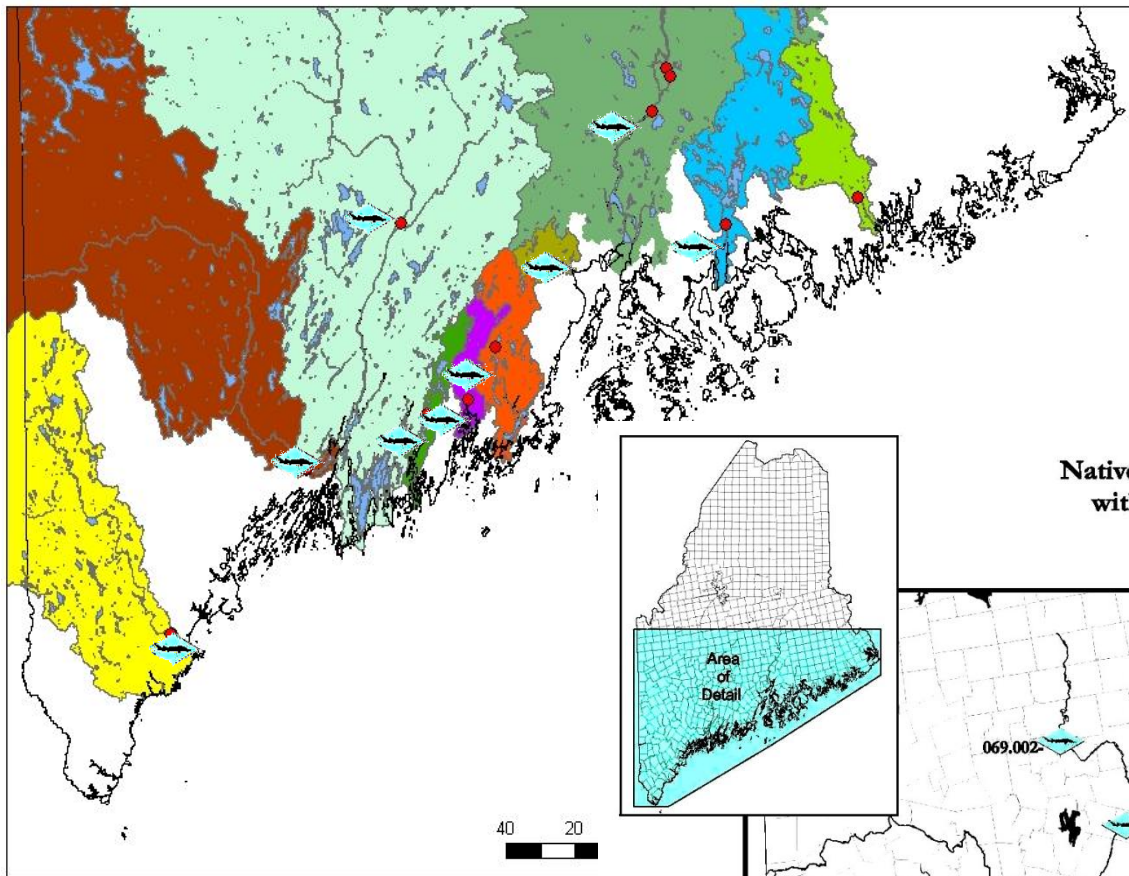
Can we use historic and contemporary migration and movement patterns of diadromous fish to establish baseline conditions for restoration or recovery?

Contemporarily:

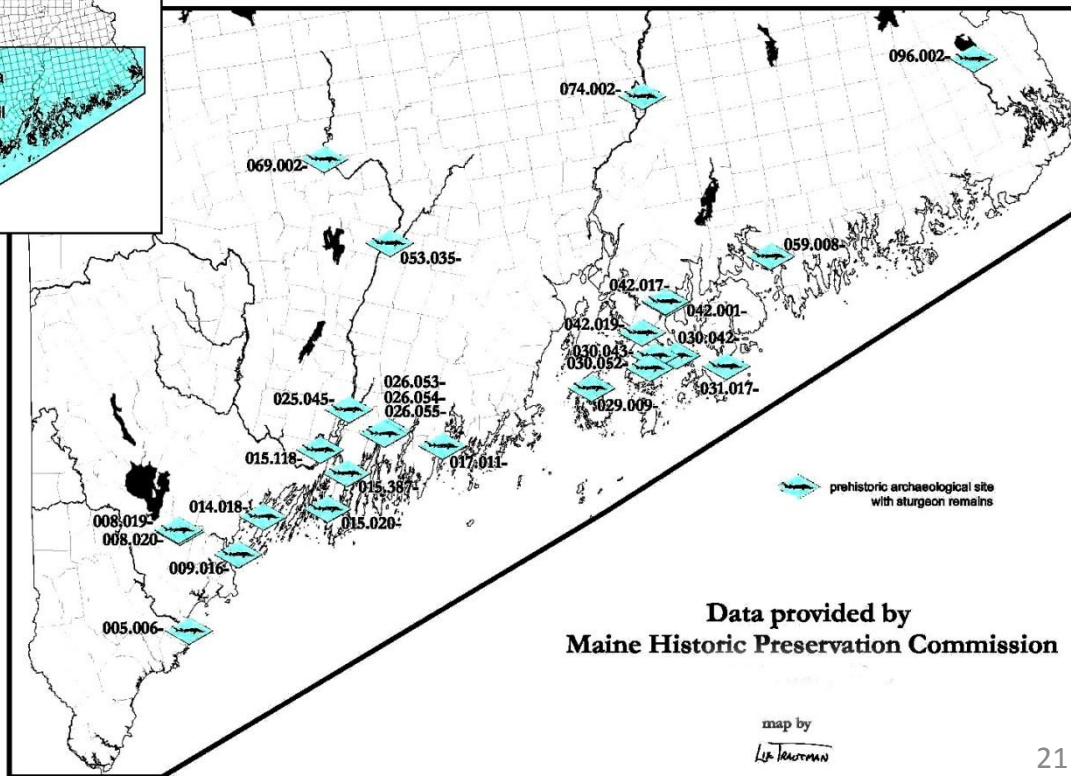
- Both species use many river systems in Maine
- Surprising for shortnose sturgeon, but is it?

Historically:

- Both “Sturgeon” used many river systems in Maine



**Native American Archaeological Sites in Maine
with Identified Sturgeon Faunal Remains**



Data provided by
Maine Historic Preservation Commission

map by
Liz Thurman

What can we learn?

- Use current day scutes to decipher archaeological scute identity to species
 - To tell us something about historic range/migration distances
- Use historic range data to inform contemporary studies
 - How many more rivers currently have sturgeon that we do not know about?
- Elemental analysis of scutes would benefit both historical and contemporary analyses