

USING ANTHROPOLOGY HOLDINGS TO RECONSTRUCT HISTORIC APEX PREDATOR COMMUNITIES

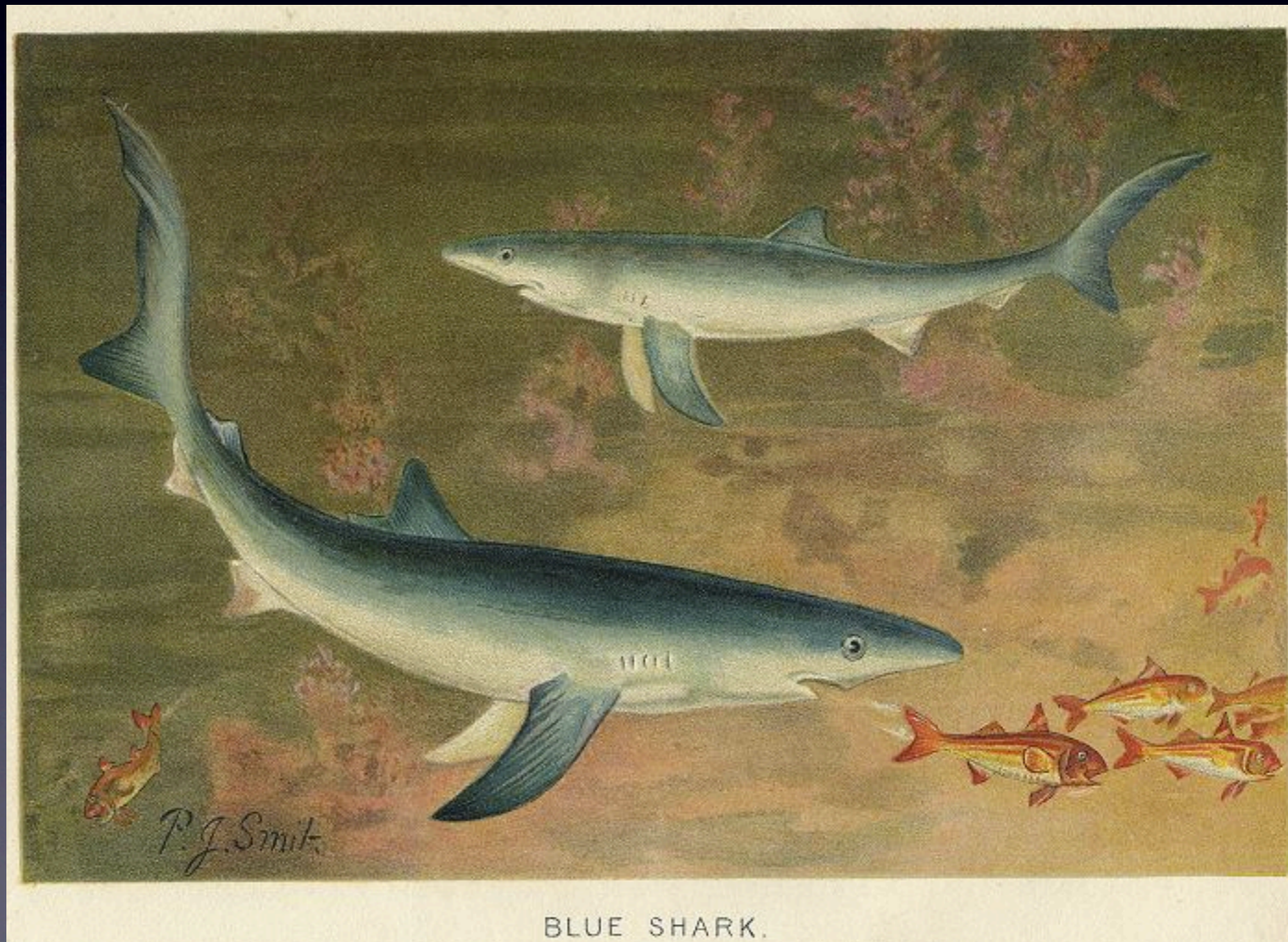
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KNOWLEDGE OF THE PAST

- Conservation programs
- Processes and players structuring current distribution

HOW DO WE RECONSTRUCT HISTORICAL ECOSYSTEMS





**WHAT DO WE DO
WHEN THERE IS NO
WRITTEN RECORD?**





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WARNING
LEAVE AREA IMMEDIATELY
WHEN ALARM SOUNDS.
DO NOT RE-ENTER AREA
AFTER THE
SYSTEM IS DISCHARGED
UNLESS VENTILATED.
THIS AREA PROTECTED BY
AN FM-200
FIRE SUPPRESSION SYSTEM.

EXIT

WARNING
FIRE SUPPRESSION SYSTEM
DO NOT ENTER

SHARKS





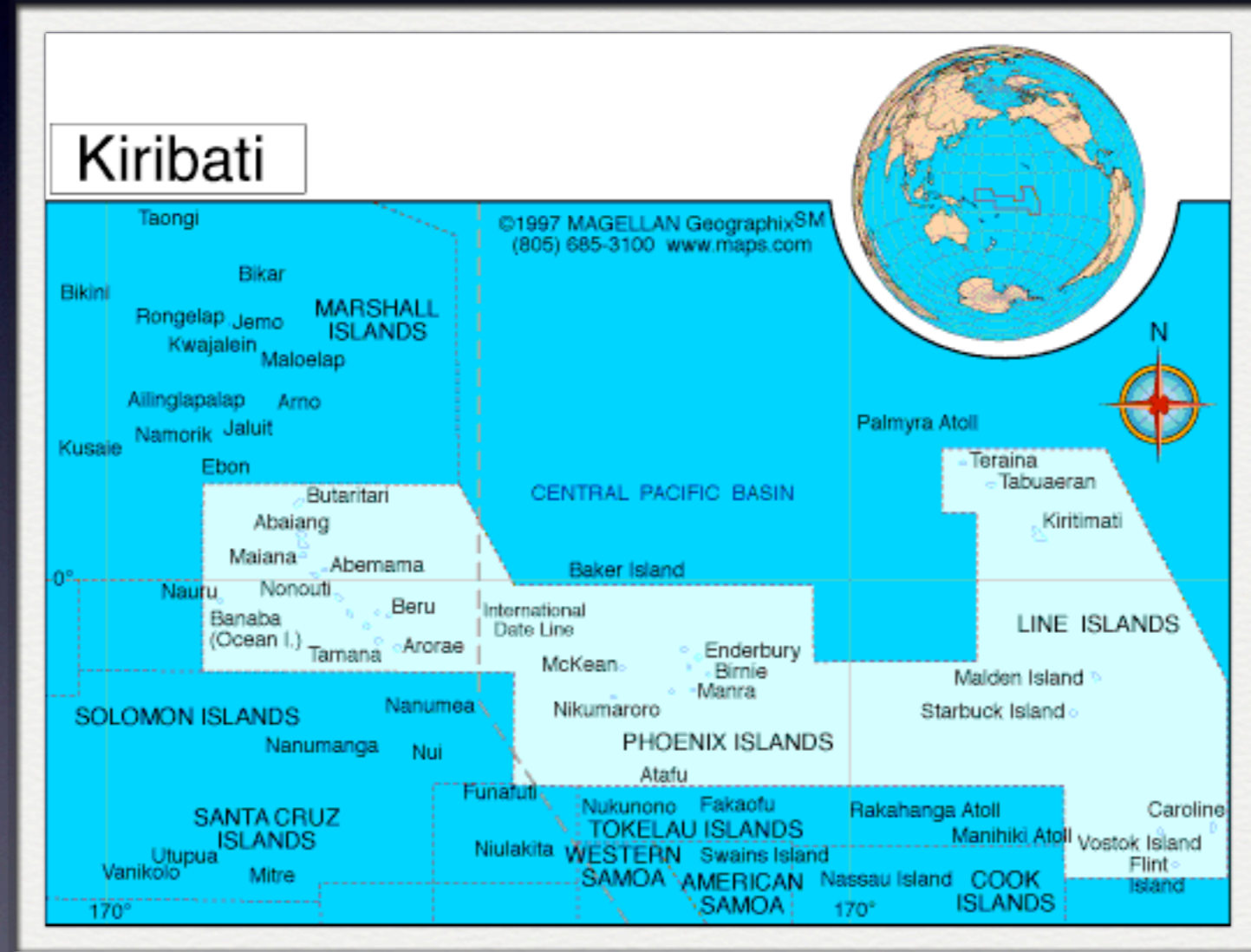
Sharks in Kingman
from Sandin et al. (2008) PLoS ONE 3(2): e1548



UNDER THREAT



GILBERT ISLANDS



HISTORY

- First peopling apx. 3000 years ago
- First Western discovery 1764
- Subsequent visits by whalers, blackbirders and English colonists

MATERIALIAL CULTURE

- Deep sea fishing hooks (Gudger 1923)
- Boat making
- Shark fishing
- Shark toothed weapons

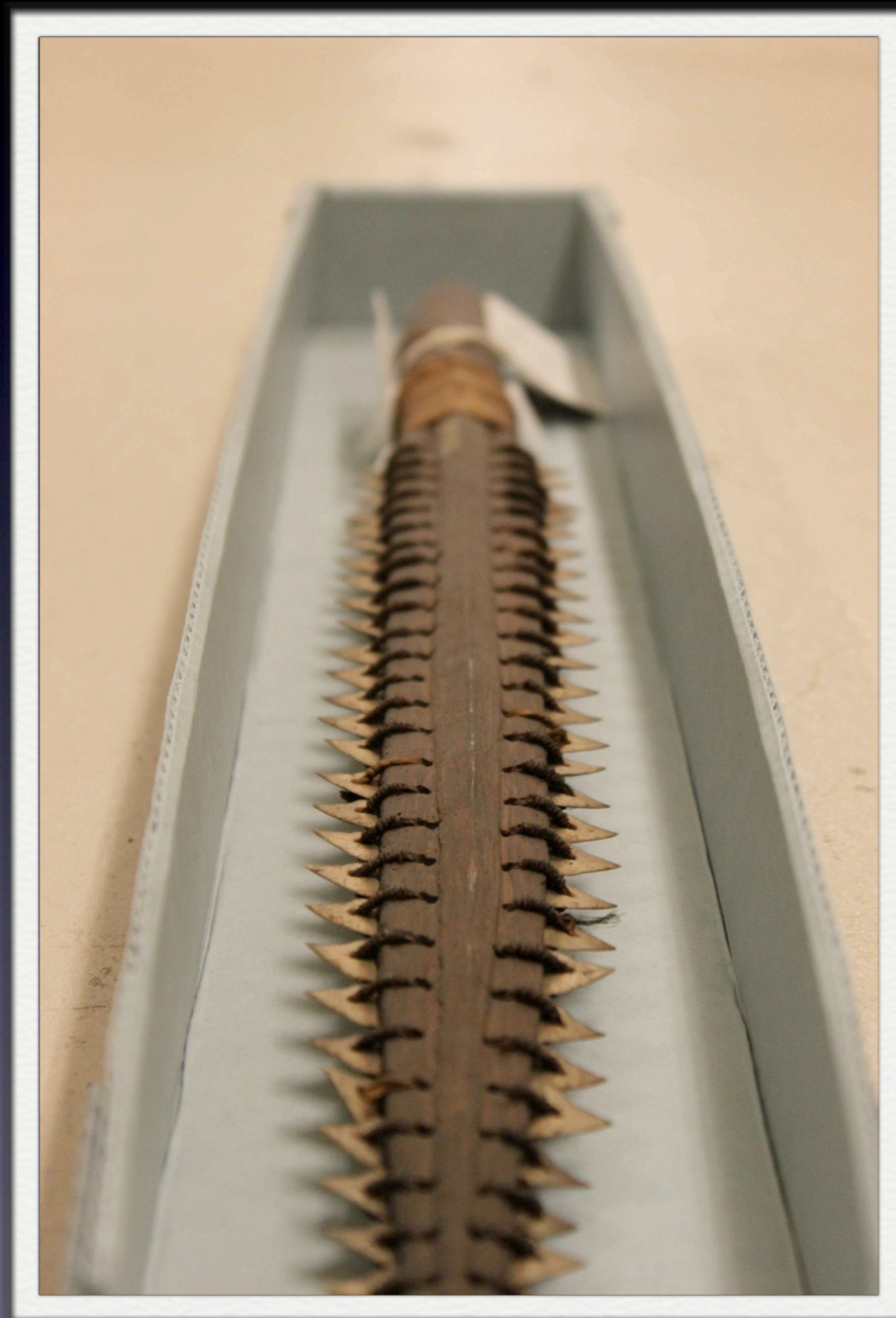
TWO LINES OF EVIDENCE

- Wanted to compare historical diversity to present diversity
- Estimated present diversity from literature and on-line resources
- Estimated historical diversity from literature
- Used material culture to record diversity

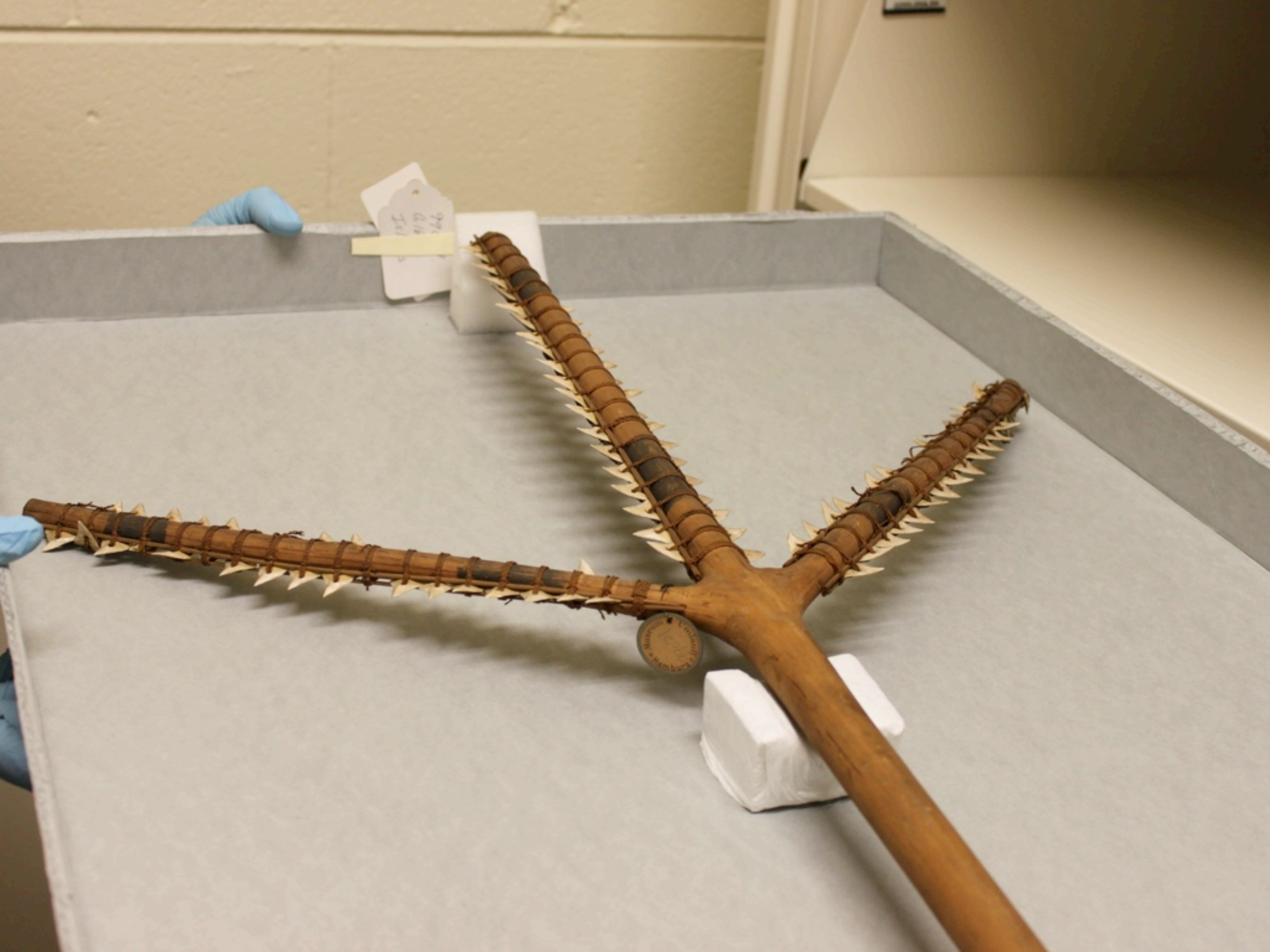
SHARK TEETH

- Shark teeth are fairly species specific
- Our goal was to use the Gilbertese weapons collections in the Field Museum to reconstruct what species of shark were present
- Collections are biodiversity time capsules, recording a species presence at a specific point in time and space

WEAPONS

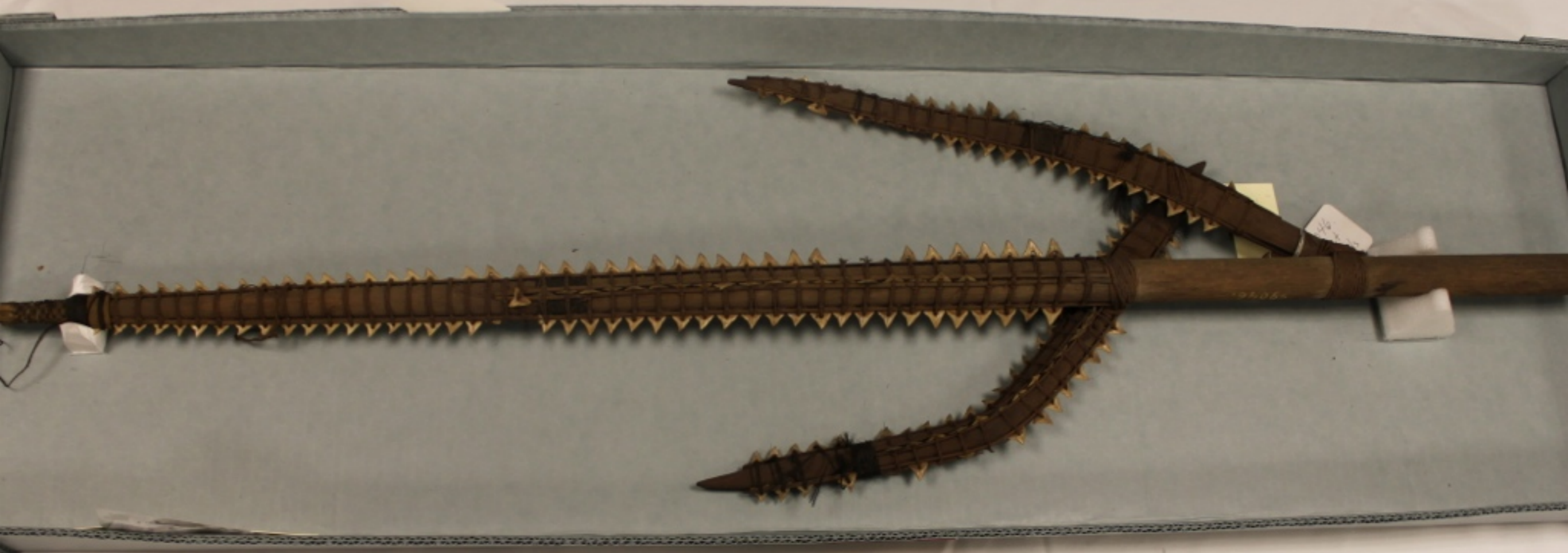


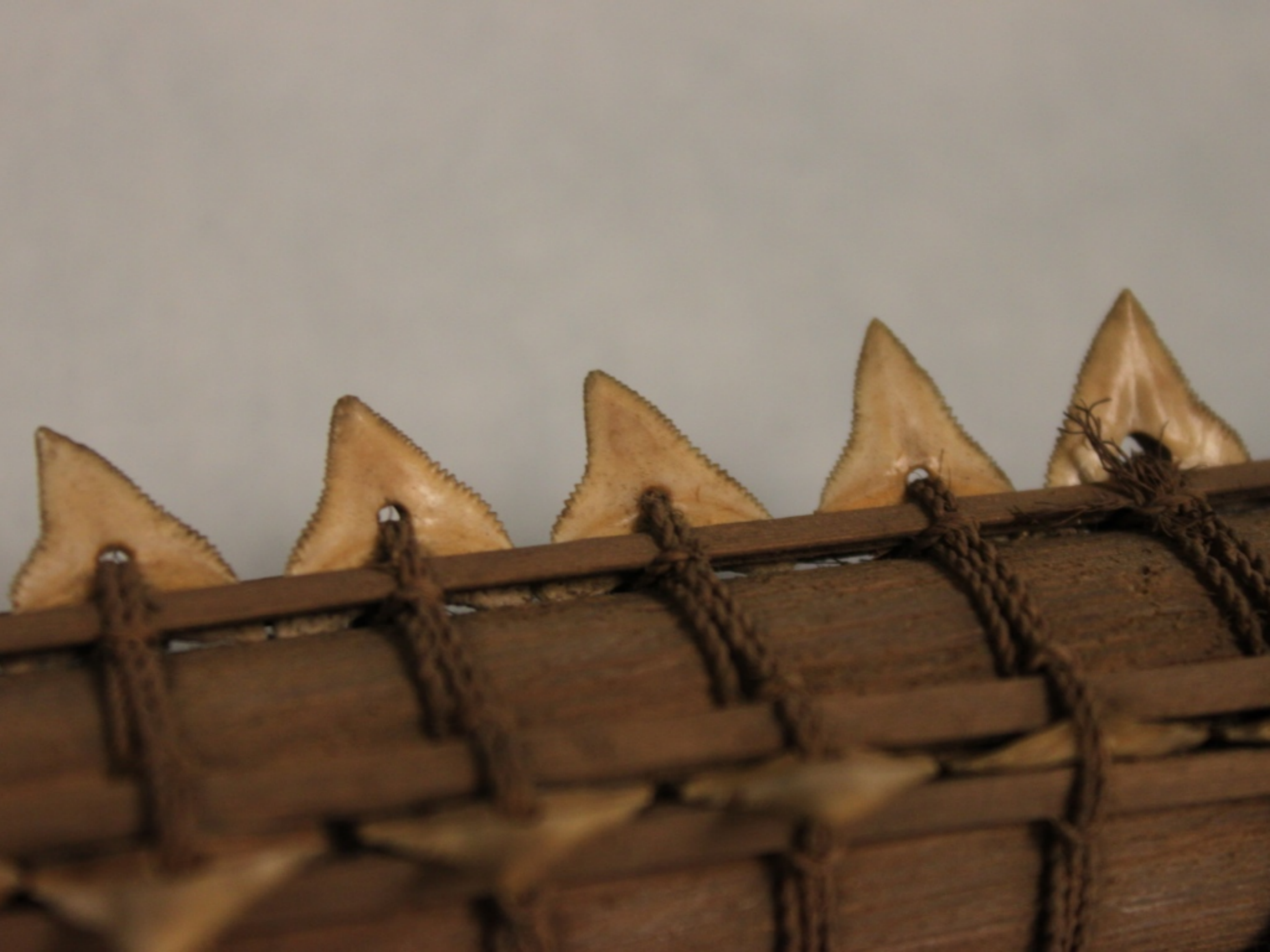




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MUSEUM OF THE UNIVERSITY OF
CAMBRIDGE





COMPARED WITH GUIDES AND ICHTHYOLOGICAL HOLDINGS





RESULTS

- Examined literature records and 124 artifacts
- Identified 19 species of sharks that were present in the Gilbert Islands
 - 15 currently recognized
 - 3 found only in tooth records



C. sorrah



C. obscurus



C. altimus

DISCUSSION

Unlikely that teeth were imported

- Strong material culture of shark fishing
- Sharks were important in rites of passage
- Little linguistic or archaeological evidence for long distance trade

WE NOW KNOW HOW REEFS HAVE CHANGED

- A fundamentally duller environment
- Disconnect between present biodiversity and culturally recognized biodiversity

HOW DOES THIS HELP?

- Recognize how the current ecosystem has been impacted
- Set biologically realistic management plans
- Evaluate how current conservation programs are performing

THANK YOU

- Chris Phillip and John Terrell - Field Museum Anthropology Department
- Mark Westneat - Field Museum Fishes
- Jacki Lacey and Jenny Newell- American Museum of Natural History Anthropology

THE DREW LAB AT COLUMBIA UNIVERSITY



NOW OPEN FOR BUSINESS

