

The background of the slide is a close-up photograph of a dark, textured surface, likely a rock or sediment, covered with numerous fossilized shells. The shells are light-colored, ranging from off-white to light brown, and are scattered across the surface. Some shells are large and circular, while others are smaller and more irregular. The overall appearance is that of a rich fossiliferous site.

# EPICC TCN

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# Eastern Pacific Invertebrate Communities of the Cenozoic

Goal: Digitize 1.6 million marine invertebrate fossils (e.g., crustaceans, bivalves, gastropods, echinoderms) from the Cenozoic of the eastern Pacific Coast



Eon	Era	Period	Epoch	Start Date (mya)	
Phanerozoic	Cenozoic	Quaternary	Holocene	0.01	
			Pleistocene	1.64	
		Tertiary	Neogene	Pliocene	5.2
				Miocene	23.3
			Paleogene	Oligocene	35.4
				Eocene	56.5
		Paleocene	65		





# Collaborators

A map of North America, including parts of Canada and the United States, with several logos overlaid. The logos represent various institutions and museums. The map includes state and provincial abbreviations (e.g., YT, NT, BC, WA, OR, ID, WY, MT, ND, MN, IA, WI, MI, IL, IN, OH, WV, VA, NC, SC, GA, FL, MS, AL, LA, ME, NH, MA, NS, PE, NB) and geographical features like Hudson Bay and the Gulf of Mexico. Blue location pins are placed on the map, corresponding to the locations of several of the institutions.

**UNIVERSITY OF ALASKA**  
**MUSEUM OF THE NORTH**

**Burke MUSEUM**

**PALEONTOLOGICAL RESEARCH INSTITUTION**

**UCMP**

**MUSEUM OF NATURAL AND CULTURAL HISTORY**

**UC RIVERSIDE** UNIVERSITY OF CALIFORNIA

**CALIFORNIA ACADEMY OF SCIENCES**

**the nat** | SAN DIEGO NATURAL HISTORY MUSEUM

**THE COOPER CENTER**  
A partnership of OC Parks & Cal State Fullerton

**NATURAL HISTORY MUSEUM**  
LOS ANGELES COUNTY

**Smithsonian National Museum of Natural History**

**The Academy of Natural Sciences of DREXEL UNIVERSITY**



# Goals have been met

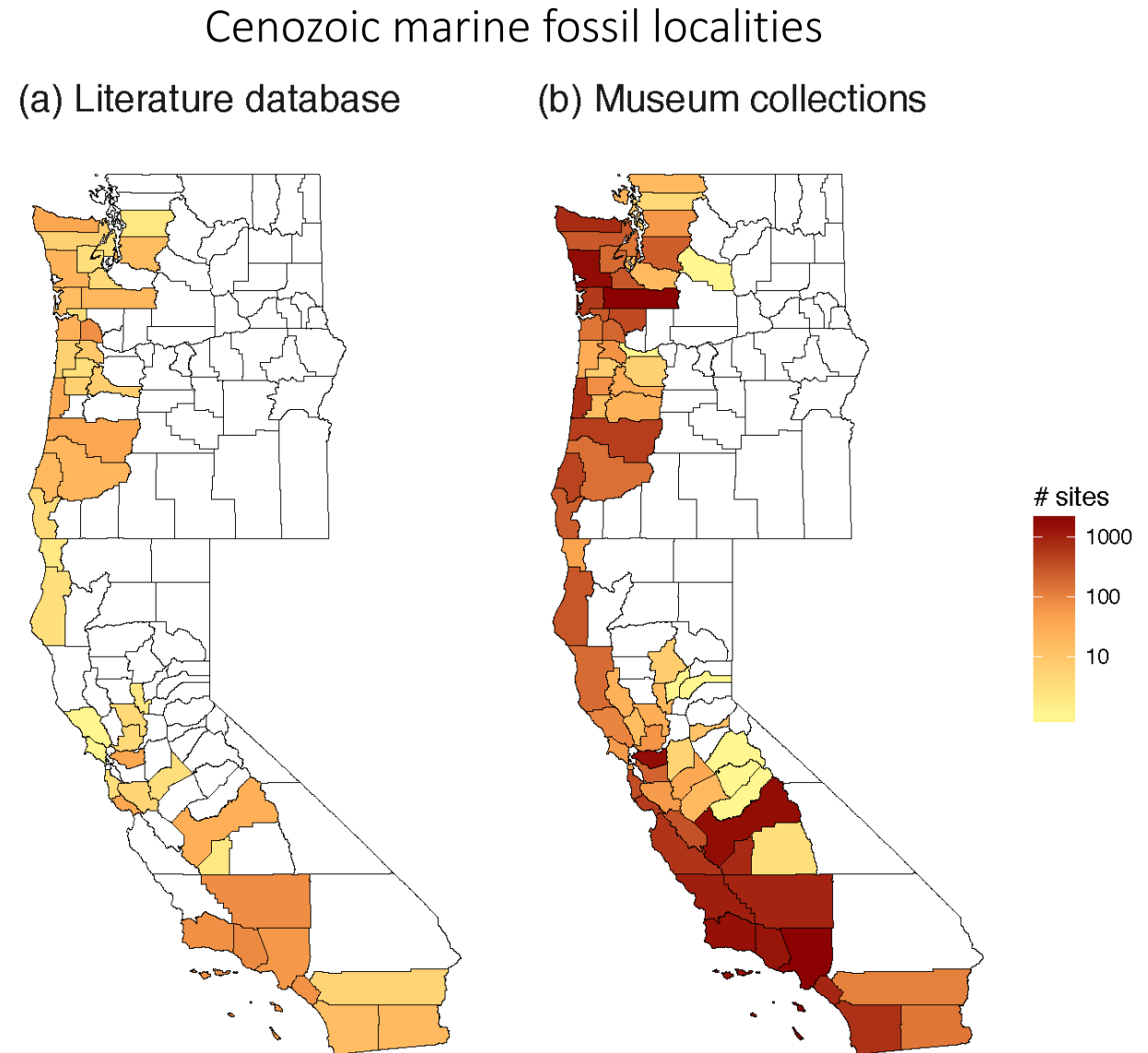
- *Specimens digitized:*  
1.94 million (119% of goal)
- *Available in iDigBio*  
1.76 million (104%)
- *Specimens photographed:*  
137,200 (164%)
- *Localities georeferenced:*  
42,000 (112%)





# Fundamental Advance

TCN enabled us to reveal the dark data in our museum collections – **furthering the second digital revolution in paleontology**



Marshall and 19 others. 2018. *Biology Letters*



# Research enabled by TCN (*in progress*)

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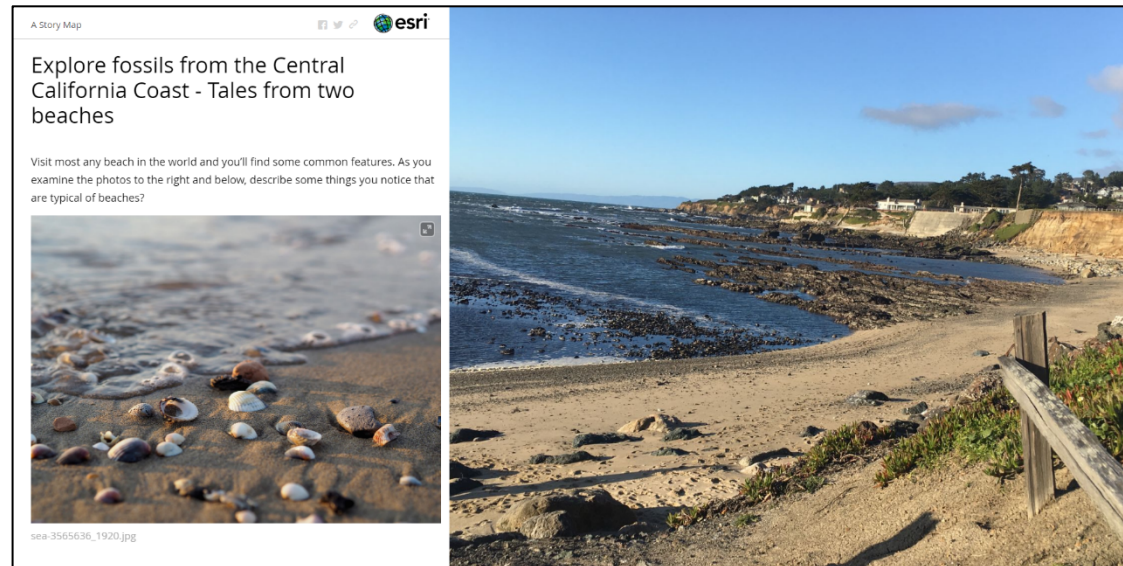
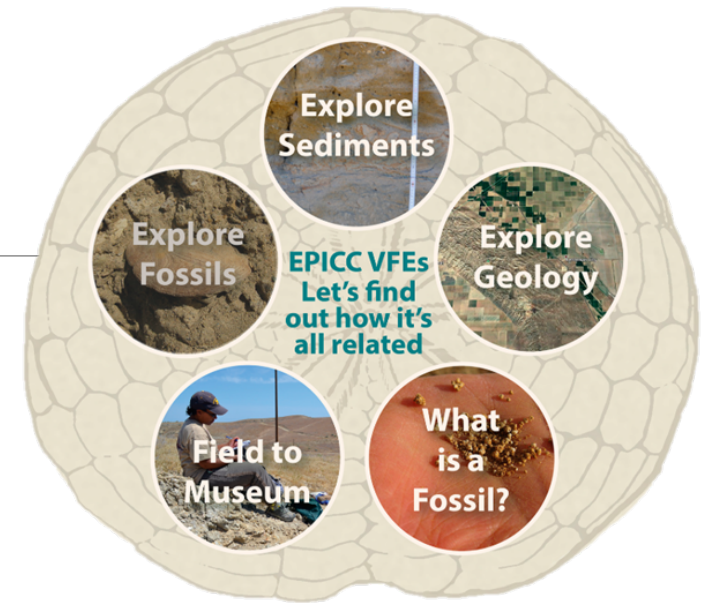
- 1) Latitudinal and temporal change in functional diversity and food webs
- 2) Sampling biases of invertebrate vs. vertebrate localities
- 3) Biogeographic history of Alaskan terranes (southern micro-tectonic plates that slammed into Alaska)





# Virtual Field Experiences (VFEs)

- Four exceptionally rich fossil deposits
- Teaching aid: **From the field – to the museum – to research discovery**







# Acknowledgements



- PIs, staff, students, and volunteers
- iDigBio staff and resources
- NSF DBI awards 1502500, 1503065, 1503545, 1503611, 1503613, 1503628, 1503678

