



Mozy Outdoors

SHARK TOOTH ISLAND FIELD GUIDE

An Expedition Logbook for the Cape Fear River


STATION: 34.0522° N, 77.9067° W 

DATE: [STAMP HERE]

COUNTY: New Hanover, NC 

FIELD STATION
77B

APPROVAL

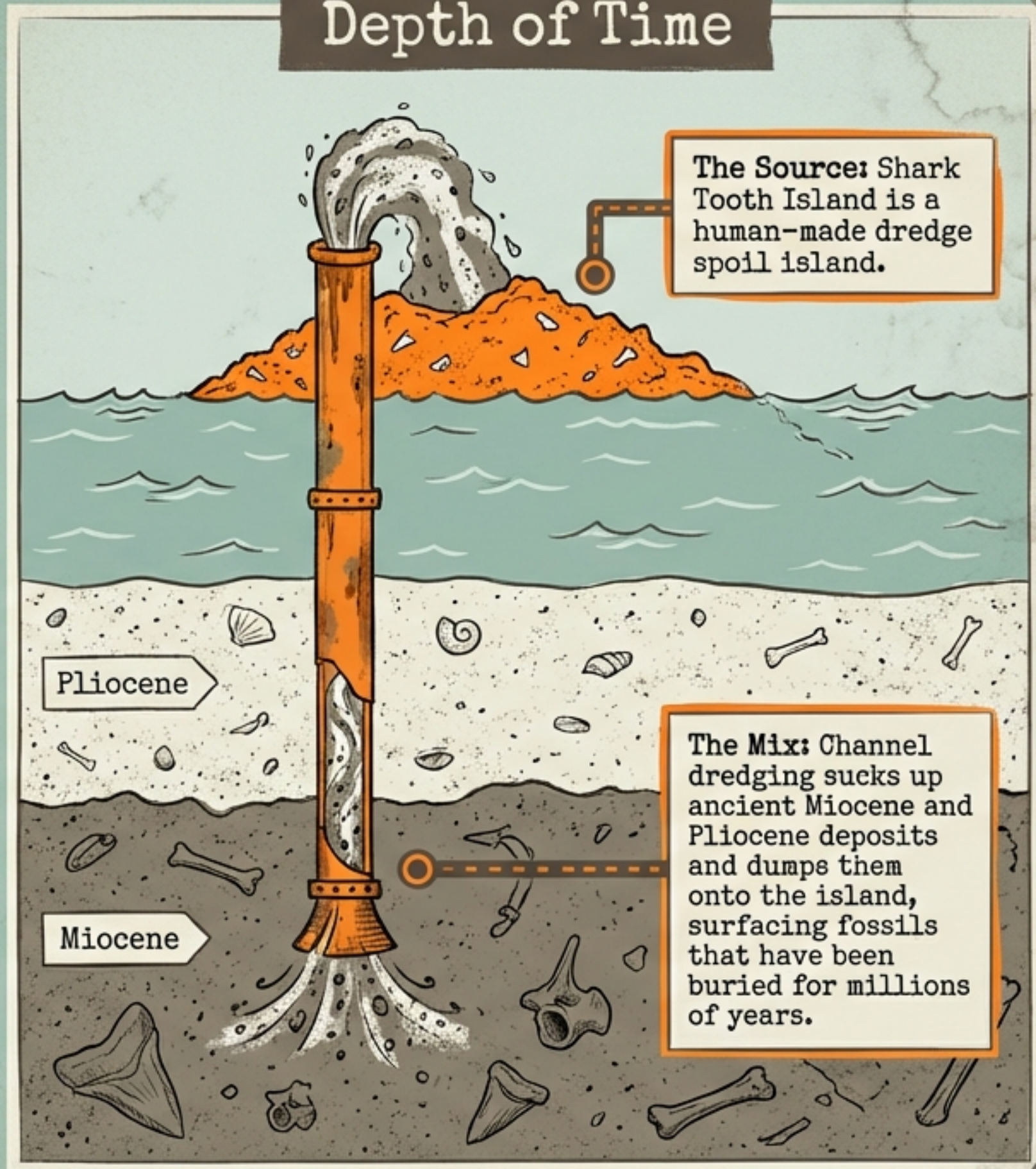
SUBJECT: Miocene & Pliocene Fossil Recovery 





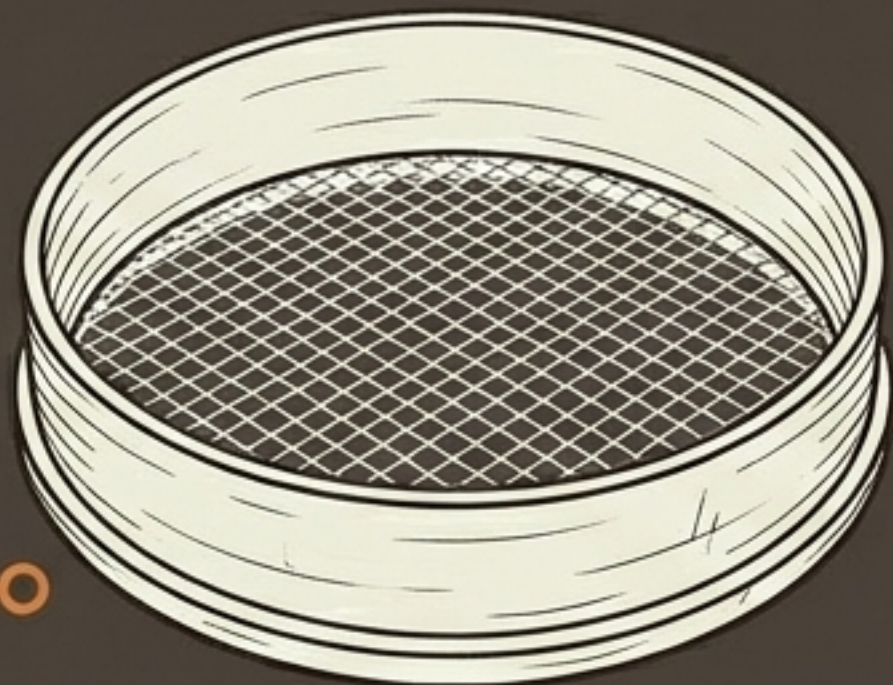
Date _____ Time _____
 Tide _____
 Observer _____

Depth of Time



PRE-EXPEDITION
INVENTORY

Mesh Sifter: Essential for separating heavy fossil lag from loose sand.



Water Shoes: Hard-soled protection. The shoreline sediment is rough, sharp, and packed with broken shells.



Dry Bag: For securing your phone and safely stowing fragile discoveries.



Bug Spray & Water: The interior offers shade, but biting insects are common. Bring more water than you think you need.



Tidal Hunt Window

High Tide: Island shrinks, fossil layer underwater.

Low Tide (Action Window):
e.g., +0.57 ft MLLW.
The dark waterline sediment is fully exposed.

Time the Tide, Not Your Schedule.
Plan to arrive exactly at low tide. Allow 3-4 hours minimum for a true hunt. Check river tide tables, not ocean beach tables.

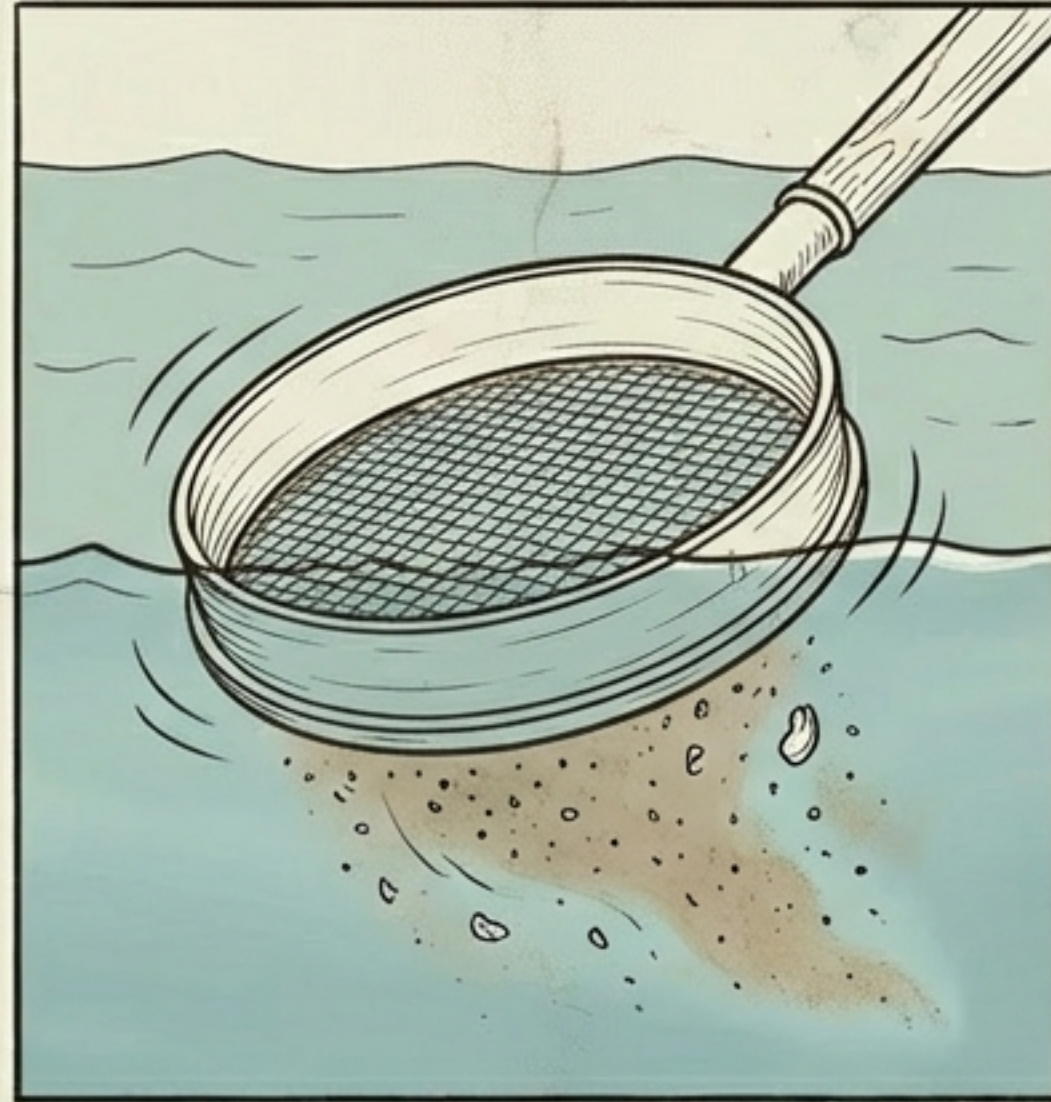
Date _____ Time _____
Tide _____
Observer _____

STEP 1: SCOOP



Target the dark waterline sediment where heavy fossils concentrate.

STEP 2: SIFT



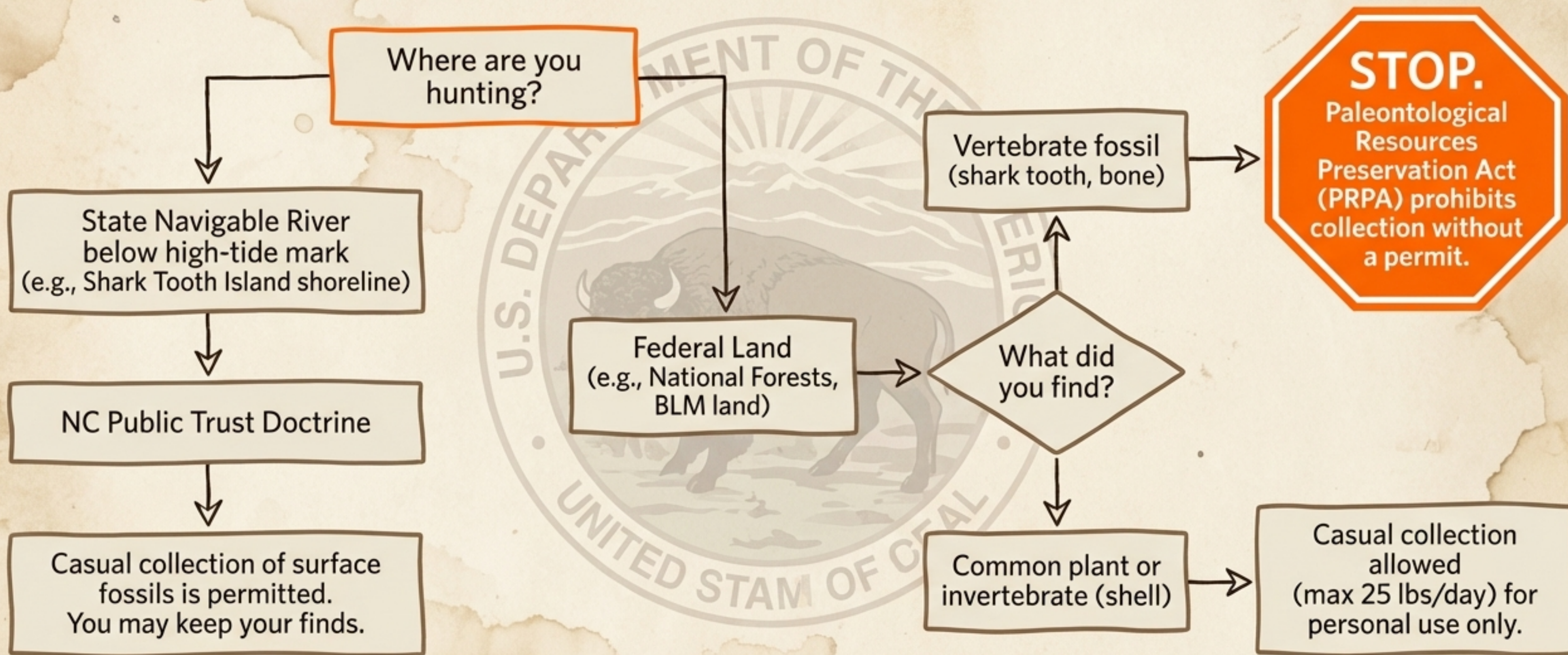
Wash away the loose sand and light, modern shells in the river water.

STEP 3: SCAN



Ignore brown or white fragments. Look for flat, smooth surfaces and dense, black triangular silhouettes.

Can I Keep It? Field Ethics & Law

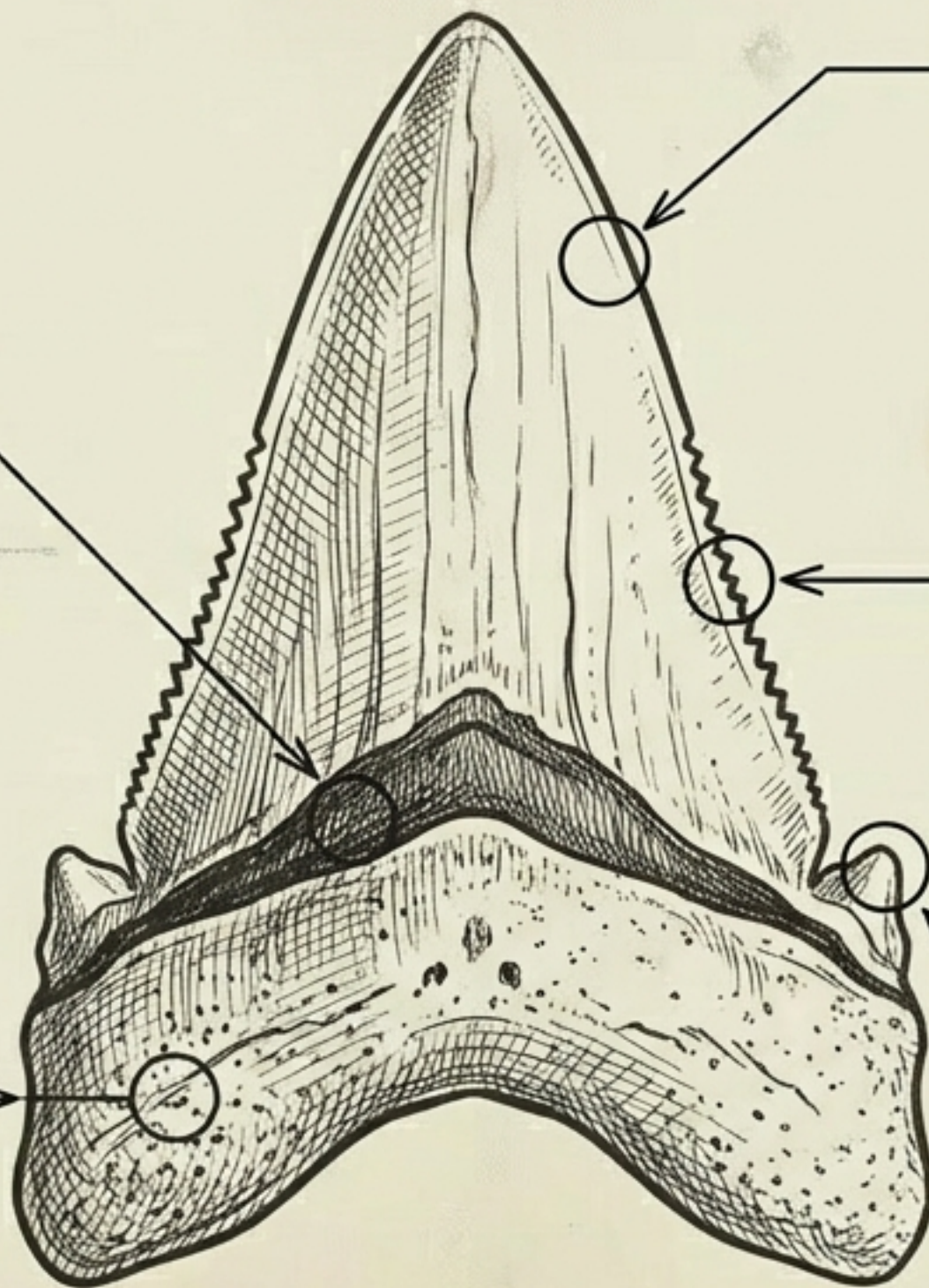


THE GOLDEN RULE: Never sell fossils collected on public lands.

EXTINCT SHARK TOOTH ANATOMY

BOURLETTE: The dark, chevron-shaped band of dense tissue between the root and the blade.

ROOT: The porous, often V-shaped base that attached to the jaw.


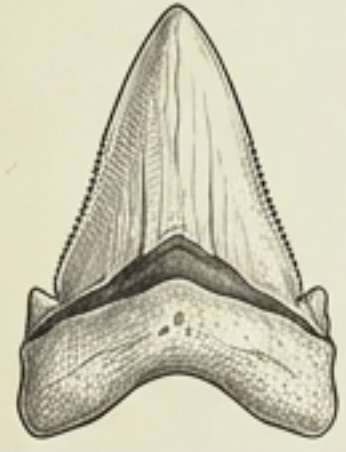



CROWN (BLADE): The main enameled cutting surface. Look for a flat, smooth texture.


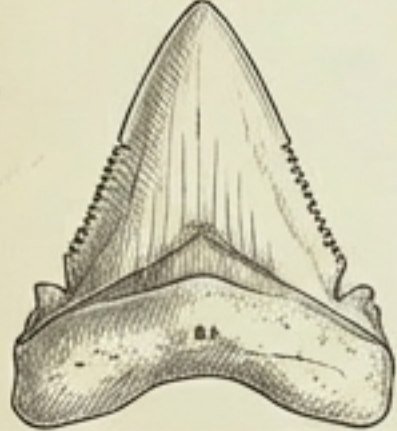
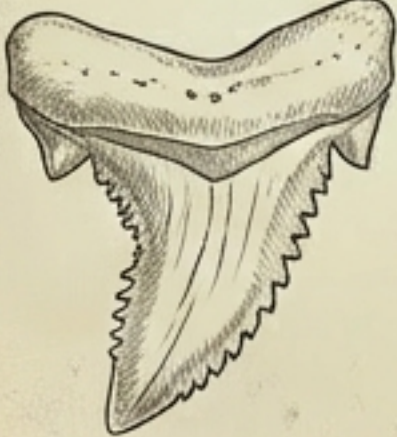
SERRATIONS: The jagged, saw-like edge (presence, absence, or coarseness is key for ID).

CUSPLETS: Small, secondary mini-teeth sitting at the base of the main blade.

Diagnostic Matrix 1: The Apex Predators

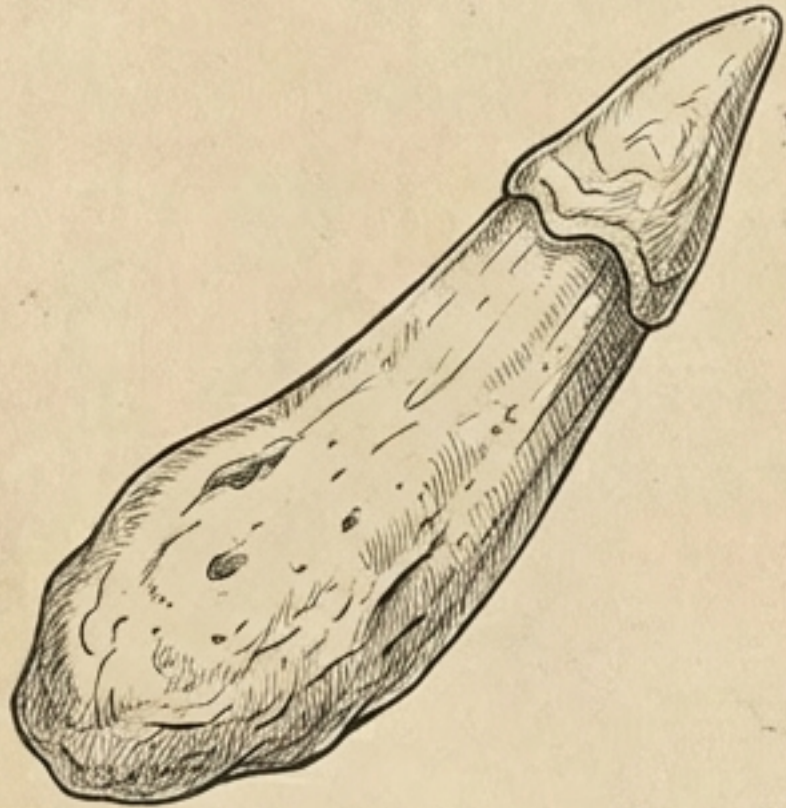
Silhouette	Species	Epoch	Size Range	Diagnostic Features
	Megalodon (<i>Otodus megalodon</i>)	Miocene- Pliocene	25-175 mm	Massive triangular blade, distinct bourlette, fine serrations. (Juveniles common; adults rare).
	Great White (<i>Carcharodon carcharias</i>)	Pliocene- Recent	30-65 mm	Coarsely serrated margins, NO bourlette. (Often confused with small megalodons).
	Broad-Tooth Mako (<i>Cosmopolitodus hastalis</i>)	Miocene- Pliocene	40-75 mm	Broad, smooth-edged blade with zero serrations. (Ancestor to the modern great white).

Diagnostic Matrix 2: Common & Trophy Finds

Silhouette	Species	Epoch	Size Range	Diagnostic Features
	Tiger Shark (<i>Galeocerdo cuvier</i>)	Miocene-Recent	20-40 mm	Unmistakable hooked, deeply notched profile with heavy secondary serrations.
	Bull Shark (<i>Carcharhinus leucas</i>)	Pliocene-Recent	15-25 mm	Broadly triangular, heavy serrations. Look for tiny cusplets on the side to differentiate from Dusky sharks.
	Snaggletooth (<i>Hemipristis serra</i>)	Miocene	30-50 mm	Curved blade with exceptionally large, distinctive coarse serrations. A rare trophy find.

Beyond Sharks: Specialized Teeth

Squalodon (Shark-Toothed Whale)



Extinct medium-sized whale with a long snout. Unlike sharks, these teeth have massive, swollen roots compared to the crown.

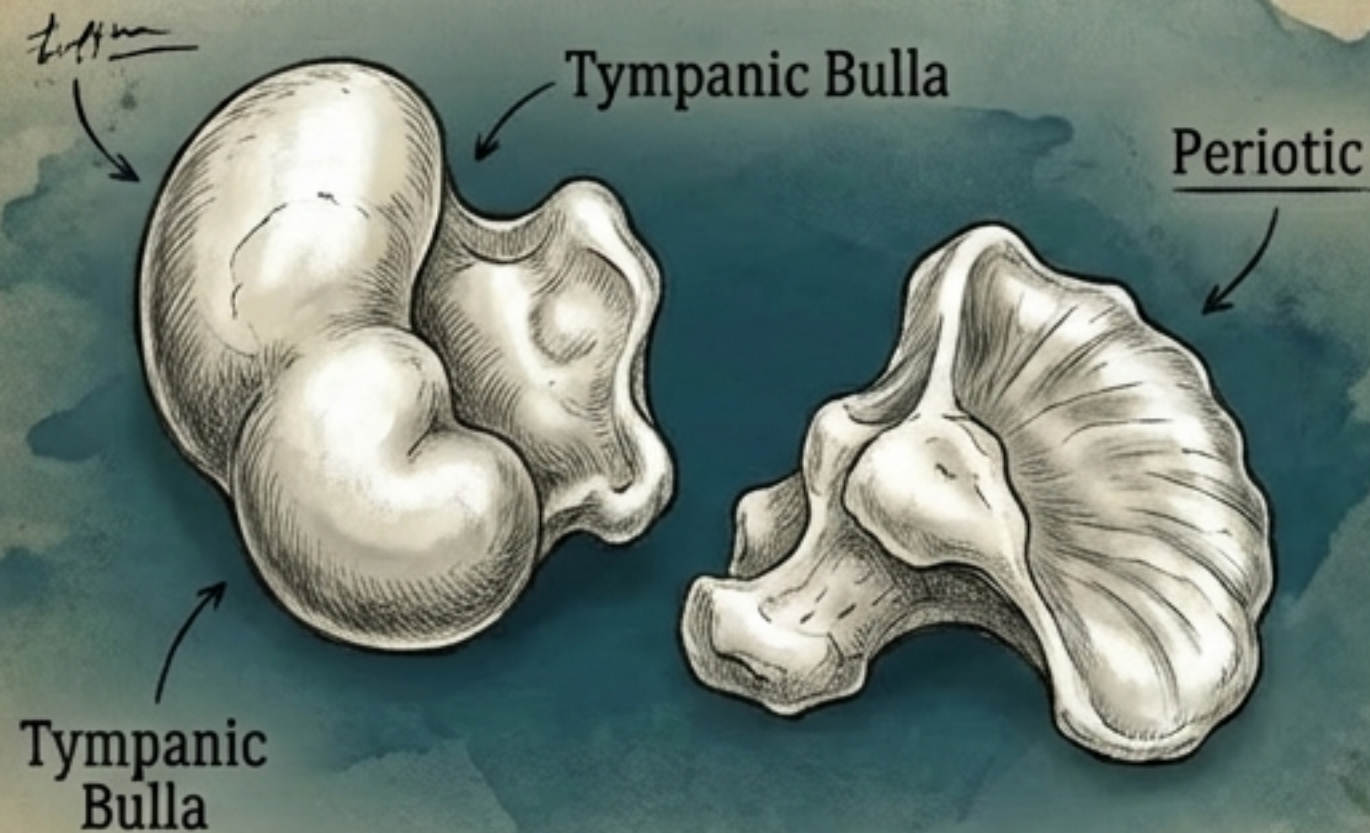
Crocodile



Pungo River/Yorktown formations occasionally yield croc teeth. Look for the robust cone shape and heavy vertical ridges, completely lacking the flat blade of a shark.

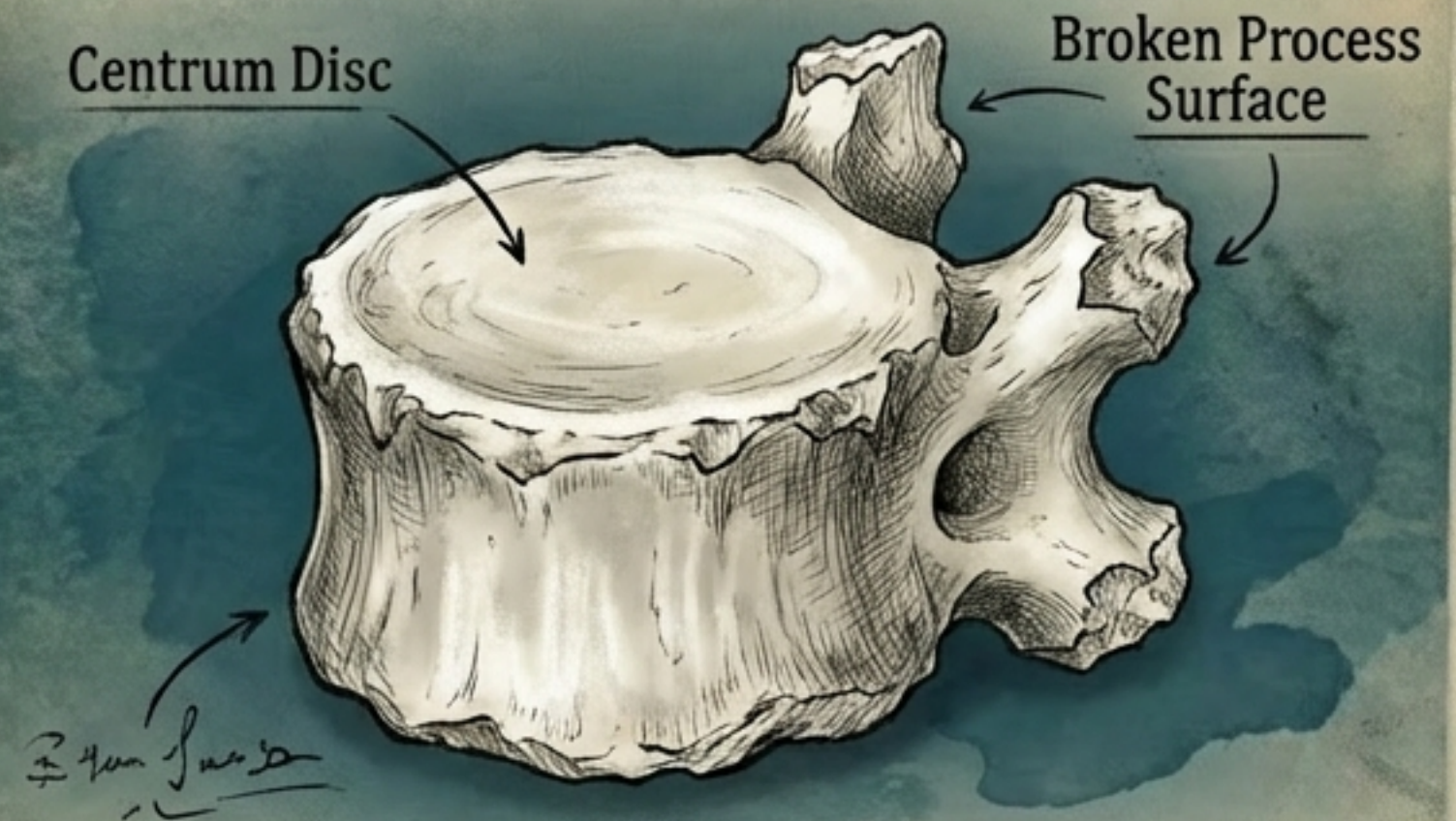
IDENTIFYING MARINE MAMMAL BONE

Dolphin Ear Bones (Tympanic Bulla & Periotic)



These are the densest bones in a dolphin's body and survive fossilization best. Look for the distinct lobed shape. If it feels unusually heavy for its size, it might be an ear bone.

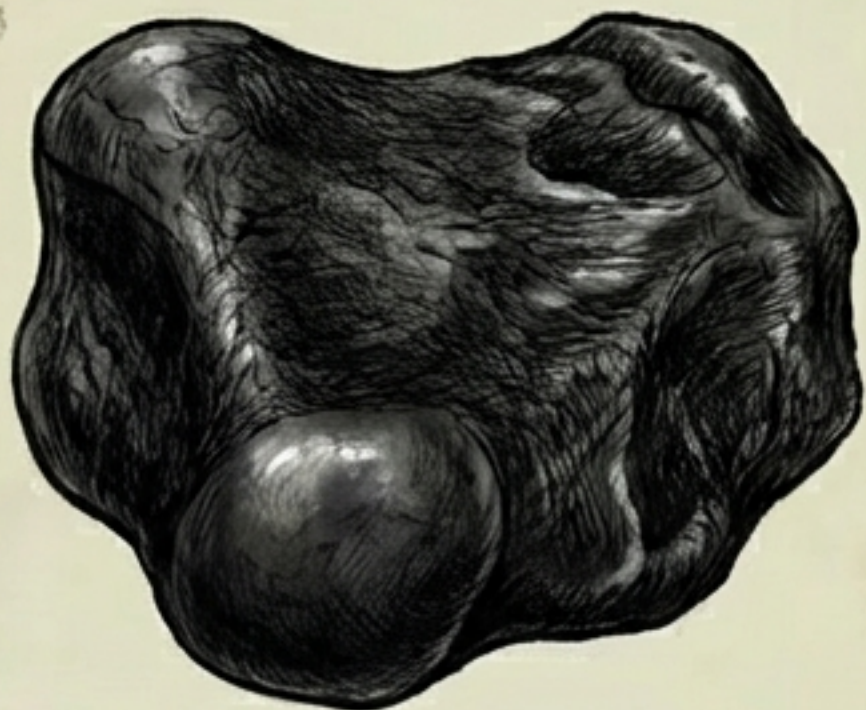
Whale Vertebrae



Baleen whales from the Miocene left massive vertebrae. Usually, the delicate processes break off in the surf, leaving only the heavy central disc.

Field Test: Fossil vs. Shell

The Fossil Fragment



- Dense, surprisingly heavy in the hand.
- Deep black, charcoal, or dark brown (due to phosphate replacement).
- Often smooth on the surface, solid throughout.

The Modern Shell/Debris



- Light, brittle, easily snapped.
- White, tan, or gray.
- Chalky, porous, or layered.

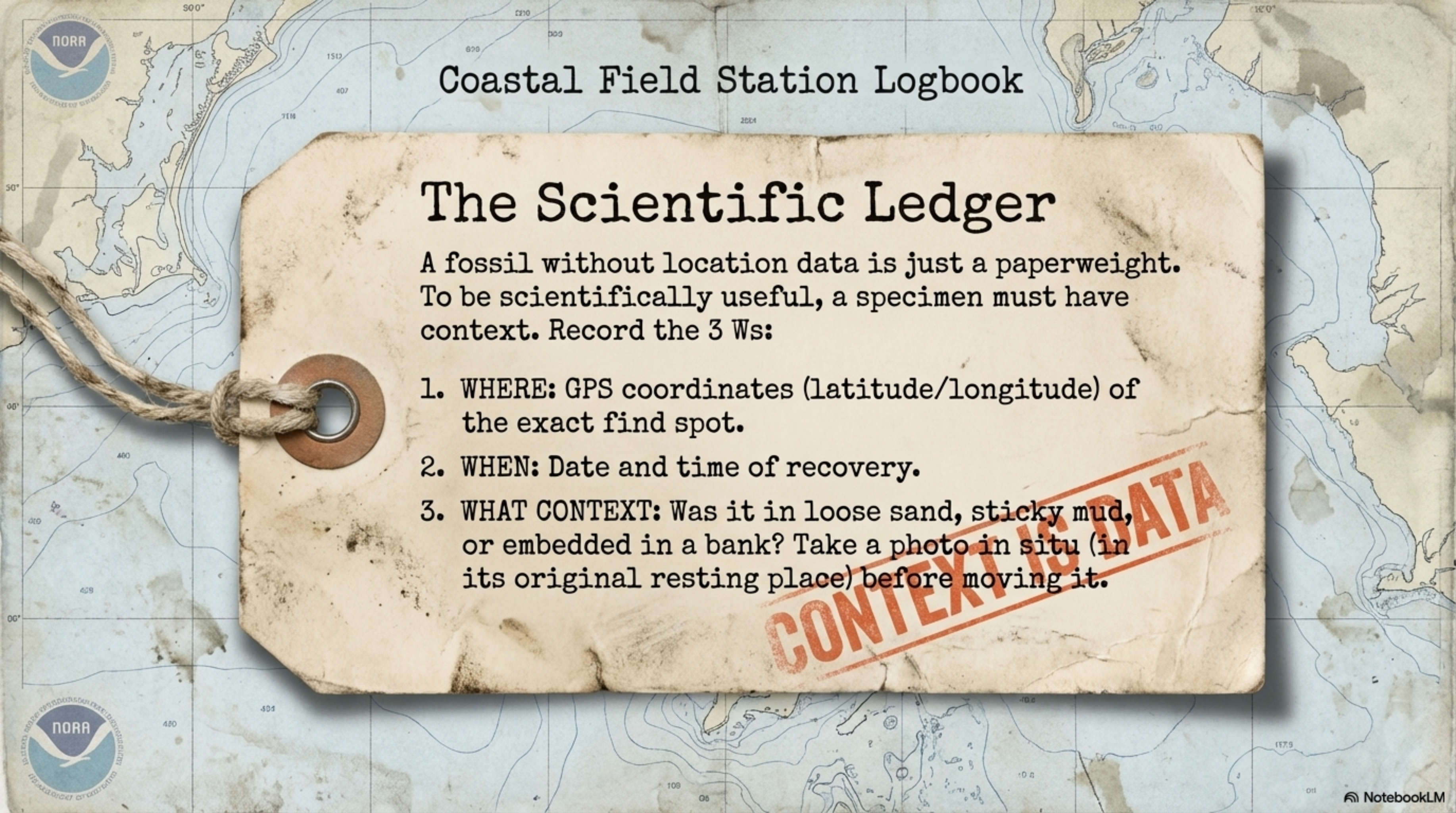

RULE OF THUMB: If it's light, white, and brittle, let it go.
If it's heavy, black, and dense, look closer.

READING THE SCARS: EVIDENCE OF PREDATION



Fossils aren't just objects; they are records of violent interactions.

- Key Insight: Many whale ribs and bulla found in these deposits show distinct puncture or scrape marks. Vertical, parallel scrapes (sometimes showing serration patterns) indicate scavenging or active hunting by giant Miocene sharks like Megalodon.
- Takeaway: Examine the surface of every bone fragment. A broken rock might actually hold the bite marks of an apex predator.



Coastal Field Station Logbook

The Scientific Ledger

A fossil without location data is just a paperweight. To be scientifically useful, a specimen must have context. Record the 3 Ws:

1. **WHERE:** GPS coordinates (latitude/longitude) of the exact find spot.
2. **WHEN:** Date and time of recovery.
3. **WHAT CONTEXT:** Was it in loose sand, sticky mud, or embedded in a bank? Take a photo in situ (in its original resting place) before moving it.

CONTEXT IS DATA

The Ethical Explorer

LEAVE IT BETTER

Pack out everything you bring in. Shark Tooth Island is a raw natural environment with no facilities.

Respect the shorebirds and wildlife.

PROTECT THE RARE

If you discover fossils still embedded in rock, or an articulated skeleton (bones connected together), DO NOT DIG.

Excavation destroys delicate specimens. Photograph it and report it.

CONTRIBUTE TO THE LEGACY

Scientifically significant finds (new species, articulated skeletons, rare mammals) belong to the public trust.

Contact the NC Museum of Natural Sciences to donate significant discoveries.

[Your discoveries write the history of the Cape Fear River. Hunt responsibly.]