

Beach Stratigraphy and a Mock Sea Turtle Nest

Goal: The goal of this exercise is to develop a three dimensional mental and visual image of layering (stratigraphy) in the backbeach, the morphology of a sea turtle nest, practice tool usage, and practice note-taking skills.

Objectives:

- The student will measure a square 1 m on a side on the beach.
 - The student will excavate the quadrat along horizontal planes.
 - The student will sketch the trench in his/her notebook.
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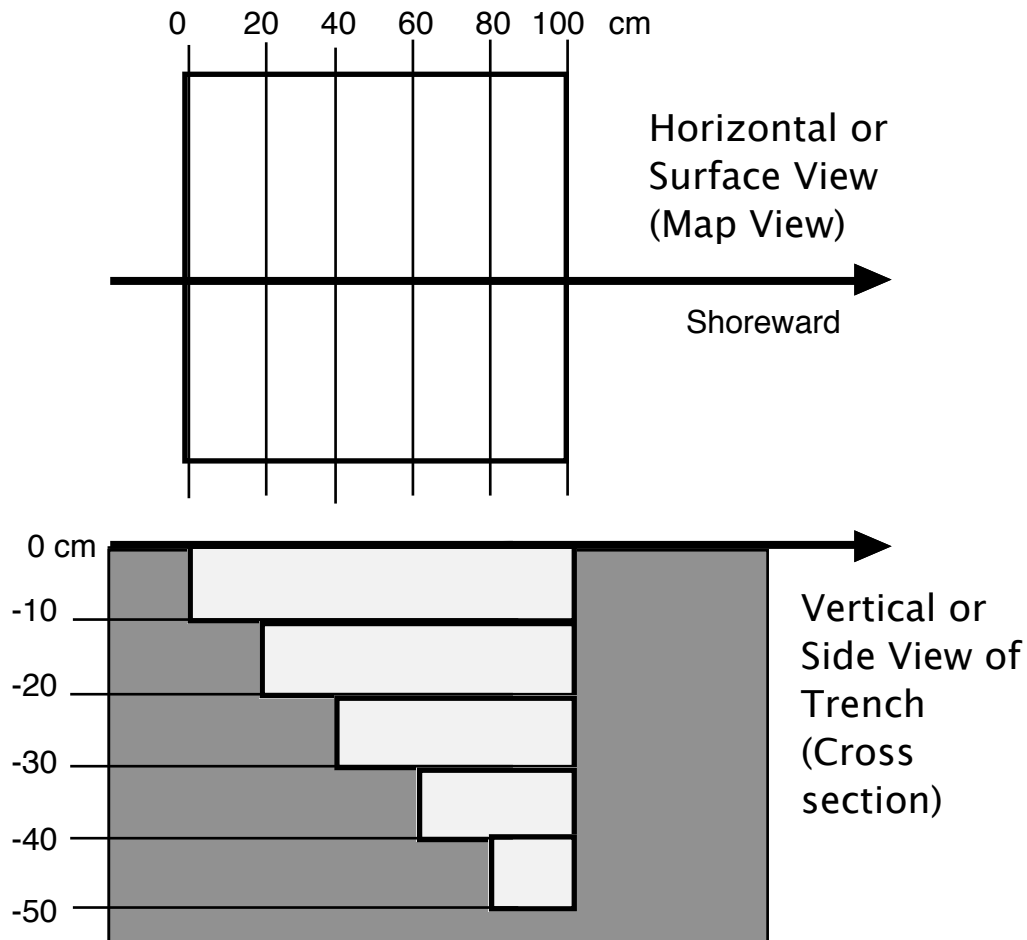
Materials:

- Tape measure
 - Shovel, trowel and/or Palm Frond
 - Field Notebook
 - Pencil
 - C-Thru Scale
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Procedure:

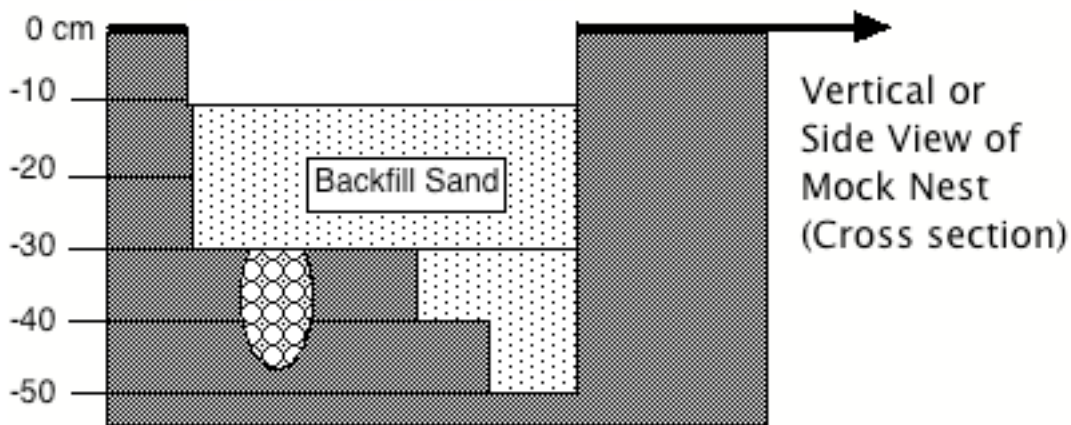
1. Select a site on the backbeach approximately 1-10 m in front of the storm scarp. Divide students into two or more groups.
2. Measure a square 1 meter on a side and mark its corners and edges.
3. Draw lines in the sand across your quadrat every 20 cm parallel to the shoreline extending the scribed lines beyond the edges of your square.

4. Excavate the entire square meter to a depth of 10 cm using the edge of a small shovel or trowel, trying to dig by horizontal scraping or shaving motions of the tool. Keep your trench walls vertical.
5. Excavate the quadrat in a stair-step fashion to depths of 10 cm, 20 cm, 30 cm, 40 cm, and 50 cm. [If the sand doesn't change in color or texture, dig the 50 cm level down another 10 or 20 cm until you hit "different" sand.]



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4. Scale off a square meter in your notebook and sketch the pattern exposed on each horizontal terrace in your trench.

- When satisfied with your sketch; excavate the 10 and 20 cm surfaces down to the 30 cm level; Then, using your shovel vertically, dig a 20 cm diameter hole about 20-25 cm into the 30 cm terrace at any position you choose [to represent a sea turtle egg chamber]; backfill your “false egg chamber” with 113 ping pong balls and packed sand and then backfill your trench to the 10-20 cm level and pack down a little.



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- Have your colleagues redig the “nest” using the side of their shovel, trowel, or palm frond. The backfilling of the trench represents the loose surficial sand disturbed (bioturbated) when a turtle nested. How do you tell when you go from “bioturbated” sand into non-bioturbated sand?
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- Scrape the 30 cm terrace level clean of bioturbated sand and sketch the result of exposing the “egg chamber discontinuity” lying beneath the bioturbated sand of the “body pit” extending into the underlying undisturbed active beach.
 - How does the inactive beach differ from the active beach?

Time Frame: 2-3 hours

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