



Sea Gopher

Pictured on the opposite page is a sea gopher, which is a type of sand dollar (Phylum Echinodermata, class Echinoidea). Like the sea urchin, sand dollars have no arms or legs. These creatures move around by tiny spines on their body. Sand dollars are usually found lying in a bed buried under a layer of sand. If a sand dollar is found alive it will appear to have a layer of very fine hair on its body. Sand dollars feed on disintegrating organic material found within sand beds.



Each combing and exploring the coastline lead our staff to find a variety of interesting objects. Our discoveries were photographed and the photos were sent to the staff of the Sea Grant Extension - Floating Classroom Program of Texas A&M University for identification. (To learn more about the Sea Grant Program visit <http://floatingclassroom.tamu.edu> online) William Younger, Coordinator of the Floating Classroom Program and Extension Marine Education

found ON beach

Specialist, and his colleagues helped us identify our photos.

This issue of Found on Beach begins with starfish. The starfish, pictured to the left at top of page, is an echinoderms (spiny skinned marine animals). Although these invertebrates have "legs" their primary means of travel (locomotion) is through the spines found on the bottom where their mouth is also located. This species has only five legs. There are others with multitudes of such appendages. If a leg is severed it will generate a whole new "starfish" from this disconnected part. Years ago the clam fishery of eastern Canada was being decimated by these animals. So, the fishermen not realizing their folly, captured starfish by the boat load cut them into pieces thinking they would die and returned their "carcasses" to the water. This only compounded their problem as the starfish population then exploded exponentially. These animals are pound-for-pound very powerful and can easily open a stubborn clam with their legs. When the clam shell is pried open, the starfish casts its stomach out its mouth and around the clam "meat" and begins digesting it externally.

We continue our combing and find one half of a sand dollar. The sand dollar, pictured to left at bottom of page, is also an echinoderm. Sand dollars found on the beach are external skeletons (exoskeletons), not living animals. While alive, sand dollars walk along the bottom with hair-like spines and are usually green, golden brown or gray green from algae growth on the exoskeleton. Swimmers can often locate live ones with their bare feet when swimming in the surf.



Open Sea Giant Barnacles

The relatively large size (in relation to other common Gulf species) and the purple color give away its identity and origin. The *Balanus tintinnabulum*, or giant barnacle, is a species found only in the open sea (vs. brackish bay or surf waters near mouths of rivers) where it frequently attaches to ship hulls and oil and/or gas platform legs. Since barnacles feed on plankton found in abundance in the upper reaches of the water column, they must attach to something solid and remain constantly submerged.





Marine Grass Beach Balls

These grass beach balls are made out of submerged marine grass which grows in shallow (1- 3 feet), clear water where it has access to enough sunlight with which to successfully achieve photosynthesis (grow and flourish). It is common to the Gulf Coast where such conditions exist. Its common name is turtle grass. Because it provides excellent habitat (shelter & food) for numerous juvenile life forms (as do all marine grass beds and coastal wetlands), many Gulf states have adopted measures to protect such grass beds by restricting power boat access (props cut it up). It is likely that a quantity of the grass stems broke loose and floated into the open Gulf where they eventually ended up on a beach where they quickly windrowed. A strong wind probably began the "balling" process which ended in the spheres shown.

A Mangrove Seed Sprouting

Pictured here is a sprouting mangrove seed. The important thing to remember is that many terrestrial and semi-terrestrial plants (like mangroves) are distributed throughout their range via ocean currents. Another prime example of this type of distribution can be seen with coconut palms which are also found throughout the tropics- where the seeds (coconuts) wash up. It has been written that Charles Darwin actually spent more of his time studying this type of plant distribution phenomenon than he spent studying evolution. Darwin discovered that cabbage seeds remained viable for several months in seawater (he found these plants growing in Greenland without the hand of man involved in their planting or cultivation). Mangrove seeds have similar capabilities, surviving for months in seawater.

