

COASTAL ECOLOGY – BEACH SEDIMENT CORE

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Welcome. So here we are at our third location at Fort De Soto. We are at what's called a low energy beach system.

And what we'll notice when we pan the camera is that we'll see that there's very little vegetation adjacent to the water; in fact, there's no vegetation out here. There's some vegetation further back on the beach that helps to do the same function as all the plants we've talked about. It helps to stabilize and hold the sand or sediments in place.

The other difference, we call this low energy. And in fact, all of the beaches along the Gulf coast are considered low energy, although it sounds like there's a lot of energy out there because we have something called waves that we haven't had at our other locations. So the mangroves and the sea grasses would not do well at this location because of that wave energy. And what classifies a low energy beach is the height of the waves. So these are relatively small, ripple size waves.

Now, if we were on the east coast of Florida, that's where we would have a high energy beach. Or off the coast of California, for instance, those would be examples of high energy beaches where you have really large waves, waves that are typically used for surfing. So that would be a high energy, versus here. Very low energy, although it looks like a lot of energy because we can physically see how fast the water's moving and crashing against the shore.

The other difference here is the size of the sediments. We don't have the really fine muds and silts. We have really coarser, larger sand particles and crushed shell that makes up the sediment, that makes up the bottom type.

So if we get a close up here we can see this is a much, much coarser sediment than anything else we've encountered. And this would not be conducive to soft-bodied animals to live in this very coarse sediment. They prefer the softer, finer grained muds and silts. So the amount of the diversity of life that we would expect in this low energy system would be less than we would find in the more sheltered and protected mangrove and sea grass communities.

All right, we're going to attempt to take a core sample here to compare the difference in composition to our highly vegetated areas that we've sampled so far. And the first thing I notice, it's very crunchy. It's not a soft, mushy bottom like we've experienced most of the day. We'll see if we can recover some of our sample.

So I don't have a good seal. I'm going to lose my sample quickly here, but you could see the difference in composition. We don't have very much organic matter at all in this sample. So we don't have the plant material that's contributing to the nutrient base and the nutrient source. And we wouldn't expect that on a low energy beach system, or a high energy beach for that matter, because things don't stay in place, they're constantly moving.

But that movement does have advantages, and the advantages are the water movement itself and this wave action contributes a much higher oxygen concentration to the water. So this water is very well oxygenated. It's not stationary. It's low, slow moving. It's moving all the time with the wind and the waves, and that actually provides a very healthy habitat for organisms that need more oxygen for swimming speeds, like the larger fish that we caught here off the beach.

But the composition like we looked at earlier, it's very sandy-- a little bit of sand, mostly shell hash. A lot of shell, heavier particles making up the sediments here. And this is typical of a beach in Florida that has been renourished. So we bring a lot of this shell in from offshore to renourish the beaches when hurricanes or large storms have come through and washed the sand away, essentially.

So we're going to wrap up today and just thank everybody for visiting us virtually here at Fort De Soto. Hope that you learned a lot and that we've encouraged you to look at a beach a little bit differently the next time you're out enjoying beautiful Florida.