Accretion, the build up of material on the floor of a wetland, is affected by changes in ecology and hydrology. Similarly, the balance between soil accretion, erosion, expansion, and compaction is critical in controlling the long-term stability of wetland ecosystems, especially under changing hydrologic conditions (like sea level rise). In the Everglades, these processes underlie the ability of tree islands to achieve stability under variable hydrologic, climatic, and water management regimes.

The rate at which accretion occurs is a function of the combination of the inputs of both inorganic (sedimentation) and organic material (plant processes) to the soil. Organic material is mostly derived from the growth of plant roots, which provide a matrix to which other soil material can adhere and contribute to soil formation directly upon their death and degradation.

Thus, the continued existence of forested wetlands, like the ones developed here in LILA, depends on the ability of the plants to maintain vertical accretion such that the rate of elevation gain keeps up with decomposition in the soil and increases in water level.

Sediment erosion tables (SETs) have been used to quantify soil accretion and elevation change in a number of different wetland ecosystems and to explore relationships between accretion and biotic and abiotic processes. These are new devices that are just now being placed in LILA and have been deployed on Tree Islands in the Everglades and Coastal Wetlands along Florida Bay.