

## Monitoring Plan

The monitoring plan included both Physical and Biological components.

Physical Monitoring - The physical monitoring program addressed three needs: (1) Performance related, (2) Public information, and (3) Park management.

## Performance Related Monitoring Needs

The primary performance related monitoring need is associated with the performance and evolution of the system, especially the sand flows and beneficial and adverse effects of the placement. Monitoring is particularly valuable to assist in understanding the natural system and to fine-tune later maintenance nourishment projects. Detailed needs are discussed below.

Profile and Planform Evolution - Repeated profile surveys serve to document the three-dimensional changes in the nourishment volumes. Usually sand is placed on a profile that is steeper than the equilibrium profile. The equilibration process occurs as a result of storms which mobilize the sediment at greater and greater depths. Associated with this equilibration process can be a substantial change in shoreline position that is not related to sand flow laterally along the beach. Documented volumetric changes along with an estimate of longshore sediment transport at one location allow determination of the rates of sand flow as a function of alongshore distance. A sufficient number of profiles should be measured to allow definition of anomalous features, such as the rhythmic planform features that can be fairly accentuated at some locations; an example is Perdido Key.

Wave Measurements - The wave characteristics relevant to sediment transport include: height (or energy), period and direction. Results obtained from a directional wave gage provide such data and allow much better interpretation of volumetric changes and profile adjustment. Available wave measurements also facilitate interpretation of storm effects including any documented difference between the effects to nourished and control areas.

Wind and Precipitation Measurements - Following nourishment, generally there will be a fairly broad expanse of dry sandy beach. Onshore winds blowing