Assessment of nourishment impacts to beach habitat indicator species

Introduction:
Beach nourishment is intended to mediate loss of property, improve storm protection, enhance tourism, and replace eroded habitat. The ghost crab (Ocypode quadrata), the mole crab (Emerita talpoida), and the coquina clam (Donax spp.) are considered indicator species for beach habitat. These animals provide ecological functions including cycling of organic matter and providing a food source to fish and birds. Little is known, however, about the general ecology of these organisms, and even less is known about the quantitative impacts of beach nourishment on them.

Objectives:

1. Quantify temporal and spatial differences in abundance and size distributions of beach indicator species;
2. Quantify the effects of beach nourishment on indicator species.

Approach:
We are conducting a field sampling program to quantify spatial and temporal patterns in the abundance and size distributions of the target species on nourished and un-nourished beaches. Effects of nourishment will be assessed using a Before-After-Control-Impact (BACI) sampling design and multivariate statistics will be used to examine relationships between measured environmental variables and abundance of the target species.

Benefits:
This project will fill information gaps regarding basic ecological information on the temporal and spatial distributions of common, but important beach fauna, and elucidate the little-known effects of beach nourishment on these organisms. Collectively the data will provide information to managers for more effective decision-making concerning timing and placement of sand to minimize effects to beach fauna, as well as to predict effects of nourishment and trajectories of recovery of these organisms.

Location:
Intertidal beaches along the east (Indian River Co.) and west (Pinellas Co.) coast of Florida

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