Photos: Arthur C. Schwarzschild

Divers explore the seagrasses off the coast of Florida.

Is there a complete loss of genetic diversity for populations of seagrass *(Thalassia testudinum)* at the species margin?

Introduction:

Thalassia testudinum is a top successional species of seagrass in marine and estuarine waters around Florida. Disappearance of this and other seagrasses can lead to a complete shift in ecosystem stability and function, negatively affecting organisms dependent on the nursery ground, sediment stabilization and other functions that seagrasses provide. T. testudinum reproduces sexually and asexually. Asexual reproduction is important to species persistence because ecologically successful genotypes retain or even expand population space through clonal expansion. Sexual reproduction propagates new genotypes with unique adaptations into new or disturbed areas. The fringe area of a species provides an optimum location to explore mechanisms of population persistence and expansion.

Objective:

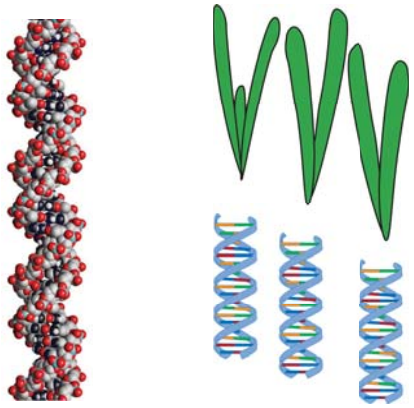
Quantify the level of genetic diversity of *Thalassia testudinum* populations at the geographic center and the species margins across Florida.

Approach:

Maternally and paternally inherited DNA segments are analyzed to establish the genetic identity of individuals within a population. Establishing the genetic identity of all members of the populations allows an estimation of the level of genetic diversity and the prevalence of clonality within the population.

Benefits:

This is the first large scale assessment of the genetic diversity of *Thalassia testudinum* around Florida. This plant is economically important because it extends enormous ecological control over areas it inhabits, providing ecosystem services, such as sediment stabilization and nurseries for many fish species. This study will improve understanding of genetic factors contributing to its persistence, increasing the effectiveness of conservation actions.



Location:

The Indian River Lagoon, Tampa Bay, St. Teresa, Port Saint Joseph Bay, and Perdido Bay.

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Seagrass from a lagoon.

Seagrass from a reef.

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