# GENETIC DIVERSITY OF BENTHIC RECRUITS IN COASTAL MARINE ECOSYSTEMS AND ITS RELATION TO METEO-OCEANOGRAPHIC PATTERNS

Natália Brandão Vieira
(natalia.brandao.vieira@usp.br)
Supervisor: Prof. Dr. Angelo Fraga Bernardino
Federal University of Espírito Santo – Department of Oceanography and Ecology

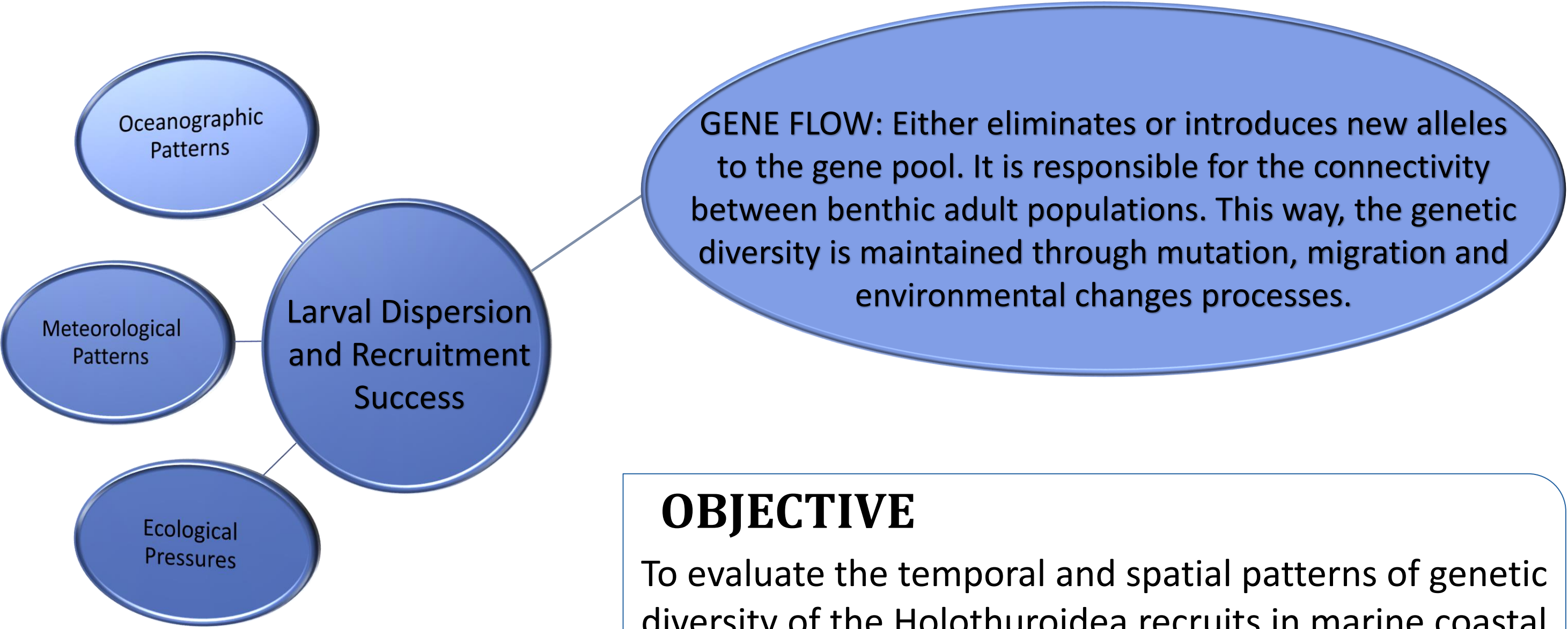**UFES**
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BACKGROUND

Rocky reefs ecosystems are abundant in coastal regions from all over the world and their respective animal communities are under the influence of the physical environment variations, which happens especially in the intertidal zones. These coastal habitats receive a great nutrient supply from terrestrial and marine sources resulting in a highly productive ecosystem with a singular biodiversity, mainly of benthic invertebrates. In order to understand the community composition and structure, it is highly important to analyze not only the ecological interactions, but also, and mainly, the dispersion dynamics of the different species.
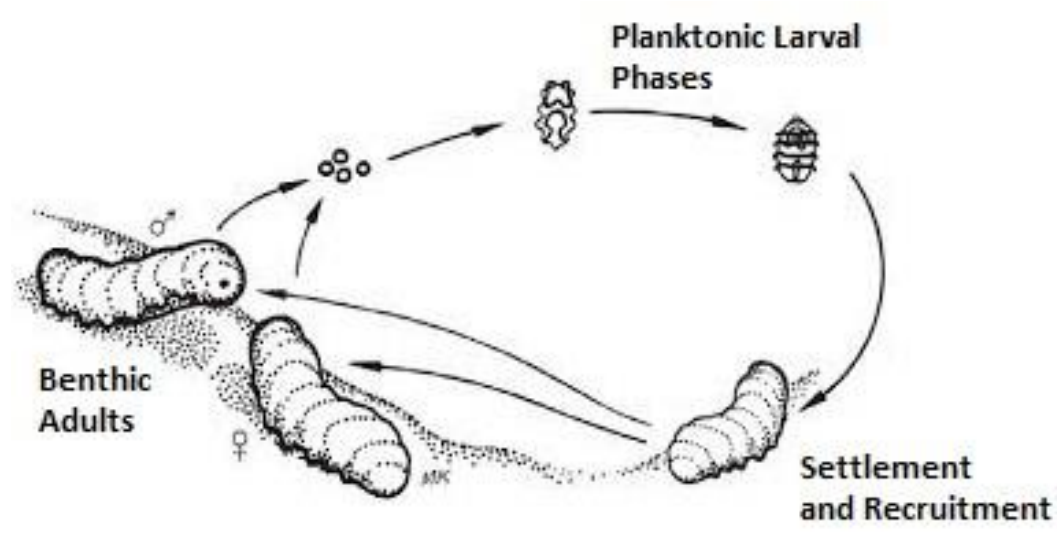
In this context, the identification of genetic diversity and its relation with the recruitment success against meteo-oceanographic patterns are extremely useful and necessary for the understanding of population structucturing and selective pressures acting on them.

Oceanographic Patterns

Meteorological Patterns

Larval Dispersion and Recruitment Success

Ecological Pressures

GENE FLOW: Either eliminates or introduces new alleles to the gene pool. It is responsible for the connectivity between benthic adult populations. This way, the genetic diversity is maintained through mutation, migration and environmental changes processes.
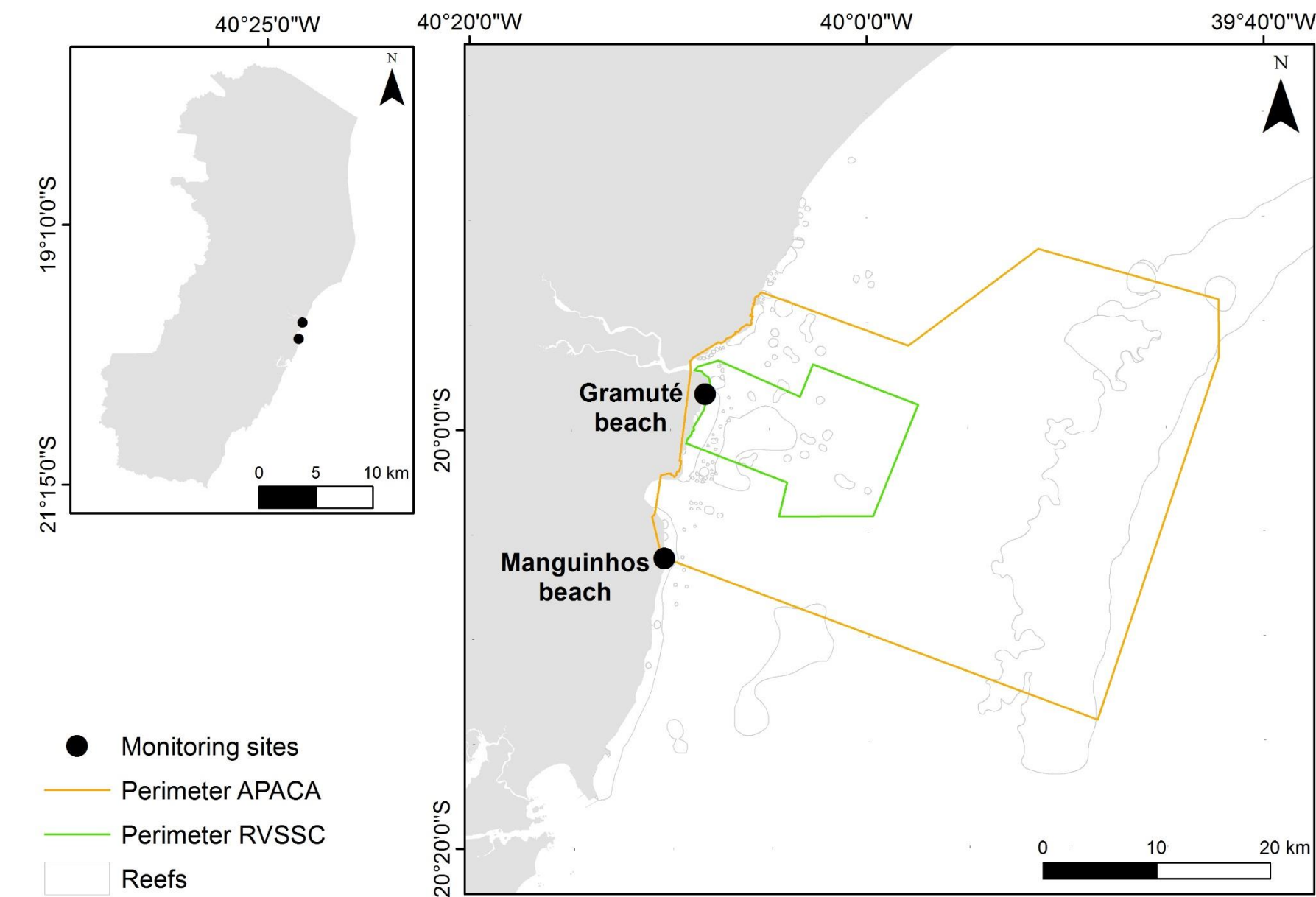
OBJECTIVE
To evaluate the temporal and spatial patterns of genetic diversity of the Holothuroidea recruits in marine coastal ecosystems in a region of Eastern Brazil
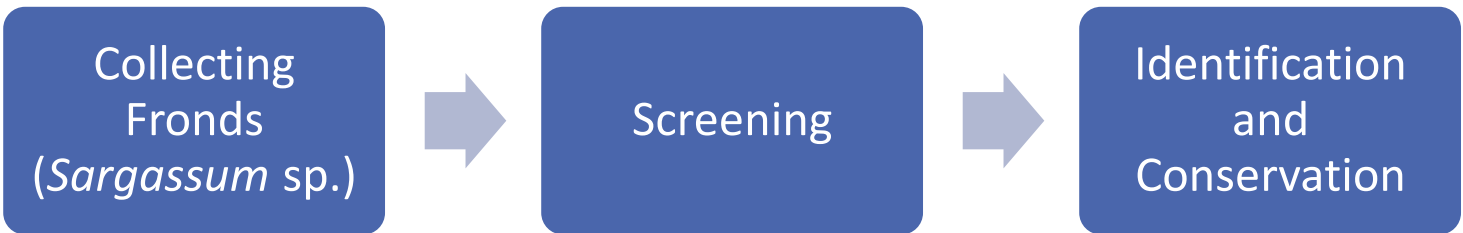
MATERIAL AND METHODS

STUDY AREA

The study area comprises the intertidal zones of rocky reefs of two specific sites: Gramuté Beach (located inside the Environmental Protection Area Costa das Algas – APACA); and Manguinhos Beach.

Monitoring sites
Perimeter APACA
Perimeter RVSSC
Reefs

SAMPLING METHODS

Collecting Fronds (*Sargassum* sp.) → Screening → Identification and Conservation

ANALYSIS

DNA extraction → PCR amplification → DNA Sequencing

The sequences obtained will be submitted into population genetics AMOVA analysis, which considers the different components of molecular variance in association with three different hierarchical levels of the population genetic structure.

They will also be used in the correlation analysis with the meteo-oceanographic data: Water and air temperature, wind, waves and chlorophyll-A concentration.

EXPECTED RESULTS

➢ Provide the DNA sequences for GenBank;
➢ Identify and recognize space-temporal patterns in the larval and recruitment dynamics:
  o Greater genetic diversity when the recruitment is more successful.
  o High connectivity between the two populations studied.
  o High association between the recruitment and the meteo-oceanographic patterns.
➢ Provide data for the Environmental Protection Area management and sustainable use.

ACKNOWLEDGMENTS