



**Case study: cultivation of scallop *Nodipecten nodosus* (Linnaeus, 1758)
in Ilha Grande, RJ, Brazil**

**Estudo de caso: cultivo da vieira *Nodipecten nodosus* (Linnaeus, 1758)
na Ilha Grande, RJ, Brasil**

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1 INTRODUCTION

The mariculture of Rio de Janeiro has as one of the main representatives the malacoculture, and in the State of Rio de Janeiro the cultivation of the scallop *Nodipecten nodosus* is the most significant. The massive mortalities at sea and the scarcity of seeds of the species have been challenging, so it is vitally important to reproduce the organism in the laboratory to meet the demand for seeds for mariculturists.

In 2020, the Laboratory of Research and Production in Sustainable Mariculture of Bananal beach, of the Faculty of Oceanography of the State University of Rio de Janeiro (UERJ), was installed in Ilha Grande - RJ, with the initial intention of producing raw material from scallops for research aimed at malignant neoplasms (cancer) and supplying seeds to local mariculturists. The production involves microalgae production, assisted reproduction, larviculture and fattening phase in the air.

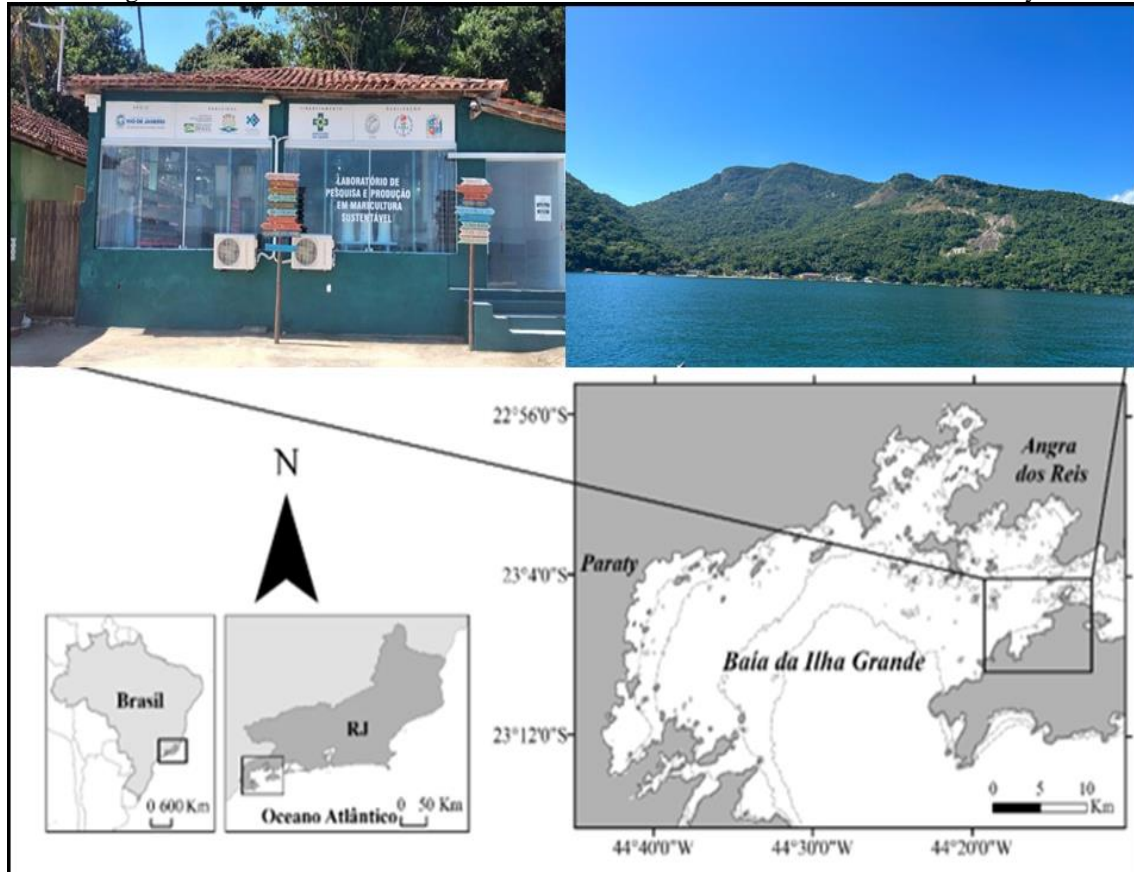
The present work aimed to establish initial protocols for scallop cultivation in the laboratory, and improvements in the growth phase at sea.



2 METHODOLOGY

Study area. The study took place at the Sustainable Mariculture Production and Research Laboratory at Bananal beach, and at two aquaculture areas located in Ilha Grande Bay, Rio de Janeiro: Bananal beach and Ubatubinha beach (Fig.1).

Figure 1 - Location of the Sustainable Mariculture Research and Production Laboratory.



Production methods. The study included the stages of broodstock acquisition and maturation, spawning induction, larviculture, settlement, transfer to the sea, deployment and fattening (Figures 2, 3 and 4).

Breeding and larviculture processes were carried out with subsequent conditioning of the seeds at sea in suspended lanterns, with densities of 215, 1000 and 2000 animals per floor, in different locations and depths.

Figure 2 - Conceptual scheme of production (Source: The author).

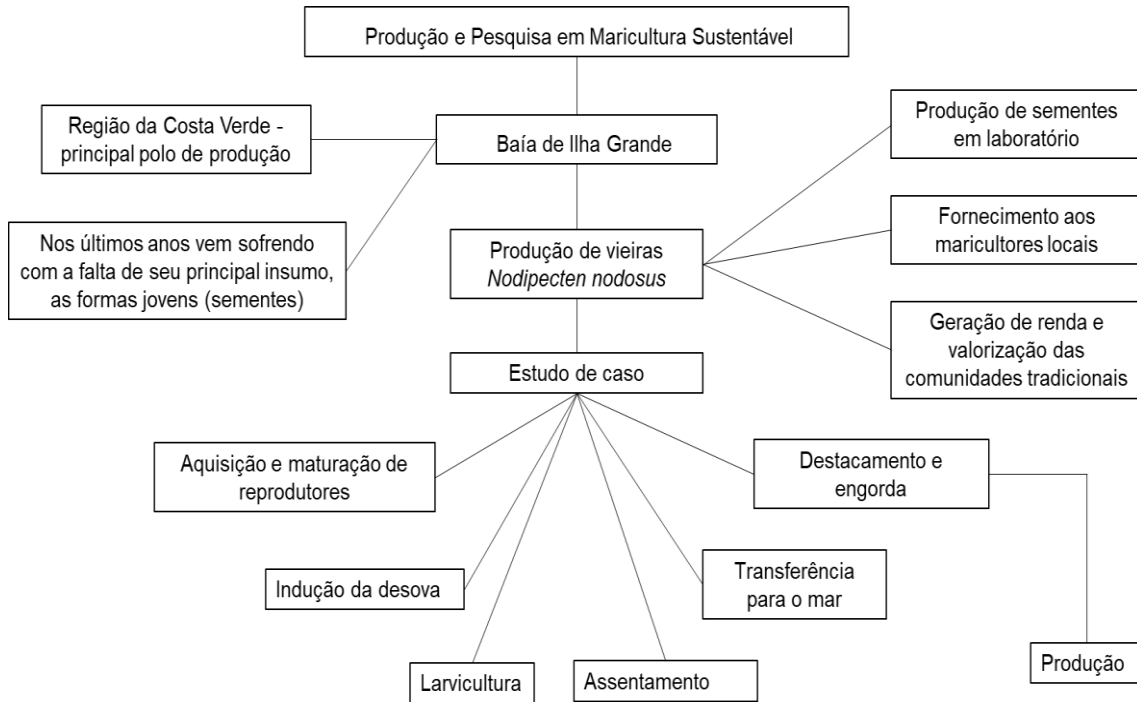


Figure 3 - Settlement of larvae in Netlon® collectors (Source: The author).



Figure 4 - Management of production at sea (Source: The author).





3 RESULTS AND DISCUSSION

The broodstock maturation sector proved to be effective in maturing animals within seven days during the period of the year in which this study was carried out (late spring and early summer).

In reference to feeding, in the larviculture sector the larval densities adopted were approximately 7 larvae/mL⁻¹, with the diet initially similar to the protocol adopted from LMM - UFSC with temperature averages of 22.4 ± 2.8°C. The diet was adjusted according to daily observations of the digestive tract of the larvae under an optical microscope as described in Table 1.

Table 1 - Concentration (x10⁴ cells/mL⁻¹) of microalgae offered to the larvae and pre-seeds of scallops *Nodipecten nodosus*, during larviculture and settlement in the laboratory. ISO: *Isochrysis galbana*; PAV: *Pavlova lutheri*; CC: *Chaetoceros calcitrans*; CM: *Chaetoceros muelleri*.

Dias	Espécies	Concentração (x10 ⁴ células/mL ⁻¹)	Proporção
1	ISO/PAV	0,5	50/50
02/abr	ISO/PAV/CC	1	35/35/30
05/ago	ISO/PAV/CC	2	30/20/50
09/nov	ISO/PAV/CC	3,5	30/20/50
dez/15	ISO/PAV/CC	4	30/20/50
16-18	ISO/PAV/CC/CM	5	20/20/30/30

Table 2 - Distribution of seeds by lantern/floor/location.

Destacamento	1°	2°			
Nº de lanternas	3	4		2	2
Nº de pisos	25	10		12	12
		A	B		
Densidade de sementes por piso	1000	1000	2000	215	
Local	Bananal	Bananal		Bananal	Ubatubinha
Profundidade	10 metros	10 metros		5 metros	



4 CONCLUSION/FINAL CONSIDERATIONS

This case study demonstrated that different strategies regarding location (best performance at Ubatubinha beach), lower densities (215 animals) per floor and intermediate depths (5 meters) for scallop cultivation, in the growth phase, can be viable alternatives to remedy the problem of scallop mortality in this stage of production.



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