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Arituba Lagoon Waterfront Project, in Nísia Floresta/RN

Projeto Orla da Lagoa de Arituba, em Nísia Floresta/RN

Raquel Cardoso de Araujo¹ ; Agassiel de Medeiros Alves²

- ¹ Foundation for the Development of Science, Technology, and Innovation of the State of Rio Grande do Norte – FUNCITERN and Institute for Sustainable Development and the Environment - IDEMA, Natal/RN, Brazil. Email: raquelcdr909@gmail.com
ORCID: <https://orcid.org/0000-0002-6990-1021>
- ² University of the State of Rio Grande do Norte, UERN/Department of Geography, Pau dos Ferros/RN, Brazil. Email: agassielalves@uern.br
ORCID: <https://orcid.org/0000-0001-5045-6442>

Abstract: This article aims to present the results of the Participatory Diagnosis and Prognosis of the Arituba Lagoon Shore Project, located in Nísia Floresta, Rio Grande do Norte, using the methodology established in Decree 5300/2004 for the planning of lake shores. To this end, diagnostic and prognostic workshops were conducted, mapping and sectorizing the areas of the shoreline that can be managed, in addition to preparing summary tables. The results include a preliminary diagnosis and the creation of future scenarios for the lagoon shoreline, addressing its predominant characteristics, potentialities, problems, conflicts, and possible agents for the implementation of the Orla Project actions. The application of this methodology at Lagoa de Arituba, RN, facilitated participatory debate and integrated planning in decision-making, considering the weaknesses and potential of the area. It was also possible at this initial stage to identify priority sectors for planning, emphasizing the importance of preserving natural resources and the orderly and sustainable use of the shoreline.

Keywords: Orla Project; Diagnosis; Arituba Lagoon.

Resumo: O presente artigo tem como objetivo apresentar os resultados do Diagnóstico e Prognóstico Participativo do Projeto Orla da Lagoa de Arituba, localizada em Nísia Floresta, Rio Grande do Norte, utilizando a metodologia estabelecida no Decreto 5300/2004 para o ordenamento da orla lacustre. Para tanto, foram conduzidas oficinas de diagnóstico e prognóstico, mapeamento e setorização das áreas da orla que podem ser ordenadas, além da elaboração de quadros-síntese. Os resultados incluem um diagnóstico preliminar e a criação de cenários futuros para a orla da lagoa, abordando suas características predominantes, potencialidades, problemas, conflitos e possíveis agentes para a implementação das ações do Projeto Orla. A aplicação dessa metodologia na Lagoa de Arituba, RN, facilitou o debate participativo e o planejamento integrado na tomada de decisões, considerando as fragilidades e potencialidades da área, sendo possível ainda nesta etapa inicial, identificar os setores prioritários para ordenamento, ressaltando a relevância da preservação dos recursos naturais e do uso ordenado e sustentável da orla.

Palavras-chave: Projeto Orla; Diagnóstico; Lagoa de Arituba.

1. Introduction

Coastal zone management was incorporated into national public policies with the enactment of Law No. 7,661, of May 16, 1988, which established the National Coastal Management Plan (PNGC), constituting a legal framework for coastal land management and planning (BRAZIL, 2022). However, it was Decree 5300/2004, which regulated the National Coastal Management Plan, that formally incorporated coastal planning into the scope of public policies affecting the coastal zone (BRAZIL, 2022, p.19).

In the meantime, Article 1 of the aforementioned Decree went on to define the "general rules for the environmental management of the country's coastal zone, establishing the basis for the formulation of federal, state, and municipal policies, plans, and programs," so that, based on this normative instrument, a new geographical area of territorial management was defined—the coastline, which is the object of planning and interventions by the Orla Project for municipalities located in the coastal zone.

In the methodology outlined in the aforementioned Decree, planning actions are developed with the joint participation of civil society and management bodies at the federal, state, and municipal levels, targeting priority areas for coastal planning. These proposals emerge from integrated diagnostic and prognostic workshops, which address guidelines for use and occupation, in addition to establishing criteria for coastal zone management.

In the state of Rio Grande do Norte, the municipalities that have begun to develop the Integrated Coastal Management Plan (PGI) correspond to a total of 14 coastal municipalities out of the 29 municipalities that make up the coastal zone of the state of RN. To this end, in addition to integrated coastal zone management activities, the Institute for Sustainable Development and the Environment (IDEMA) has coordinated, within the scope of this project, actions for the management and structuring of the lakefront by adapting the methodology of the aforementioned Decree to the planning of the lake environment.

To this end, coastal management requires the planning of structural actions based on participatory diagnosis, starting with the design and proposal of structural measures and mitigation of adverse impacts on environmentally vulnerable areas. It is essential to emphasize that the coastal zone exhibits considerable diversity in landscapes and geomorphological forms, requiring sustainable management of its natural resources, given the importance of conserving an ecologically balanced environment, as well as the promotion and encouragement of sustainable tourism and the social participation of the various stakeholders for decentralized and participatory management of marine and lake shores in contexts of interaction between the continent and the sea.

The coastal environment stands out for its unique characteristics and fragile ecosystems, consisting of a land and sea strip, characterized by dynamic and complex systems, as well as geomorphologically unstable, as it is a transitional environment between ecosystems (Souza; Silva and Diniz, 2023). Thus, it is an environment that has degrees of vulnerability, since anthropogenic pressures on the coastal zone, socioeconomic conflicts, the presence of varied ecosystems, and relevant geomorphological heritage make it naturally vulnerable to adverse pressures on natural systems (Oliveira; Coelho, 2015).

Meanwhile, the actions of the coastal project in the state of Rio Grande do Norte, conducted through the collaborative and integrated participation of state agencies in partnership with coastal municipalities, aim to reconcile the participatory and orderly management of the coastline with the sustainable development of the coastal zone, combined with the environmental preservation of these spaces.

Furthermore, the implementation of this methodology in the diagnosis and prognosis of lake shores may represent a differential for coastal municipalities in the context of the Orla Project, especially in the stages of preparation and revision of their respective Integrated Shore Management Plans (PGIs), with a view to adapting them to the planning of lake and/or estuarine shores. Thus, its main objective is to promote the integrated management of coastal environments, seeking to harmonize public policies aimed at the coastal zone, with a view to reconciling the use/occupation of this territory with the sustainable development of environmental resources (Marcelino; Duarte, 2023).

Considering the relevance of the Orla Project in the environmental planning of coastal municipalities in the state of RN, this article aims to present the results of the workshops on the Diagnosis and Prognosis of the Orla Project of Lagoa de Arituba, in Nísia Floresta-RN, based on the adaptation of the methodology set forth in Decree 5300/2004 to the management of the lake shoreline.

Among the specific objectives, the following stand out: (1) sectorization of the waterfront areas subject to planning and participatory management actions; (2) presentation of the actions of the Waterfront Project aimed at planning the waterfront of Lagoa de Arituba; (3) preparation of maps with the geo-environmental units of the waterfront; (4) presenting the results obtained from the diagnostic and prognostic workshops of the Arituba Lagoon Waterfront Project, Nísia Floresta/RN.

2. Methodology

The methodology adopted for this research is based on Decree 5300/2004, which regulated Law No. 7,661/1988, establishing the National Coastal Management Policy and the methodology for participatory and decentralized planning of the seafloor, adapted in this research to the socio-environmental planning of Lagoa de Arituba, in the municipality of Nísia Floresta, in Rio Grande do Norte.

The Arituba Lagoon, in Nísia Floresta/RN, is a closed water body with a perimeter of approximately 2,355 m, 962 m in length and about 350 m wide at its widest point. The water body is located within the Bonfim-Guaraira Environmental Protection Area, falling within Subzone A2 (SZA2) of the respective Management Plan which, in accordance with the Ecological-Economic Zoning of the Bonfim-Guaraira APA (APABG), covers mobile dunes, fixed dunes, paleodunes, interdune lagoons, and deflation plains.

With regard to the macro-zoning established by the municipality's Participatory Master Plan (Complementary Law 039/2022), the aforementioned Lagoon is located in the Urban Expansion Zone, where there is an overlap with the Special Zone of Tourist and Leisure Interest and is classified as a Special Environmental Protection Zone (ZPA) classified as mangrove areas, riverbanks, and lagoons, as can be seen in paragraph § 1 of article 17 of Complementary Law 039/2022:

(...) Around lagoons, lakes, rivers, watercourses, and springs, no construction shall be permitted in areas located in the marginal strip, measured from the edge of the regular bed channel, in horizontal projection, with a minimum width of:

VII) fifty meters around natural lakes and ponds located in urban areas.

Thus, the Permanent Preservation Area (APP) is a 50-meter protection strip from the maximum flood water level recorded for the water body, according to the delimitation prepared by IDEMA's Geoprocessing sector (GEO-IDEMA), presented in the Area Location Map, as can be seen in the following figure:



Figure 1 – Location of the Arituba Lagoon, in Nisia Floresta/RN, and delimitation of the current water level and the maximum flood observed.

Source: SUGERCO Collection, authors (2025).

2.1 Methodological procedures

The methodological procedures performed for this research are: (1) preparation and systematization of the theoretical framework of the research, through readings and notes based on studies on the subject; (2) organization of Participatory Workshops for Diagnosis and Prognosis of the Arituba Lagoon, Nisia Floresta-RN; (3) survey of the actions of the Integrated Coastal Management Plan (Orla Project) in the municipality of Nisia Floresta/RN, where the Arituba Lagoon is located, the object of this research and defined as a pilot project for the integrated management actions of the Orla Project applied to the coastline of Lagoas; (4) survey of its characteristics, potentialities, and weaknesses; (5) mapping and sectorization of the water body; (6) construction of summary tables with the results of the diagnosis and desired scenario (prognosis) for the Arituba Lagoon.

As clarified in the Orla Project Manual (BRAZIL, 2022), although the methodology was developed with a view to managing the country's coastlines, it should be noted that it can be adapted to estuarine and riverine coastlines, so that some implementation phases, such as the diagnosis, need to be adjusted to effectively take into account the peculiarities of these coastlines, following the project's methodological flow without major changes in the construction of institutional arrangements, participatory planning, and the implementation, monitoring, and review stages of the Integrated Management Plan (PGI).

In the present case, the methodology in question was applied to the lake shore of Lagoa de Arituba, which, due to its particularities and socioeconomic uses, as well as its location in the coastal zone and proximity to the coastline, requires participatory management of the shore with the aim of organizing and preserving the protected areas around the water body.

To this end, agendas were initially planned for the development of participatory workshops for the diagnosis and prognosis of the Arituba Lagoon with the participation of the environmental management agencies of the State () and municipality, the Association of the Arituba Lagoon Tourist Complex, and members of civil society, including street vendors who use the lake shore for their socioeconomic activities.

During the workshops, held at two different times, one specifically for the diagnosis and the other for the prognosis (desired scenarios), the objectives of the meetings were explained and discussed with the participants involved in defining the priority areas for planning, discussing the main conflicts and problems existing on the lake shore, its potential and socio-environmental importance for the municipality in question. In this sense, the main agenda of the workshops in question was to discuss and plan the actions of the Orla Project for Lagoa de Arituba, which were carried out in a participatory manner, planned and implemented with a view to the socio-environmental planning of the lakefront areas and those occupied in a disorderly manner on the banks of the water body.

On these occasions, the priority sectors for conducting technical surveys to recognize the area, its potential, as well as existing problems and conflicts, were preliminarily identified, and possible actions to be taken to organize these spaces and the desired scenarios for shoreline management were discussed, as well as the indication of those who could be responsible for the actions to be implemented for the socio-environmental planning of the shoreline areas.

For the sectorization and delimitation of the lakefront, four sectors were divided corresponding to the 50-meter environmental protection zone (EPZ) of the Arituba Lagoon, considering the characteristics of the physical environment and the degrees of occupation of the area, subdivided into four sectors located in the Permanent Preservation Area (APP) of the aforementioned Lagoon, where the lakefront is located and most of the socioeconomic uses around the water body are concentrated, as specified in the following table:

Table 1 – Sectorization of the lakefront areas of the Arituba Lagoon, in Nisia Floresta/RN.

SECTIONS	CHARACTERISTICS	PROGNOSES
Sector 1	Lake shore with well-preserved vegetated dunes and small trails	Full preservation of the vegetated dune
Sector 2	Lagoon shore occupied by establishments linked to food services and temporary use spaces – street vendors and toys, picnic area	Organization of existing commercial establishments into a Tourist Recreation Terminal and installation of stairs, access ramps, and public restrooms
Sector 3	Lagoon shore with vegetation and some trails and spaces for temporary use	Maintenance of natural elements and recovery of degraded areas
Sector 4	Lagoon shore with low density of plant species and partially degraded vegetation	Restoration of native vegetation through implementation of the Degraded Area Recovery Plan (PRAD)

Source: SUGERCO/IDEMA collection, authors (2025).

After the discussion phase of the results of the diagnostic and prognostic workshops on the Arituba Lagoon in Nisia Floresta/RN, a map of the priority sectors identified on the lake shore was produced in the office, along with summary tables of the diagnosis and prognosis of the Orla Project, as recommended by the methodology proposed in Decree 5300/2004, adapting it to the lake shore.

3. Results and discussion

Initially, workshops on the Diagnosis and Prognosis of the Arituba Lagoon were held, in which preliminary discussions were held with participants from various agencies and civil society to define the priority areas to be inspected and subject to planning actions, as recommended by Decree 5300/2004, which provides rules for the use and occupation of the coastal zone and establishes criteria for the management of the seafront, as well as other measures.

The main agenda of these workshops was to discuss and plan the actions of the Orla Project for Lagoa de Arituba, Nisia Floresta/RN, concerning the planning of the lake shore and the disorderly occupied spaces on the banks of the water body, with the participation of the IDEMA Coastal Management Sub-Coordination (SUGERCO), the Secretariat of Environment

and Urbanism (SEMAUR), the municipality of Nísia Floresta/RN, the Municipal Health Surveillance, representatives of the Association of Commercial Establishments and Restaurant Owners of Lagoa de Arituba, and representatives of street vendors who carry out their commercial activities around Lagoa de Arituba in Nísia Floresta/RN.

On these occasions, representatives of the aforementioned agencies met to make a preliminary definition of the sectors, present the methodology and plan the activities, and then proceed to the inspections of the shore of the aforementioned Lagoon, as shown in the following figures:



*Figures 2 and 3 – Diagnostic and Prognosis Workshop for the Arituba Lagoon, Nísia Floresta, RN.
Source: SUGERCO-IDEMA (2025).*

During the Diagnostic and Prognosis Workshops, priority sectors were identified with a view to organizing the shoreline of the water body, and actions to be taken to organize these spaces were discussed, as well as the indication of possible parties responsible for the structural actions to be carried out for the socio-environmental organization of the lake shoreline spaces.

Thus, the sections of the Arituba Lagoon shoreline were divided into sectors according to their landscape homogeneity and classified in accordance with Federal Decree No. 5,300/2004. Four sectors of the Arituba Lagoon shoreline were identified based on the delimitation and landscape analysis, which were subsequently spatialized on the Arituba Lagoon shoreline sectorization map, as shown in Figure 8 below:

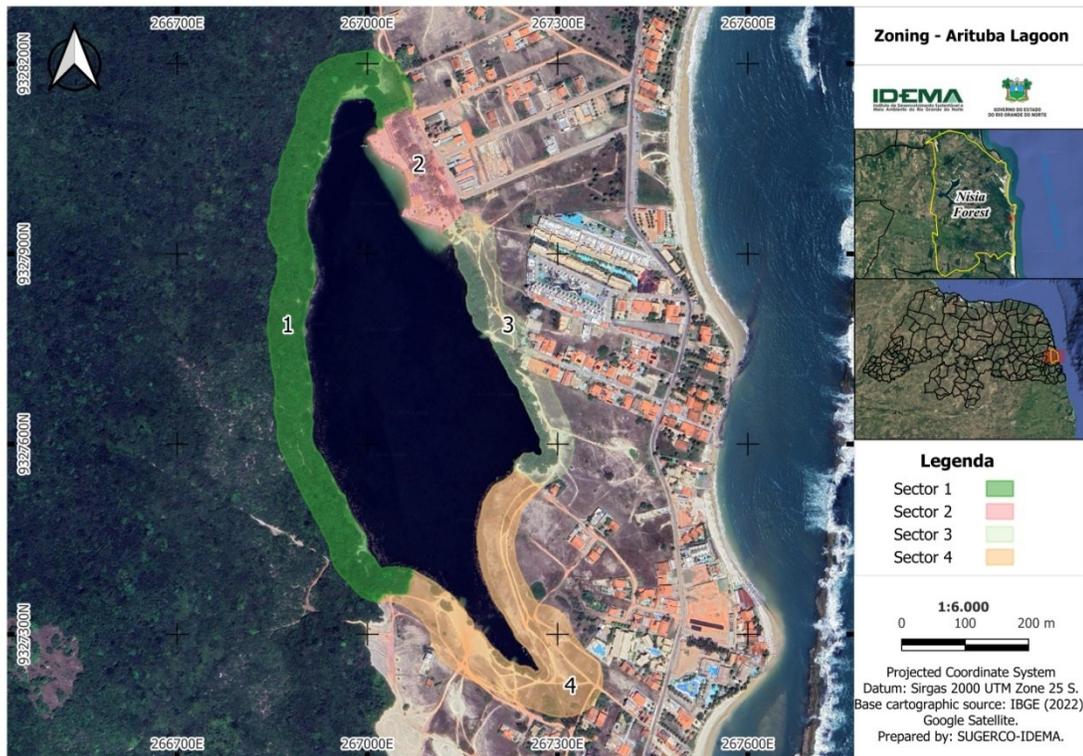


Figure 8 – Sectorization map of the Arituba Lagoon shoreline in Nísia Floresta-RN.
Source: Sugerco/Idema (2025).

3.1 Sectors 1 - Lake shore with vegetated dunes and small trails.

Sector 1 comprises an area of vegetated dunes surrounding the permanent preservation area of the water body (ZPA 50 m), identified as covering a strip of natural dune-fixing vegetation, in a stabilized dune body that must be maintained and preserved, given that it constitutes a permanent preservation area, under the terms of Art. 4 item VI of the Brazilian Forest Code (Law 12.651/2012) and CONAMA Resolution 303, as well as being a natural environment of utmost importance for replenishing aquifers and maintaining the interdune ecosystems and the lagoon itself.



*Figure 4 – Aerial photograph of the APP of vegetated dunes and ZPA 50 meters from the Arituba Lagoon.
Source: IDEMA Geoprocessing Sector (2025).*

According to Decree 5300/2004, this stretch of the lake shore is classified in category "A" which, in summary, corresponds to "the stretch of the seashore with activities compatible with the preservation and conservation of natural characteristics and functions; has a correlation with types that have very low occupancy, with landscapes with a high degree of conservation and low potential for pollution." According to the aforementioned Decree, the adoption of actions for the conservation of existing natural characteristics is recommended.

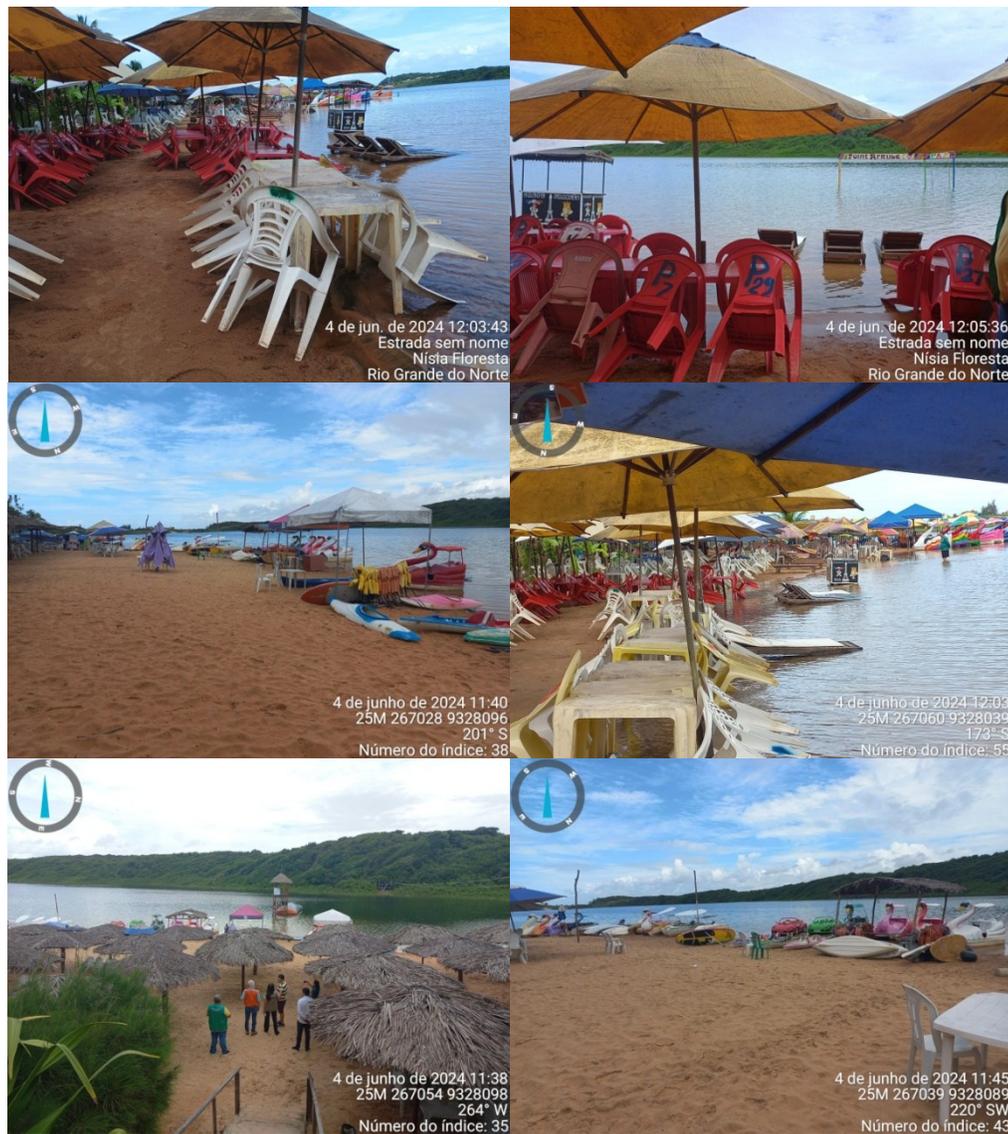
3.2 Sector 2 - Lake shore occupied by establishments linked to food services and spaces for temporary use - street vendors and toys, picnic area.

Sector 2 (Figure 5) comprises the Recreational Tourist Area on the shores of Arituba Lagoon, covering commercial establishments and areas used by bathers for leisure and picnics around the water body. As can be seen in the maps in the figures, the area in question is entirely located in a permanent preservation area (ZPA) 50 meters from Arituba Lagoon and in subzone A2 of the EEA () of the Bonfim-Guaráira APA Management Plan, in an urban area with consolidated anthropic occupations for commercial use (bars and similar establishments) that have been operating for several decades around the water body.



*Figure 5 – Tourist facilities and establishments located on the shore of Lagoa de Arituba.
Source: IDEMA Geoprocessing Sector (2025).*

Regarding the problems identified in the Tourist Recreation Terminal Area, we can list the need to organize the occupations, including toys, water equipment, and restaurant structures arranged in a disorderly manner along the shore, preventing free access to bathers, as well as the regime and conditions of water equipment, arranged in a disorderly manner along the shore, so that the spaces present several irregular occupations, being almost entirely taken up by this equipment, as shown in the following photographs.



Figures 6 to 11 – Structures arranged in a disorderly manner on the shoreline: tables, chairs, sun loungers, and water equipment arranged on the banks of the Arituba lagoon, RN.

Source: SUGERCO-IDEMA (2025).

Regarding the planning of structural actions, it was decided jointly with the workshop participants that it was necessary to delimit an area free of occupations for the ordering of spaces and access to the shores of the lagoon, in view of the need to maintain the lakefront for the common use of the people, as well as control the number of tables, chairs, and umbrellas. A strip free of any occupation was suggested, starting from the waterline, observing possible variations in periods of higher rainfall and according to fluctuations in the water table.

In addition, the use of water equipment was considered, and it was decided that one model of each toy would be put on display, and the rest would be stored in a display case in a space previously designated for equipment storage. To this end, the proposal for a location for the organization of aquatic equipment was discussed, requiring that it be stored in an orderly manner and in good condition for use.

At the end of sector 2 (Figure 12), an area used for excursionist tourism for picnics on the shores of the lagoon was identified, with some problems and conflicts identified in this area, mainly concerning the absence of recreational and accessibility support structures, such as stairways and ramps, bathrooms, and sanitary facilities. Thus, the relevance of

adapting these spaces on the lakefront for environmental regularization and planning of the area was discussed, considering the problems of their use without proper planning and the lack of public facilities, which has caused serious problems for the environment, in addition to problems related to sanitary hygiene, given the unavailability of public facilities for this purpose.

Thus, it was mutually agreed that the Municipality will organize the area located at the end of the Tourist Recreation Terminal near the public road, on private land, where the municipality has the possibility of expropriating the space, in view of the public interest, for the implementation of access roads and planning structures, such as public facilities for bathrooms, stairways, access ramps, and sanitary equipment.

As for these public facilities, it is recommended that they be properly equipped with licensed effluent treatment and disposal systems, in compliance with the technical accessibility standards ABNT NBR 9050:2020. In addition, pairs of public trash cans should be installed, some reserved for dry waste and others for wet waste.

It should also be noted that these proposals still need to be discussed and approved at a public hearing, to be held later by the municipality of Nísia Floresta/RN.



*Figure 12 – The aerial image shows the area at the end of Sector 2 used for recreational purposes by hikers.
Source: IDEMA Geoprocessing Sector (2025).*

As it is an area used for tourism and has consolidated anthropic occupations, this stretch of the lake shore is classified in category "B," which, in summary, corresponds to "a stretch of the coastline with activities compatible with the

conservation of environmental quality or low potential for impact; It correlates with areas that have low to medium density of buildings and resident population, with signs of recent occupation, landscapes partially modified by human activity, and medium potential for pollution." In this sense, the adoption of actions for sustainable use and maintenance of environmental quality is recommended.

3.3. Sector 3 - Lagoon shore with vegetation and some trails and spaces for temporary use

As for Sector Three (Figure 13), it was identified as an area located on the banks of the water body with vegetation and some trails and spaces for temporary use. It was determined that this sector should be prioritized for the maintenance of natural elements and the recovery of degraded areas, with the possibility of recovering degraded areas through compensatory measures, including the definition of priority areas for reforestation of riparian forest, which should be regularly monitored.



*Figure 13 – The images show the natural and vegetation characteristics of Sector 3 of the Arituba Lagoon.
Source: IDEMA Geoprocessing Sector (2025).*

As it is located in a semi-preserved area, this stretch of the lake shore can be classified as Category "A," with the adoption of actions for the conservation and maintenance of existing natural characteristics and measures for the recovery of degraded areas being recommended.

3.4. Sector 4 - Lake shore with low density of plant species and partially degraded vegetation.

Sector 4 comprises a specific area around the closed water body that has low and rare shrub and tree cover, with a predominance of open vegetation. It has sparse and rare vegetation distribution represented by interspersed thickets with a predominance of exposed sand stretches, with dry and sandy substrate occupying areas in continuous modification due to anthropic action, which always remains as the initial vegetation of first occupation.



Figure 14 – Characteristics of the riparian forest in sector 4 and the degraded areas surrounding it.
Source: IDEMA Geoprocessing Sector (2025).

The need to restore the riparian forest vegetation in this section was confirmed, considering the reality of continuous deforestation and anthropic occupation of the water body. In this section, it is possible to observe that it has the lowest species diversity index, even with the low density of occupations in comparison with Sector 2 (Tourist). This condition is likely related to the deforestation carried out at the time for the implementation of subdivisions and the growing urbanization in its surroundings.

Considering the degrees of environmental degradation in the area and deforestation of native vegetation, it can be classified in Category "C" (...) assuming the adoption of actions to control and monitor uses and environmental quality (Decree 5300/2004).

3.5. Diagnosis and Prognosis of the Arituba Lagoon in Nísia Floresta-RN

Based on the technical surveys carried out during the Diagnostic and Prognosis Workshops for the Arituba Lagoon in Nísia Floresta-RN, summary tables were prepared presenting the preliminary diagnosis and cting the desired future scenarios for the lake shore of the aforementioned lagoon, in accordance with the methodology recommended in Decree 5300/2004.

Below are tables summarizing information related to the dominant characteristics, potentialities, problems and conflicts, and possible interveners for the implementation of the actions of the Orla Project for the management of the lakefront of the aforementioned Arituba Lagoon, Nísia Floresta, RN.

Table 2 – Sector 1: Permanent Preservation Area of Vegetated Dunes.

DOMINANT CHARACTERISTICS	Permanent Preservation Area (App's) of vegetated and mobile dunes; and marginal strip of the lagoon. Preserved dune system. Vegetation: Pioneer Formation with Marine Influence (sandbar). Natural environment. Fully included in the Bonfim-Guaraira APA ZEE in its A2 subzone.
POTENTIAL	Ecological and scientific relevance; Ecological tourism; Aquifer recharge; Ecosystem services; Ecosystem maintenance; Biodiversity conservation; Ecological trails; Natural landscape; Potential for contemplation and scenic beauty.
PROBLEMS/CONFLICTS	Licensing of ecological trails; Need for preservation as determined by Federal Law (Law No. 12,651/2021)
WHAT TO DO?	Maintain the preservation of App's natural environment; Enforcement by the competent authorities; Allow access to trails only for scientific purposes and ecological tourism, duly regulated and licensed by the municipality; Conduct the necessary studies to map the trails; Restore areas that can be restored and maintain ground vegetation cover.
POSSIBLE RESPONSIBLE PARTIES	Municipality of Nisia Floresta/RN.

*Source: Authors (2026).**Table 3 – Sector 2: Recreational Tourist Complex Area.*

DOMINANT CHARACTERISTICS	<p>Lake shore occupied by five establishments linked to food services and temporary use spaces; Area of Anthropic Influence in Water Body Apps (50 m); Fully included in the ZEE of the Bonfim-Guaráira APA in its subzone A2</p>
POTENTIAL	<p>Area with potential for organized recreational tourism; Section suitable for swimming; Suitable for bathing; Area suitable for orderly navigation of watercraft; Gastronomy; Recreational use of the waterfront; Contemplation and scenic beauty</p>
PROBLEMS/CONFLICTS	<p>Commercial establishments: Need for environmental regularization of commercial establishments located in the Permanent Preservation Area of the Lagoon (Law 12.651/2012); Water toys and equipment: Need for regulation of toys and structures on the waterfront; Organize the Lagoon waterfront area; Street vendors: Accreditation of street vendors; Lack of accessibility in some areas; Need for public restrooms; Problems related to solid waste disposal on the shores of Arituba Lagoon.</p>
WHAT TO DO?	<p>Urban, land, and environmental regularization of commercial establishments, through the improvement of environmental conditions and the licensing project for the Tourist Recreation Terminal, as provided for in Art. 65, § 1, of Law 12.651/2012 on the Reurb-E of informal urban centers that occupy Permanent Preservation Areas; Control the number of pedal boats, toys, canoes, and other items on the waterfront; Regulate the use of toys: one will be on display and the others in a showcase (parking lot) in usable condition; Define the parking and boarding location. Establish a minimum setback of 3 meters from the water's edge, free of any occupations; Inspection of crepe carts by the Fire Department; Define the spaces that may be occupied by street vendors, other than on the waterfront or in front of commercial establishments; Enforcement in priority areas of the Lagoon; strengthening enforcement with the appointment of an environmental agent; Install accessibility ramps and stairways in already defined sections; Install public restrooms and support structures for picnickers; Install pairs of public trash cans, one for dry waste and one for wet waste, in areas designated for bathers</p>

POSSIBLE RESPONSIBLE PARTIES	Commercial establishments; Owners of water equipment; Municipality of Nísia Floresta.
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Source: Authors (2026).

Table 4 – Sector 3: Lake shore with vegetation and some trails and spaces for temporary use.

DOMINANT CHARACTERISTICS	Partially preserved riparian forest; Area has partially anthropized sections; Permanent Preservation Area; Fully included in the Bonfim-Guaraíra APA ZEE in its subzone A2.
POTENTIAL	Provides ecosystem services; Improvement of soil infiltration capacity; Replenishment of aquifers; Maintains native species of the biome. Area with potential for educational activities and ecological tourism;
PROBLEMS/CONFLICTS	Areas with degraded vegetation; Irregular occupations; Deforested areas for bathing (occurrence of "tongues," sandy areas amid the vegetation).
WHAT TO DO?	Restore the riparian forest with native Atlantic Forest species; Conduct environmental studies with a view to recovering degraded areas; Allocate funds for the preservation and maintenance of the riparian forest; Monitor to ensure that the proposed actions are carried out. Prepare and implement a PRAD (Environmental Recovery Plan).
POSSIBLE RESPONSIBLE PARTIES	Private landowners; Municipality of Nísia Floresta (Supervision).

Source: Authors (2026).

Table 5 – Sector 4: Lagoon shore with low density of plant species and partially degraded vegetation.

DOMINANT CHARACTERISTICS	Lagoon shore with sparse vegetation and predominantly open phytophysiognomy; Permanent Preservation Area (App) of water body (50m); Subdivision area with few buildings Fully included in the ZEE of the Bonfim-Guaráira APA in its subzone A2.
POTENTIAL	Sections are used for swimming and leisure activities; Partially preserved areas; Contemplation and scenic beauty
PROBLEMS/CONFLICTS	Sections with illegal occupation; Degraded area; Need to restore degraded areas by implementing PRAD.
WHAT TO DO?	Carry out environmental awareness actions; Put up informational signs; Monitor the area, especially during the high season; Develop and implement PRAD for the recovery of the area.
POSSIBLE RESPONSIBLE PARTIES	Landowners/Municipality of Nísia Floresta/RN

Source: Authors (2026).

4. Final Considerations

In view of the above, we reaffirm the importance of the Diagnosis and Prognosis workshops of the Arituba Lagoon Project, which presented a summary of the environmental potential and weaknesses existing on its lake shore, which is of great relevance for the construction of the desired scenarios (prognosis) for the planning of actions for the lake shore. During the workshop phase, the main issues were widely debated, the measures to be taken, and the proposal of possible interveners for structuring the shoreline management actions in a participatory and integrated manner with members of the invited agencies and civil society. This made it possible to outline the desired scenarios for structuring the shoreline of Lagoa de Arituba in Nísia Floresta, Rio Grande do Norte.

In this regard, it is worth noting that the aforementioned meetings were held in accordance with the methodology proposed by Decree 5,300 of 2004 for the Integrated Coastal Management Plan, which was adapted at this stage for the lakefront, given the integrated dynamics of these environments with the coastline and the need to manage these spaces, given the problems of the lagoons in the municipality of Nísia Floresta.

It should also be noted that the diagnostic and prognostic workshops of the Orla Project made it possible to promote participatory debate and plan decision-making in an integrated manner with regard to the weaknesses and potential of the territory. It was also possible at this early stage to identify the priority sectors subject to planning, highlighting the importance of preserving natural resources and the orderly and sustainable use of the lakefront.

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