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Assessment of Regulations in Coastal Areas Based on Coastal Area Design Parameters: The Case of Gallipoli-Turkey

Gildis TACHIR[1*], Hatice KIRAN ÇAKIR[2], Büşra OCAK[3]

[1]0000-0003-4863-4339,*Trakya University,Department of Architecture, Edirne Turkey,*
[2]0000-0002-6869-5342, *Trakya University,Department of Architecture, Edirne Turkey*,
[3]0009-0000-1876-9086, *Trakya University, Institute of Natural and Applied Sciences, Edirne Turkey*

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Abstract

The distinctive shaping and dynamic structures of coastal areas bring coastal cities to the forefront. These distinctive forms also enable coastal areas to harbor different potentials. These areas, which are an integral part of the city with their potential, are also public spaces that make a contribution to the comfort of life in the city. Coastal areas are breathing points not only for urban dwellers but also for visitors to the city. For this reason, these living spaces used for recreation should be organized in accordance with the design parameters of coastal areas. Thus, the distinctive potential resources of the area can be preserved and the environmental impact values will be enhanced. Gallipoli, as the sample area of the study, is a coastal settlement with historical and natural richness and has a coast to both the Aegean Sea and the Sea of Marmara. The aim of the study is to evaluate the existing arrangements in the coastal areas of the city depending on the parameters of coastal area design and to develop solutions for the ecological sustainability of the area. In line with this purpose, observations and determinations were made in both coastal areas of the city with the on-site survey method. The existing arrangements in the areas were assessed depending on the design parameters of the coastal areas. Solution proposals were suggested for the problems identified in the evaluation. Thus, the sustainability of coastal areas will be achieved and ecological sustainability will be promoted with this effect.

1. INTRODUCTION

Coastal areas are exclusive areas for coastal settlements. The features offered by the coasts add extraordinary richness to settlements. The values that geographical location adds create cultural, social, and economic potentials. This privileged uniqueness has made coastal areas the primary settlement areas where civilizations have flourished throughout history [1].

The city is composed of a natural, built, and social environment. When the city is classified according to certain criteria, "coastal city" becomes one of the sub-headings. The attractiveness of coastal cities is comparatively higher than that of other cities. This tendency increases urbanization. The negativities brought about by urbanization affect coastal cities. The negativity of urbanization is seen more rapidly in the coastal areas of the city. In this context, the sustainability of coastal areas is an essential factor. It is understood that the recreation of coastal areas for tourism purposes tends to increase in natural and unique coastal cities, with the concept of tourism coming to the forefront [2].

In order to protect and develop coastal areas in sustainable coastal cities, local and central governments should make land use and infrastructure decisions in the region, taking into account ecological characteristics. These decisions should be effective in protecting and utilizing natural, historical, and cultural values. In this context, open space and recreational uses, which are the most prominent spatial design in the use of coastal areas, cover mostly green parks, recreational areas, sports fields, etc. While coastal areas used to be enclosed by a car road system, it has been replaced by underground, and the current area is being redesigned as a large-scale green space system [3]. The recreational use of coastal

* Corresponding author: gildistahir@trakya.edu.tr

areas allows the coastal city's quality of life to improve. The coastal city Gallipoli, which has different coastal area design parameters, was chosen as the sample area in the study.

The unrivaled nature of the coastal areas of Gallipoli, shaped by natural formations, is an essential part of the ecosystem. With this structure, effective protection and development of the natural environmental qualities of the coastal areas of Gallipoli are required for the sustainability of the area. The sustainability of its natural resources, historical richness, and socio-cultural structure is crucial for the improvement and development of coastal areas from an ecological design point of view.

2. AIM AND METHODOLOGY

Sustainability of the coasts can be ensured through environmentally sensitive designs, human-friendly environmental planning and construction, and designs and interventions that enable the continuity of natural life and are suitable for the ecology of the region. The purpose of this study is to develop solutions for the ecological sustainability of the coastal areas of the city of Gallipoli. The peninsula of Gallipoli, which has a coast to the Aegean and Marmara Seas, has different environmental values despite its narrow and long location and close coasts. For this purpose, a detailed field study was carried out in the northwest-northeast coastal areas of the region. In the study, the coastal areas of the city were divided into two research areas as Marmara Sea Southern Coast (1st region) and Aegean Sea Northern Coast (2nd region). The southern coastal area (1st region) was also analyzed as zone A (coastal residential area of the city) and B (coastal military area) due to differences in land use. The purpose of differentiating the study areas is to determine whether there is a difference in the evaluation of the existing arrangements according to the design parameters of the coastal areas in line with the different environmental values in the areas.

The southern (region 1) and northern (region 2) study areas were first individually evaluated according to the determined parameters, and then the comparison of the areas was made with each other (Figure 1). Thus, it was possible to make a comparative evaluation of the arrangements in the coastal areas, which are located in the same geography but have different environmental values and different uniqueness, according to the site design parameters. Suggestions for solutions to the deficiencies identified in the arrangements were proposed. It is thought that new proposals to be made with ecological approaches will ensure the development and sustainability of the area, and the necessity of providing different design parameters according to different environmental values is emphasized.

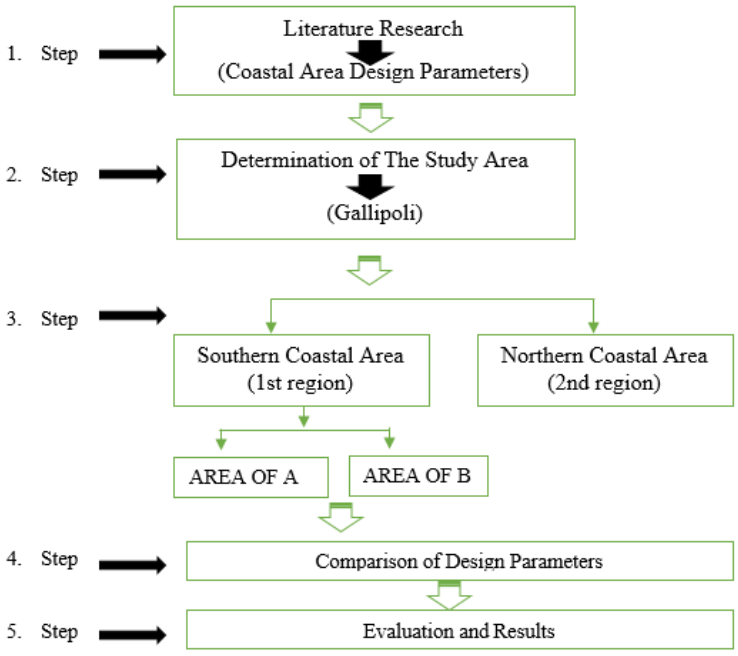

Figure 1. *Steps of study*

3. LITERATURE STUDIES ON THE USE OF COASTAL AREAS

The coastal concept is defined in terms of three components. The first of these is explained by its spiritual and symbolic effects in relation to the nature of water, the second by its spatial, economic, and social dimensions in its functional relationship, and finally by the determining role of river, sea, and canal structures on the urban macro form in its relationship with form [4]. When associated with these components, coastal areas have been the most favorite places throughout history. The preference for coastal areas is explained as the indispensable need of human beings for water. Because the coasts are where people feel the best and where life is the most dynamic. Hence, the waterside is regarded as the place where life is the most comprehensive and unique [5]. Coastal areas are unique places. They are dynamic environments shaped by the natural movements of water [6]. This definition includes the edge areas of water bodies such as bays, lakes, rivers, and seas, including artificially created forms such as canals [7]. Coastal areas are settings where there is a combination of land and sea and they are constantly changing. Coastal areas, which are a binding link between land and sea, have unique natural beauties, resource potentials, land values, and environmental factors. It is necessary to develop coastal areas by protecting these unique values and ensuring their sustainability for future generations.

Besides the physical contact between land and water on the coasts, coastal cities are areas where various social, functional, and spatial characteristics come together. Settlements and coasts have intertwined and influenced each other and have been enriched with various features over time or have undergone processes in which interaction has decreased. With the industrial era, technological developments and settlements, spatial and social changes due to production have deeply affected coastal cities. While coastal cities were small-scale port settlements before industrialization, they turned into settlements that grew by separating into functional areas after industrialization [8]. Large investments made in developing technology and new economic policies, industry, and implementation methods related to coastal areas have also provided advantages to strengthen the relations between settlements and coasts, where interaction has decreased with new problems. Such practices and the impact of tourism in coastal areas gained momentum in Turkey after 1980. Therefore, it is very important to organize the related coastal areas in accordance with the design parameters for the development of coastal settlements and the protection and sustainability of unique resources from water to land and from land to water.

3.1. Recreational Use of Coastal Areas

Recreation can be defined as the restoration of people's physical and mental integrity by doing the activities they wish. These are activities that participants voluntarily choose to do in their free time [9]. Coasts are very convenient areas to realize such activities. Even just being on the shore, sitting and resting is effective for spiritual healing. The coastal area is a public space open to all kinds of local and foreign visitors [10]. Considering the environmental values of this public space, spatial planning is supposed to be made.

In terms of spatial design, coastal areas are special and privileged rich areas due to their unique geographical location as well as the differences in the cultural, social, and economic potentials of the settlement area where they are located. It should be considered a special design area in terms of protecting and ensuring the sustainability of privileged coastal areas with rich potential [11]. Looking at the diversity of coastal area use, there are three different coastal area use purposes: the first is the use of resources, the second is industrial use, and the third is tourism and recreational use [12]; [13]; [14]; [15]; [16]; [1]. In this study, recreational coastal use was investigated. In the recreational design of coastal areas with different environmental values, mixed-use approaches enriched with parameters including different usage activities should be evaluated instead of only leisure-oriented designs [17]. In line with this approach, when recreational design parameters are investigated with the support of the literature, it is seen that there are structures such as establishing a connection with the coastal elevation, walking path, jogging path, sitting-recreation area, green area, semi-open space, vehicle road, closed space, event-festival area, water activity area, children's playgrounds, design continuity, urban reinforcement elements, building element, being located on the water and bicycle use [18], (Table 1). In this study, built environment parameters were taken into consideration, and natural, social, and economic parameters were excluded.

Table 1. *Design Parameters for Recreation Use of Coastal Areas (Developed by [19])*

COAST AREA DESIGN PARAMETERS			
P1	Connection to the coast	**P2**	Walking Area
P3	Jogging Track	**P4**	Sitting-Resting Space
P5	Green Area	**P6**	Semi-Open Space
P7	Vehicle Road	**P8**	Indoor Space
P9	Event-Festival Area	**P10**	Water Activities Area
P11	Children's Play Area	**P12**	Continuity of Design
P13	Urban Reinforcement	**P14**	Building Element
P15	Activity Areas on the Water	**P16**	Bicycle Use

4. SAMPLE AREA: GALLIPOLI

The Gallipoli Peninsula is located in northwestern Turkey between the 20-27 eastern meridians and 40-41 northern parallels. Gallipoli is a district located on the northeastern coast of the Gallipoli Peninsula of Çanakkale Province in the Marmara Region, at the opening point of the Çanakkale Strait to the Marmara Sea (Figure 2.). The area of the district is 806 km^2 [20].

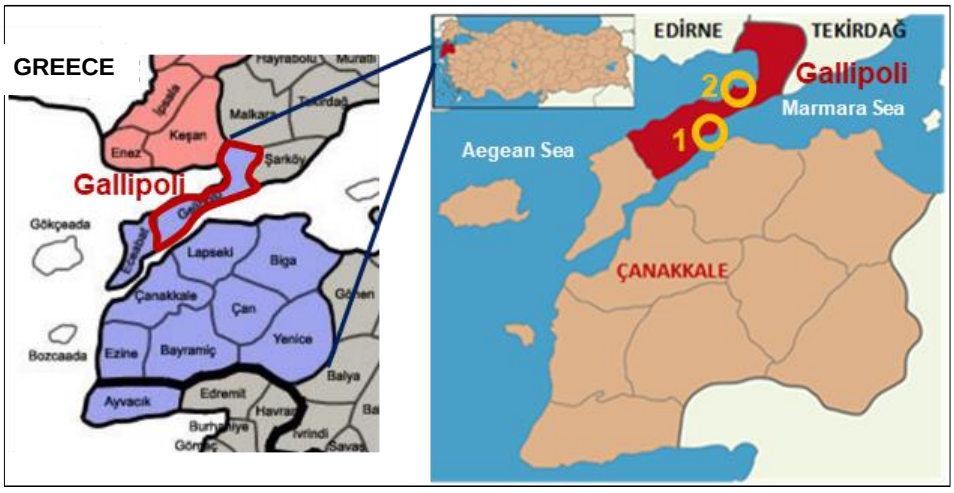

Figure 2. *Location of Gallipoli*

When the city is viewed from the upper scale, it is seen that it has two important coasts. These two important coasts encircle the peninsula. The Saroz Gulf, which is an appendage of the Aegean Sea, and the Çanakkale Strait constitute these coasts. The environmental values of both coasts are different. But they are located very close to each other. The coasts including the coast of the city center have the characteristics of the Marmara Sea, while the Saroz coasts on the borders of the district have the characteristics of the Aegean Sea. This is not the only difference. The Çanakkale Strait, which opens to the Marmara Sea, is a busy route that international ships constantly pass through. Saroz Gulf is a little more protected and rarely visited by ships. The length of the coasts is just over 100 km. The narrowest point of the peninsula is 5 km and is between Gallipoli and Bolayır. Both coasts have many natural harbors and beaches [20].

In this study, the northern and southern coastal areas of the coastal city of Gallipoli were studied. In study area 1 (southern part), the coastline in the city center of Gallipoli was examined, and in study area 2 (northern part), the coastal area of Bolayır within the borders of Gallipoli was examined. Both coastal areas have different characteristics in terms of their location. The coastal area of study area 1 is close to the city center and the coastal area of the Marmara Sea. The coastal region of study area 2 is far from the city center, where secondary residences are densely populated, and is the coastal area of the Saroz Gulf (Figure 2.).

4.1. Study Area 1 (Southern Coastal Area)

Study area 1 is located in the central settlement of the Gallipoli peninsula. The central settlement develops along the coast. The presence of military settlements in coastal areas limits some parts of coastal land use. Sea transportation creates traffic density in the coastal area. Study area 1, located in the southern part, was analyzed by dividing it into two zones. These zones are named A and B (Figure 3.). Zone A covers the city center and Hamzakoy coastal area. Zone B covers the coastal area which is a military area. Zone A has more coastal utilization than Zone B.

Figure 3. *Study Area 1 (A and B)*

4.1.1. Study Area 1 (Southern Coastal Area)-Zone A

Study Area 1 includes the city center and the coast of Hamzakoy (Figure 4). Zone A is one of the preferred places for citizens to breathe. The beach in Hamzakoy is one of the areas that are actively used during the summer months. The local government demolished most of the areas built near the beach and rebuilt them in an area further away from the coast. Most of the cafes frequented by young people and a few boutique hotels, along with the Hilton, are located in this area.

The natural structure of the coastal area is formed by cliffs (Figure 4). The coastal area is intensively used for angling activities. The curve structure of the coastline and the prevailing wind is preferred by surf lovers. Surfing, one of the ecological tourism activities, is waiting to be discovered in the coastal area. Besides the historical buildings in the coastal area, there are pedestrian and bicycle paths, traffic-free vehicle roads, playgrounds, seating areas, sports areas, parks, and green areas along the coast. There are historical buildings such as çilehane, Bayraklı Baba tomb, historical lighthouse, and Şengül bathhouse that can be accessed from the shore. Settlement in the coastal area consists of residential buildings specific to the sloping topography. The houses settled on the slope have entrances to the shore or stairs providing access to the shore. Although not intensive, there are small-scale commercial buildings along the coastal area.

Access to the coastal area from the inner parts of the city is provided by narrow curved streets formed by steep slopes or stairs with many steps. The stairs sloping down to the shore are also used to sit and enjoy the sea view. The 1915 Çanakkale Bridge structure adds symbolism to the landscape of the coastal area. There are piers in the coastal area. The natural rocks in the sea reflect the rich potential of the coast.

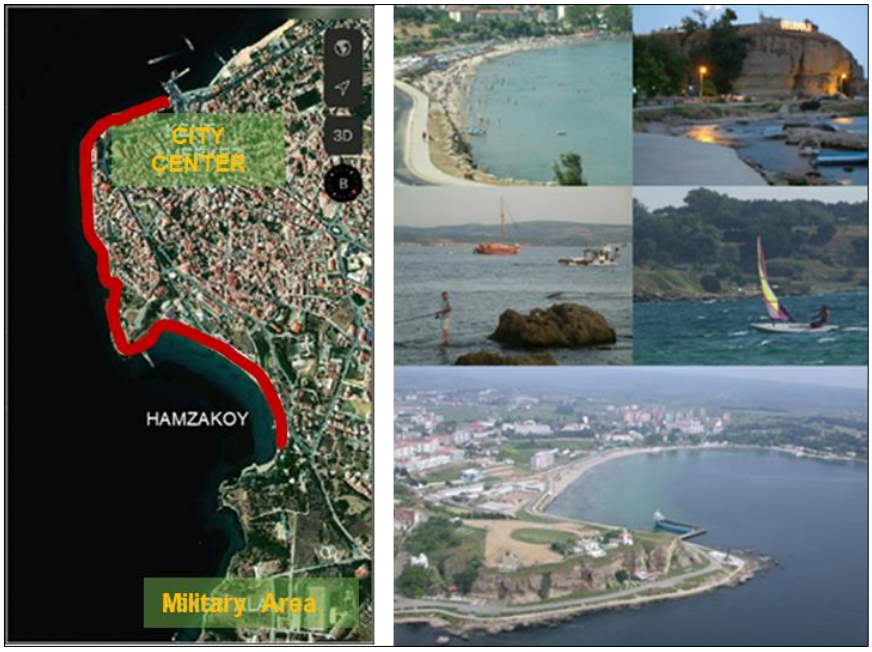

Figure 4. *Study Area 1 and view of Zone A (author source)*

The study areas are examined with the determined parameters. The analysis of Zone A was carried out with the help of photographs. When study area 1 is examined in terms of the determined parameters, the connection to the beach, walking path, living and resting areas, green area, semi-open area, vehicle road, indoor space, event and festival area, children's playground, urban reinforcing elements, building element, water activity area, design continuity and use of bicycles seems to be insufficient. Also, there is no jogging track in the area (Table 2).

Table 2. *Examination and evaluation of the coastal use design of Zone A according to the parameters*

P1. Connection to the coast	**P2.** Walking Area	**P3**. Jogging Track
		data visual is not in the field
There are stairs and ramps down to the shore level. (Insufficient ◥)	Public use of the coast is provided with a walking area. (Available ■)	There is no separate jogging track in the area. (no.□)
P4. Sitting-Resting Spaces	**P5**. Green Area	**P6.** Semi-Open Space
		
Along the coast of zone A, different living-resting areas are designed and arranged with urban furniture. (Available ■)	Existing green areas along the coast are preserved. Although hard ground prevails in some parts of the region, the continuity of the green area was ensured. (Available ■)	There are closed areas at intervals on sections of the walking path. The highest concentration of enclosed spaces is at Hamzaköy. The spaces here are uniform and have no distinctive features. (Available ■)
P7. Vehicle Road	**P8.** Indoor space	**P9**. Event-Festival Area
		
In a part of the area, the vehicle road is closed to traffic. The other vehicle road is between the coast and the closed areas. (Available ■)	A designed top cover that can partially block the sun is used. (Available ■)	There are activity areas such as basketball, tennis courts, and bicycle areas. There are also inshore areas for angling. (Available ■)
P10. Water Activities Area	**P11.** Children's Play Area	**P12.** Continuity of Design
		
The coast is mostly used for water activities. (Insufficient ◥)	There are playgrounds in the area. (Available ■)	The design concept of the walkway along the beach is the same. However, the understanding of design changes in Hamzaköy. (Available ■)
P13. Urban Reinforcement	**P14.** Building Element	**P15.** Activity Areas on the Water
		
Monumental or functional urban reinforcement elements have added diversity and dynamism to the area. (Available ■)	Because of the cliffs, the building elements remain on the upper levels. But at some points, there are those that are at the same height. (Available ■)	Angling is done with the rocks and piers on the shore. There is also a trampoline on the water. (Insufficient ◥)
P16. Bicycle Use	**COAST AREA DESIGN PARAMETERS**	
		
A bicycle path is designed in the area. However, it does not reach the Hamzakoy part of the area. (Insufficient ◥)		

P1	◥	**P2**	■	**P3**	□	**P4**	■
P5	■	**P6**	■	**P7**	■	**P8**	■
P9	■	**P10**	◥	**P11**	■	**P12**	■
P13	■	**P14**	■	**P15**	◥	**P16**	◥

Available: ■ Insufficient: ◥ No: □

4.1.2. Study Area 1 (Southern Coastal Area)- Zone B

Zone B of study area 1 covers the city center and Hamzaköy coastline. Zone B is one of the preferred spots for urban residents to breathe. The 1915 Çanakkale Bridge can be seen from every corner of the area (Figure 5).

It is seen that the coastal area close to the pier is organized recreationally, but it is understood that the arrangement contains different design approaches. There are seating areas, playgrounds, sports areas, green areas, cafes, museums, and monuments (Figure 5).

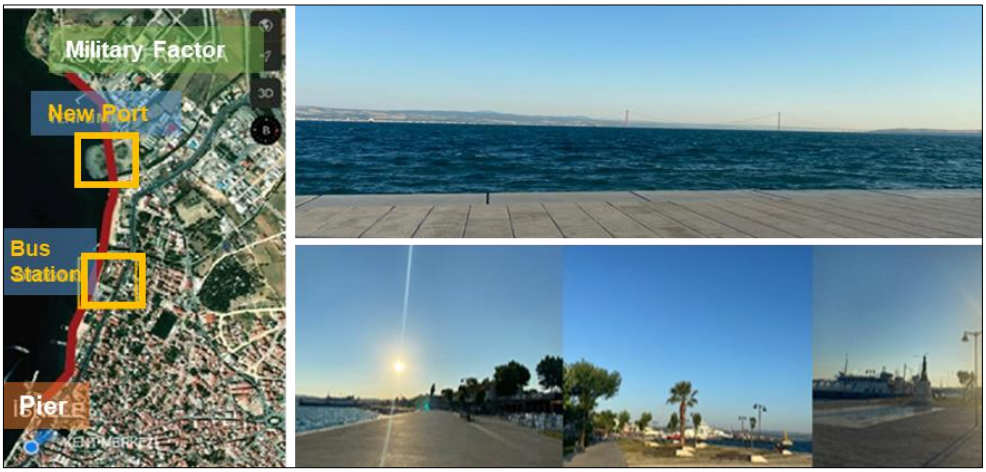

Figure 5. *The appearance of Area 1 and Zone B*

Festival activities (sardine festival) are organized in the coastal area. The rocky structures on the coastal area create a unique environment for angling. The continuity of the walking path of the coastal area is provided by bridge links created to cross the stream beds flowing into the sea.
There is a military area in the zone B. In this area, there is a factory producing war vehicles. A harbor was created by filling the sea in the coastal region of this area. The vehicles produced here are transported by sea. This coastal area is used for military purposes (Table 3)

Zone B of study area 1 was examined in terms of the identified parameters. There is design continuity in pedestrian paths, green areas, vehicle roads, event and festival areas, playgrounds, outdoor furnishings, leisure time areas, semi-open areas, closed areas, and water activity areas, while urban reinforcement elements and bicycle paths are inadequate. In addition, there is no jogging track and no activity area on the water (Table 3). The investigations were determined by visiting and photographing the area.

Table 3. *Examination and evaluation of the coastal use design of zone B in accordance with the parameters*

<table>
<tr><td>P1. Connection to the coast</td><td>P2. Walking Area</td><td>P3. Jogging Track</td></tr>
<tr><td>The elevation of part of the area is one step higher than the shore level, and in some parts, it is at the same level as the shore (Picture 1). (Insufficient ◥)</td><td>Arrangements have been made to increase public use, but this is interrupted at one point (Picture 2). (Available ■)</td><td>There is no separate jogging track in the area. The walking path is used. (no.□)</td></tr>
<tr><td colspan="3"> 
Picture 1</td></tr>
<tr><td>P4. Sitting-Resting Spaces</td><td>P5. Green Area</td><td>P6. Semi-Open Space</td></tr>
<tr><td>Angling is done on the rocks along the coast. (Insufficient ◥)</td><td>It was designed together with the green area in the area, but it was insufficient. There is a high density of landscaped areas before green areas in the region (Picture 1). (Available ■)</td><td>Semi-open spaces, on the other hand, are in the form of a portico directly in front of the interior spaces. Street furniture does not have a sunshade (Picture 2). (Insufficient ◥)</td></tr>
<tr><td>P7. Vehicle Road</td><td>P8. Indoor</td><td>P9. Event-Festival Area</td></tr>
<tr><td>The coastal road is located behind the closed areas after the pedestrian road. This is a busy road used by vehicles coming from outside the city. In addition, this road is a transit point for vehicles coming by boat (Picture 2). (Available ■)</td><td>There are enclosed areas for user needs such as eating and drinking. In addition, there are units such as a museum, a detached house, and a hotel on the shore (Picture 1). (Insufficient ◥)</td><td>There is a soccer field. During festivals, there is an empty area where the amusement park is set up. (Available ■)</td></tr>
<tr><td>P10. Water Activities Area</td><td>P11. Children's Play Area</td><td>P12. Continuity of Design</td></tr>
<tr><td>Angling is done on the rocks along the coast. (Insufficient ◥)</td><td>Children's parks are available (Picture 2). (Available ■)</td><td>Throughout Zone B, the concept of design has changed. (Insufficient ◥)</td></tr>
<tr><td colspan="3"> 
Picture 2</td></tr>
<tr><td>P13. Urban Reinforcement</td><td>P14. Building Element</td><td>P15. Activity Areas on the Water</td></tr>
<tr><td>Various sitting/resting elements have added variation to the design. Monumental urban reinforcing elements were used. (Insufficient ◥)</td><td>The region was not limited to recreational facilities. There are building elements that serve different functions. (Available ■)</td><td>There are no modifications available. However, part of the coast of Zone B will be filled with the new port to be built. (no.□)</td></tr>
<tr><td>P16. Bicycle Use</td><td colspan="2">COAST AREA DESIGN PARAMETERS</td></tr>
<tr><td>Cycling is available in the area, but a bike path is not designated (Picture 2) (Insufficient ◥).</td><td colspan="2">
<table>
<tr><td>P1</td><td>◥</td><td>P2</td><td>■</td><td>P3</td><td>□</td><td>P4</td><td>◥</td></tr>
<tr><td>P5</td><td>■</td><td>P6</td><td>◥</td><td>P7</td><td>■</td><td>P8</td><td>◥</td></tr>
<tr><td>P9</td><td>■</td><td>P10</td><td>◥</td><td>P11</td><td>■</td><td>P12</td><td>◥</td></tr>
<tr><td>P13</td><td>◥</td><td>P14</td><td>■</td><td>P15</td><td>□</td><td>P16</td><td>◥</td></tr>
<tr><td colspan="8">available: ■ insufficient: ◥ no: □</td></tr>
</table>
</td></tr>
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4.2.1. Study Area 2 (Northern Coastal Area)

Study area 2 covers the coastal area of Bolayır (Figure 6). Bolayır village is settled on a hill 4.3 km away from the coastal area. Transportation to the coastal area is generally done by car. There is a high density of secondary housing close to the coastal area.

Figure 6. *Workspace 2*

Horseback riding, cycling, cross-country, volleyball, basketball, swimming, diving, water skiing, surfing, rowing, and sailing sports are actively practiced in the study area, which has a very high recreational potential with its unique flora and fauna in the coastal area. However, it is seen that the management service is insufficient in the actively used coastal area. In 2020, a kitesurfing school was opened in the coastal area. Also, in the coastal area, angling on the rocks and fishing with small boats offshore are organized. Tourism investments are scattered and in the form of small businesses [21]. The short duration of the summer season reduces the capacity of tourism and drives away business investments (Figure 7).

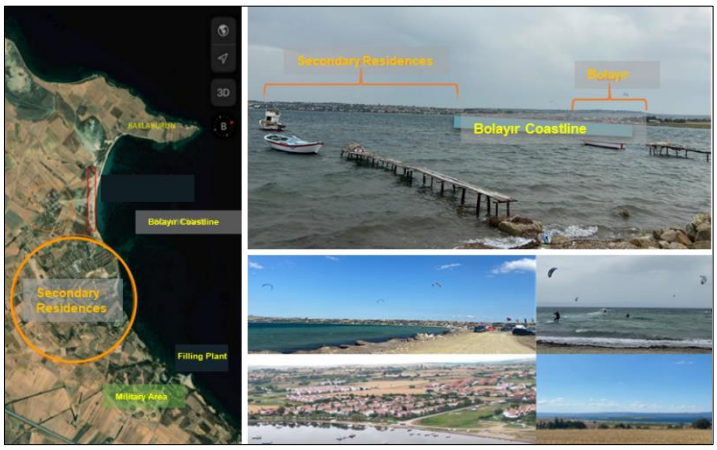

Figure 7. *The Appearance of the Study Area*

It is seen that the first Kitesurfing sport is actively practiced in the coastal area. However, there is only one surf school in the region. Water activities are organized in the area with a natural long beach. It is seen that arrangements for the use of the coastal area have been made in a small region. Beach volleyball is practiced in sports activities. There are no coastal arrangements for cycling and walking activities (Figure 8).

Figure 8. *Images from Baklaburun and different parts of Study Area 2*

As we move towards the Baklaburun section of Study Area 2, the old harbor remains of the ruins of the ancient city catch our eye. At the end of Baklaburun, there is a lighthouse. From the hill where the lighthouse stands, the sunset and sunrise express unique beauty. The lower cliffs and a natural beach can be reached via soil stairs on either side of the hill. The rocks are used for angling and camping.

Looking at Study Area 2 in terms of the parameters identified, although there are green areas, vehicular access, and building elements, there is a lack of connection to the coast, walking paths, sitting and resting areas, children's playground, indoor space, water activities area, urban equipment elements, and bicycle use. In addition, there is no jogging track, no semi-open space, no event and festival area, no continuity of design, and no location by the water (Table 4). The research was carried out by visiting and photographing the area.

Table 4. *Examination and evaluation of the design of study area 2 according to the parameters*

P1. Connection to the coast	**P2.** Walking Area	**P3**. Jogging Track
In Study Area 2, the connection with the coastal level is natural, as there are very few arrangements. In general, there are arrangements in the coastal areas where secondary dwellings are located. (Insufficient ◥)	There is no regulation regarding the walking area and the paths are made of soil. It is free to walk on the parts that the area offers naturally. (Insufficient ◥)	There is no arrangement like a walking path within the jogging track. Natural free jogging areas are available.(no.□)
P4. Sitting-Resting Spaces	**P5**. Green Area	**P6.** Semi-Open Space
Housing in the region consists of simple wooden shelters or makeshift containers on wheels. There are no sitting or resting areas other than these buildings. (Insufficient ◥)	As there is no arrangement in the area, there are naturally continuous green spaces. There are green space arrangements in the secondary housing areas, but they are insufficient. (Available ■)	Most of the indoor areas also have outdoor spaces. Open space is more. (no.□)
P7. Vehicle Road	**P8.** Indoor	**P9**. Event-Festival Area
The coastal road is a dirt track. Although the roads leading to the beach are asphalted, they are in poor condition due to neglect and excessive use. There are potholes in most parts of the tarmac. (Available ■)	There are fishing shelters on the shore, secondary residences, shacks serving the shore, illegal structures built by users, and a surf school. (Insufficient ◥)	Unregulated areas are used as car parks by people coming to the beach. There is no clear event area. There are activities organized by the surf school. There are areas where you can play beach volleyball. (no.□)
P10. Water Activities Area	**P11.** Children's Play Area	**P12.** Continuity of Design
There is a kitesurfing area on part of the beach. Otherwise, there is no designated area for water activities. Swimming activities can be enjoyed on any part of the coast. (Insufficient ◥)	There is no playground on the beach. However, there is one in the area of secondary residences on the coast. (Insufficient ◥)	There is no continuity of design. There is a makeshift illegal structure on the coast. (no.□)
P13. Urban Reinforcement	**P14.** Building Element	**P15.** Activity Areas on the Water
Urban reinforcements elements are almost non-existent. Equipment for garbage is insufficient. (Insufficient ◥)	Secondary dwelling-type construction is dense. In addition, there are illegal shelter-type constructions on the coast. (Available ■)	There is a camellia made by those who use it on the water. There are also wooden piers made for small fishing boats. (no.□)
P16. Bicycle Use	**COAST AREA DESIGN PARAMETERS**	
Cycling is common in the area. However, there are no regulations regarding the cycle path. (Insufficient ◥)	**P1** ◥ **P2** ◥ **P3** □ **P4** ◥ **P5** ■ **P6** □ **P7** ■ **P8** ◥ **P9** □ **P10** ◥ **P11** ◥ **P12** □ P13 ◥ **P14** ■ **P15** □ **P16** ◥ available: ■ insufficient: ◥ no: □	

5. EVALUATION

The comparison of the study areas in the Gallipoli coasts is shown in Table 5. When comparing the areas, it can be seen that Zone A in study area 1 has more recreational activities. In study area 2, there are very few recreational activities. For this reason, there are illegal constructions in study area 2. As a result of this visit and assessment, deficiencies were observed in the study areas. Completing these deficiencies with ecological design criteria will ensure the sustainability of the coastal settlement (Table 5).

Table 5: *Comparison of design parameters of the Gallipoli coastal area*

COASTAL AREA DESIGN PARAMETERS				
NO	**Design Parameters**	**Study Area 1**		**Study Area 2**
		Zone A	**Zone B**	
P1	Connection to the coast	◪	◪	◪
P2	Walking Area	■	■	◪
P3	Jogging Track	□	□	□
P4	Sitting-Resting Space	■	◪	◪
P5	Green Area	■	■	■
P6	Semi-Open Space	■	◪	□
P7	Vehicle Road	■	■	■
P8	Indoor Spaces	■	◪	◪
P9	Event-Festival Area	■	■	□
P10	Water Activities Area	◪	◪	◪
P11	Children's Play Area	■	■	◪
P12	Continuity of Design	■	◪	□
P13	Urban Reinforcement	■	◪	◪
P14	Building Element	■	■	■
P15	Activity Areas on the Water	◪	□	□
P16	Bicycle Use	◪	◪	◪
available: ■		insufficient: ◪	no: □	

6. CONCLUSION AND DISCUSSION

In the examination of the coastal areas of Gallipoli, the 1st region of the study area is located in the city center and the creation of ecological recreation designs will ensure the revitalization, proper use, and sustainability of the coast. Since the 2nd region of the study area is dominated by secondary residences and is not within the natural assets protection area, the sustainability of the service on the coast should be ensured by considering the criteria of ecological agriculture.

The solution proposals for zone A of the 1st region of the study area in line with what has been determined are as follows. Activity areas such as jogging paths, skateboard tracks, and children's playgrounds should be increased in the area. Continuity on the bicycle path should be ensured. The arrangement of green areas should be increased. This arrangement is especially important in the Hamzakoy section. In addition, the design effect of the area should be increased with top covers that partially block the sun in the seating and resting areas in the Hamzakoy section. The closed areas serving the area are uniform, which creates uniformity in the area. A new concept understanding should be created for each café. These arrangements should be made in accordance with ecological design criteria.

The proposed solutions for Zone B of study area 1 are presented below. The continuity of the arrangements and design approach in the area should be ensured. Activity areas such as tennis courts and volleyball courts should be increased. The continuity of the bicycle path and jogging path should be ensured. Interrupted green areas should be increased. The area should be made interesting with semi-open and open spaces. Activities for young people should be provided to ensure that the area is used by young people. Measures should be taken in the area where water flooding is experienced and it should be integrated into urban life.

The solution suggestions for the 2nd region of the study area are as follows. Since the area is under protection, the arrangements made should be in accordance with ecological design criteria. Arrangements such as walking paths, bicycle paths, and jogging paths should be made in the area. Regulation decisions should be taken for ecological tourism to increase the dynamism of the region and ensure its sustainability. The shortcomings of the region in terms of accommodation should be eliminated. Caravan parks and camping areas should be organized. When the region has diving potential, diving centers can be

opened, natural hiking trails can be organized or tours can be arranged to show the protected areas in the region, bird watching can be done during the periods when migratory birds pass through the area. After the demolition of the illegal structures serving the coast of the region, new service units should be created in the vacant area. The design of the units should be compatible with each other and ecological design criteria should be considered. For the garbage problem of the region, garbage containers should be increased and collected more frequently by the local administration during the season. Measures should be taken within the construction limits to reduce the density of secondary housing. In addition, secondary residences that are incorrectly implemented according to the design criteria of the coastal settlement should be demolished or made in accordance with the criteria. The arrangements to be made in the region should ensure the sustainability of the area and the unity of the image of local construction in accordance with the ecological design approach.

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