

Eco-Environmental Factors of Attractiveness of North Sardinia's Coastal Territory

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Abstract: The present work provides an assessment of the environmental quality of the coastal arc of north Sardinia, compared with that in the Upper Tyrrhenian Sea (Sardinia, Tuscany and Liguria), in order to complement the study with an analysis of strategic assets located in the territory as a whole. The study analyses the different components of the tourist services, with particular reference to pleasure boating (ports, basic and value-added services to boats, boaters, and other professionals who are interacting with the local harbour), in order to develop a strategy to improve the supply, modifying and integrating it with additional innovative services and to manage the best marketing efforts by identifying the subjects that decide about the holiday destination.

What emerged was a gap in terms of information about coastal and inland areas near the ports, of indications concerning the many activities that the sea itself offers, beyond the simple navigation, of complementarity between ports and integration with the food supply chain and with the cultural offer of the territories. Considering such results, it is all the more remarkable to note that the two provinces analysed do have environmental and cultural resources which should only be promoted in the most appropriate way in order to implement a strategy to maximise the tourist inflow, to extend the stay or the permanence of the boats, to manage the seasonal adjustment of the presence of tourists and boaters in particular.

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1. Introduction

Starting from the now well-established tendency to conceive of environmental resources as an asset for territories capable of enhancing the quality of life for residents, but also, as far as relevant for the purposes of this analysis, to attract tourists, nautical and not (Madau e Contini, 2008), by increasing the area's capacity to generate income (Grigoli, 2004), we provide an assessment of the environmental quality of the coastal arc of north Sardinia, compared with that in the Upper Tyrrhenian Sea (Sardinia, Tuscany and Liguria), in order to complement the study with an analysis of strategic assets (Marchment, 2008) located in the territory as a whole.

The elements of this evaluation, in the case of coastal areas, are water quality, the richness of the seabed, the integrity of the landscape, sustainability, efficiency in waste management, the quality of tourist facilities and transport services, the presence of relevant parks and historical and artistic heritage and the care with which these are kept, the attention to production traditions, with particular reference to craftsmanship and wine and food.

2. Identification and Evaluation of Eco-environmental Factors

At the end of the measurement of the strategic value of the territory concerned, the analysis has been carried out on the evaluations expressed by the Italian Touring Club in collaboration with Legambiente, for the preparation of the Blue Guide 2012 (Guida Blu, 2012).

This assessment is based on a set of criteria established at European level within the European Association of Ecolabels for sustainable tourism "VISIT" and the European projects "Life", both aimed at the dissemination of good practices for the development of sustainable tourism (Monaco 2010). These criteria include various aspects of environmental quality: land use¹, the state of coastal areas², mobility³, energy⁴, water and purification⁵, waste⁶, initiative for sustainability⁷, food safety and typical quality productions⁸, sea and beaches⁹, social and sanitary structure¹⁰.

Based on the evaluation according to the criteria set out above, individual municipalities were attributed a score from 1 to 100, then synthesized in the allocation of a number of "sails" between 1 and 5, and a vote for some specific aspects exemplified through just as many symbols.

As far as relevant to the determination of the environmental quality of municipalities within the coastal area considered, the characteristics selected among those covered in the publication are:

- ¹ Degradation of the landscape, biodiversity, tourism activities: space consumed by the tourist accommodation and second homes, effects of tourism activities on biodiversity; presence of natural areas, historic centres conservation, street furniture, green areas, promenade, etc..
- ² Pressure of water systems; crowding of tourists; incidence of second homes on the total housing capacity; impact of leisure activities; urban - natural areas ratio; undeveloped coast up to a kilometre from the sea.
- ³ Trend of tourism pressure over traffic; availability improvement of low-impact means of transport; length of stay trends; impact of transport in terms of noise pollution; quality of the air, traffic volumes and congestion.
- ⁴ Energy consumption and supply from renewable sources; contribution to the decline in the influence on climate change.
- ⁵ Pressure on local water resources, water availability for tourists, quality of available resources, housing or production units connected to sewage treatment plants, unauthorised drains, water crises, etc.
- ⁶ Initiatives for waste reduction, incidence of recycling, the presence of composting plants, littering, etc.
- ⁷ Management of environment and tourism with the participation of industry, environmental and consumers' associations; management of sites of cultural and natural interest, etc.
- ⁸ Availability of local food products from organic and / or low-impact farming and of food specialities and traditional craft products.
- ⁹ Quality of water for bathing, state of the beaches, cleanliness of coastal areas, quality of the seabed; wealth of fish and animals, archaeological sites and shipwrecks, diving schools, ecotourism, cultural and / or naturalist tours.
- ¹⁰ Living conditions of the local population, acceptance of the tourist, general security, quality of health services, disabled facilities.

- the cleanliness of the sea and the beaches, the presence of free beaches, the crowding of the shoreline, the presence of security services on the ground (symbol: wave)

- the state of conservation of the territory and the landscape, the presence of protected areas, the degree of artificiality of the territory, the urbanization of the coastal strip, the overall level of quality and attractiveness, the state of conservation of the landscape (symbol: petals, from a minimum of 1 petal up to a maximum of five)

- the quality of hospitality and tourist sensitivity of locations, tourist intensity and density, the incidence of second homes on the overall housing capacity, the presence of typical products and the level of promotion and dissemination in the catering industry, the quality and availability of general public services (symbol: star, one-pointed to five-pointed)

- places of historical and cultural interest, quality craftsmanship, museums, archaeological sites (symbol: castle)

- promotion of initiatives in the field of sustainable management of the waste cycle, in terms of reduction of the per capita production and increase of recycling, of the mobility (implementation of bicycle lanes and pedestrian areas, establishment of public transport services dedicated to travel to and from the beaches), of water and energy saving, of local production of energy from renewable sources (symbol: leaf).

Table 1 presents the aggregate results of the evaluation. In order to obtain an indicator that expresses the phenomenon in terms of synthesis, the results of the individual criteria were added, and the sum was then divided by the large number of locations analysed. In the case of petals and stars, assigned from 1 to 5 depending, respectively, on the state of conservation of the landscape and the quality of hospitality, the sum was divided by 5, in order to standardise the result (Soliani et al. 2012) of the eco-environmental indicator (EEI) thus obtained.

Table 1: Scores for North Sardinia and Upper Tyrrhenian compared

	waves	petals	stars	castle	leaves	EEI
Olbia Tempio	0.89	0.53	0.42	0.78	0.56	3.18
Sassari	0.67	0.73	0.47	0.67	0.33	2.87
Olbia Tempio e Sassari	0.83	0.58	0.43	0.75	0.50	3.10
Liguria	0.49	0.48	0.42	0.38	0.23	2.00
Toscana	0.56	0.53	0.49	0.93	0.37	2.87
Sardegna	0.80	0.61	0.48	0.71	0.51	3.11
Alto Tirreno	0.61	0.53	0.46	0.64	0.37	2.62
Italia	0.52	0.50	0.43	0.64	0.29	2.39

Source: own elaboration based on data from TCI / Legambiente

The localities surveyed in North Sardinia are as follows:

Province of Sassari:

Castelsardo (SS)

Alghero (SS)

Stintino (SS)

Province of Olbia - Tempio:

Arzachena (OT)

Santa Teresa di Gallura (OT)

- Aglientu (OT)
- Budoni (OT)
- Golfo Aranci (OT)
- La Maddalena (OT)
- Olbia (OT)
- Palau (OT)
- San Teodoro (OT)

For each province, the first five columns include scores related to the number of waves, petals, stars, castles, leaves attributed on average to the municipalities listed above; the last column includes the sum of the different indicators. Thanks to the standardization of the values related to the conservation of the landscape (petals) and the general quality of hospitality (stars), each score ranges from a minimum of 0 to a maximum of 1 point; the sum, which provides a measure of the eco-environmental quality of the territory considered, therefore, can vary between 0 and 5 (Figure 1 below).

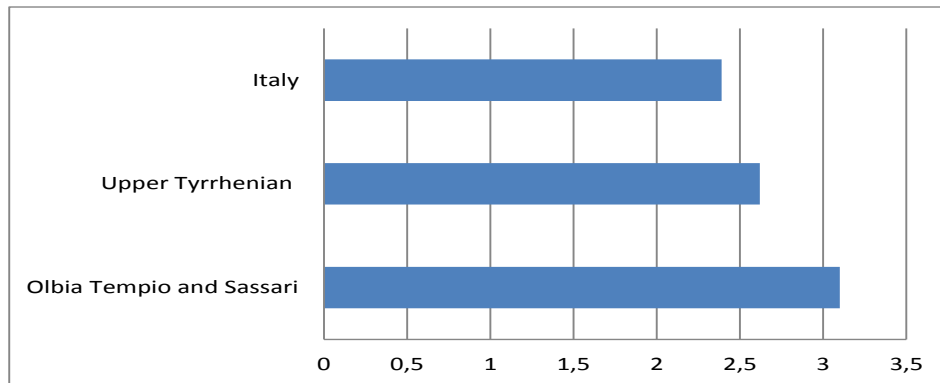


Figure 1: Eco-Environmental Quality Index
(Source: own elaboration based on data from Legambiente)

For a visual analysis that compares the different components of the EEI indicator, consider the **Kiviat diagram** (Figure 2), which represents notoriously a sequence of radii that originate from a centre and form equal angles between themselves; each radius represents one of the variables. The distance from the centre of the point marked on the radius is proportional to the value of the variable in respect to the maximum value attainable.

The analysis of the data shows immediately how the two provinces considered together obtain a score higher than that of the municipalities in the regions of Liguria and Tuscany, of the entire region of Sardinia, of the Upper Tyrrhenian, and also of the nation as a whole. In particular, it is the province of Olbia - Tempio to deserve the highest average score (3.18), thanks to the high scores achieved in terms of beauty and cleanliness of beaches and seas (waves) and places of historical and cultural interest (castles), in addition to a modest vote (but better than the others) for the sustainability of waste management and mobility.

By analysing with greater detail the assets of towns in the province of Olbia - Tempio, we highlight, in particular, the abundance of archaeological evidence, especially the Li Muri Necropolis of Neolithic age, in the municipality of Arzachena; the white beaches and towering granite cliffs of Santa Teresa di Gallura, one of the most fascinating tourist destinations of the northern coast of Sardinia, with the rocky promontory called Torre Longosardo and Capo Testa, joined to the mainland by a narrow isthmus; the long white beaches of Budoni, which in recent years has seen a

considerable urban development as a function of an economy based on tourism but also rich of historical attractions of Neolithic, Nuragic and Romanesque periods; the La Maddalena National Park, the largest island of the archipelago, of spectacular beauty, with crystal clear water and its old historic centre; the green train of Palau; typical productions, most notably that of Vermentino, which has gained DOCG recognition since 1996.

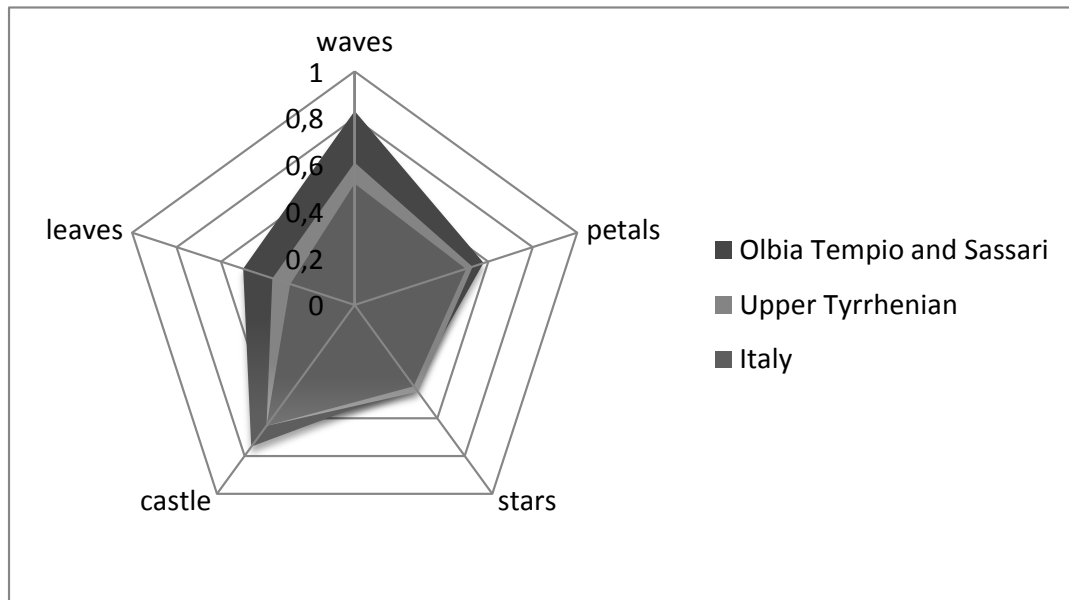


Figure 2: Kiviati diagram of environmental quality
(Source: own elaboration based on data from Legambiente)

The municipalities in the province of Sassari instead have the highest average score in terms of petals (landscape conservation), and a good evaluation with regard to the cleanliness of the sea (waves) and the artistic and cultural heritage (castles). In particular, we point out the medieval village of Castelsardo, in the gulf of Asinara, preserved thanks to the particular geographic position, a promontory overlooking the sea, which has preserved it from attacks and destructions over the centuries; the church of Santa Maria and the cathedral, dating to the second half of the sixteenth century, with its bell tower with a majolica dome, and the castle of Castelsardo, which houses the Museum of Mediterranean weaving, where objects of basket weaving typical of Sardinia and other areas of the Mediterranean are displayed; the natural environment of the regional park of Porto Conte and the protected marine area of Capo Caccia - Isola Piana, within which Alghero lies, with its beautiful coastline and inland wonders, and the enchanting beaches and pleasant landscapes of Stintino, characterized by regular alleys and pastel-colored houses; the production of handmade baskets, which can be admired thanks to the women that still engage in this ancient art in the streets of the village.

Neither of the two provinces obtains a high score in terms of quality of hospitality and tourist sensitivity, and of quality and availability of general public services (symbol: star). On the other hand, the other regions within the Upper Tyrrhenian do not reach the score of 0.5.

3. Conclusions

The result of the evaluation is certainly positive: the coastal territory comprised within Alghero, in the north-east, and San Teodoro, north-west, obtains the best results in terms of eco-environmental quality.

However, since high quality levels correspond to higher potential profitability of the territory, then it is appropriate to ask whether this potential is fully exploited or it could be better promoted through the offer of integrated holiday packages and more efficient marketing efforts (Ugolini, 2013).

In the present study we have analysed the different components of the tourist services, with particular reference to pleasure boating (Grigoli, 2007) (ports, basic and value-added services to boats, boaters, and other professionals who are interacting with the local harbour), in order to develop a strategy to improve the supply, modifying and integrating it with additional innovative services and to manage the best marketing efforts by identifying the subjects that decide about the holiday destination (Favro e Gržetić, 2008).

What emerged was a gap in terms of information about coastal and inland areas near the ports, of indications concerning the many activities that the sea itself offers, beyond the simple navigation, of complementarity between ports and integration with the food supply chain and with the cultural offer of the territories (Ugolini, 2008). Considering such results, it is all the more remarkable to note that, the two provinces analysed do have environmental and cultural resources which should only be promoted in the most appropriate way in order to implement a strategy to maximise the tourist inflow, to extend the stay or the permanence of the boats, to manage the seasonal adjustment of the presence of tourists and boaters in particular.

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