



Can coastal scenery be managed? The Valparaíso region, Chile as a case study

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ABSTRACT

Coastal tourism developed along the Valparaíso region of Chile is being threatened by a very particular issue: scenery degradation related to extreme urbanization and collateral effects. This paper presents the results of scenic evaluation of 96 sites along this region. The scenic evaluation assesses values from a checklist of 18 physical and 8 human parameters, and permits calculation of a scenic evaluation index (D Value), which classifies coastal sites into five classes: Class I, usually natural areas of top scenic characteristics, to Class V, poor scenic natural areas with a higher impact of human interventions. In summary, 14 sites (15%) appeared in Class I; 7 (7%) in Class II; 9 (9%) in Class III; 17 (18%) in Class IV and 49 sites (51%) in Class V. This evaluation provides a complete scenic assessment overview of the Valparaíso Region, allowing implementation of an adequate management strategy based on knowledge of coastal scenery for the maintenance and preservation of scenic quality.

1. Introduction

The coast is one of the most dynamic and precious morphological features on Earth. From the beginning of mankind, these areas have played a significant role as a place for human settlement and economic development (Pilkey and Cooper, 2014; Barragan and Andreis, 2015). Coastal economic growth has always been strongly dependent on exploitation of several natural resources among which is its Scenery.

Coastal Scenery is the appearance of a coastal area, and its character and quality that are the result of multiple interactions between natural and human factors (Council of Europe, 2000). Also, scenery is a reflection of the mutual interactions between living organisms and their coastal environment, and it is considered to be a fundamental part of the ecosystem (Van der Meulen and Salman, 1996; Williams, 2019).

Coastal Scenery is a resource, partly because of the economic value and partly because it is an accepted component of the existing resource assessment programs (Kaye and Alder, 1999). The unique and distinctive character of scenery turns it into one of the most significant assets for humankind thanks to a growing industry: **Coastal Tourism** (Rangel-Buitrago, 2019). Coastal tourism includes those recreational activities that involve travel away from one's place of residence, which has as their host or focus the coastal zone (Hall, 2001). This industry

necessarily depends on the coastal environment to attract tourists (Lekakou and Tzannatos, 2001; White et al., 2006). Several studies demonstrate that excellent scenery is perhaps the prime factor considered by a potential tourist in choosing a coastal vacation destination (Jędrzejczak, 2004; Papageorgiou, 2016).

According to UNTWO (2016), tourism is one of the ten largest business sectors of the World economy. This industry by itself generates five in one hundred jobs globally, and between 35 and 45% of the world's exports services (UNTWO, 2016). Also, its contribution to gross domestic product in any given country can range from 2% for small scale tourism countries where tourism weighting can be significant, to more than 50% in countries where the tourism industry is well developed.

The growth of coastal tourism is undeniable, and several studies have highlighted an exponential growth in the last three decades (Miller, 1993; Hall, 2001; Rangel-Buitrago et al., 2013). Tourism's importance is unquestionable, and its growth is related to the natural physical and socio-economic characteristics of the coastal area (UNEP, 2009). A place with superb coastal scenery has an invaluable "plus effect" because the coast is an ideal area for tourism development.

Chile has an 83000 km of coastline (SHOA, 1994) and its unique geological and geomorphologic conditions make the coast a perfect

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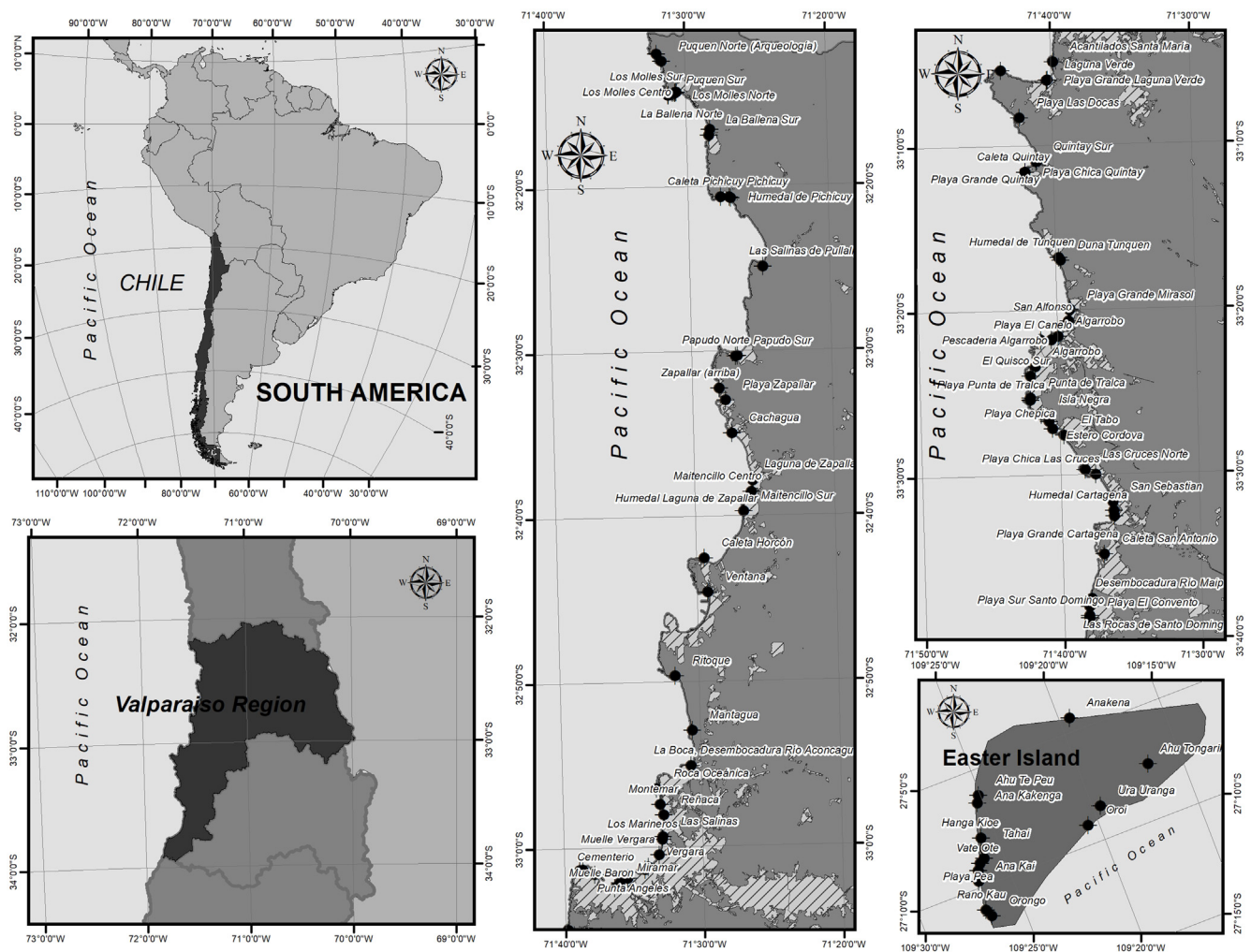


Fig. 1. Study area with indication of the administrative division of the Valparaíso Region. Easter Island inset is located.

place for tourism development. The above is well known by Chilean authorities, and from the mid-1990s the tourist industry, especially coastal tourism, has become one of the most important sources of income for the country and the key to the economy of many regions of the country, such as the Valparaíso region. Chile had 5.6 million visitors in a 2016 and with respect to international tourist arrivals it was ranked the second leading destination in South America and the sixth in the Americas after the United States, Mexico, Canada, Brazil and Dominican Republic with revenues from foreign tourists that reached US\$2.7 billion in 2016 (UNTWO (2017)).

Coastal tourism, especially along the Valparaíso Region, is being threatened by a very particular issue: scenery degradation related to extreme urbanization and the collateral effects (e.g., litter, accelerated coastal erosion due to engineering structures, and pollution). Most of the time coastal scenery degradation begins with repeated exploitation goals of the tourism industry. Many countries (including Chile) utilize proactive urbanization growth policies along the coast to benefit from more tourist arrivals based on the wrong premise: **More urbanization (facilities) means more tourists.**

Coastal degradation related to extreme urbanization activities produces a negative reaction in beach users due to the feeling of limited space, unhealthy conditions, and above all, a poor aesthetic value. As a result, extreme urbanization is a strong reason to leave or not visit an area (Pilkey et al., 2011). For the Valparaíso Region, scenery degradation of coastal areas increased at the same time as the coastal tourism boom, mainly because of the construction of intensive secondary housing cooperatives, hotels and tourism facilities (Negrete

et al., 2000; Hidalgo et al., 2014, 2016). What began as part of a prosperous industry, coastal tourism is now a big issue that is affecting its very development.

The above leaves an important question to resolve: **How can one overcome scenery degradation and restore or improve the scenic quality of the Valparaíso Region's coastline?** The answer is the objective of this paper.

This paper provides a scenic assessment of 96 coastal sites located along the Valparaíso Region coastline (continental and insular), by means of the use of fuzzy logic analysis and parameter weighting matrices to overcome subjectivity and quantifying uncertainties (Ergin et al., 2004; Ergin, 2019; Rangel-Buitrago, 2019). Similarly it deals with the main factors relating to an innovative scenic assessment methodology applied to a coastal area whose intrinsic geological characteristics, and in particular the physical context, control the natural factors considered in the classification. Utilizing this analysis and classification will result in a significant thrust for coastal tourism, currently threatened by extreme urbanization and related impacts. The technique opens new perspectives for analysis of the potential for coastal tourism development in natural areas, and scenic quality improvement of current tourism-developed regions. It also, provided is a complete scenic assessment of the Valparaíso Region, so allowing implementation of an adequate management strategy based on coastal scenery knowledge for the maintenance and preservation of the scenic quality.

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