

ARTISANAL SALTSCAPES IN EUROPE

From mining heritage to living cultural landscapes

PAISAJES DE LA SAL ARTESANALES EN EUROPA

De patrimonio minero a paisajes culturales vivos

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ABSTRACT

Artisanal salt making in Europe is experiencing an unprecedented expansion, thanks to a stronger awareness of quality food products, the protection of a traditional know-how and the maintenance of the natural values of productive landscapes. Over the last century, small solar evaporation salt making sites across the continent had been experiencing a decline, in favour of large, industrial mining facilities. Hand harvested salt was seen as a low-quality product, not fit for its use in food or other applications. In Spain and Portugal alone, from the over 700 former salt making sites, only 10% survived, the rest falling into oblivion. In the early 21st century, some abandoned sites were gaining attention as mining heritage, being recovered as open-air museums. In a few cases, some sites were recovered in extremis as productive sites, becoming (again) living cultural landscapes. In this contribution, we analyse the recovery of twelve saltscapes in Europe, with different degrees of advancement. A combination of qualitative and quantitative methods allows to understand the processes and which factors influence the transformation from an abandoned mining site to a thriving productive landscape that celebrates and protects its cultural, human and natural values.

Keywords: salt production, abandonment, recovery, local development

RESUMEN

La producción artesanal de sal en Europa está experimentando una expansión sin precedentes, gracias a una mayor concienciación sobre los productos alimentarios de calidad, la protección del conocimiento tradicional y el mantenimiento de los valores naturales de los paisajes productivos. Durante el siglo XX, pequeñas salinas de evaporación solar en todo el continente experimentaron un declive, en favor de las grandes instalaciones industriales. La sal cosechada a mano era vista como un producto de baja calidad, no apta para su uso en alimentación u otras aplicaciones. Solo en España y Portugal, de los más de 700 antiguos espacios salineros, solo el 10% sobrevivió, cayendo el resto en el olvido. A principios del siglo XXI, algunos espacios abandonados recibieron atención como patrimonio minero, siendo recuperados como museos al aire libre. En algunos casos, algunos recuperaron in extremis la producción, convirtiéndose (de nuevo) en paisajes culturales vivos. En esta contribución, analizamos la recuperación de doce paisajes de la sal en Europa, con diferentes grados de avance. Una combinación de métodos cualitativos y cuantitativos permite comprender los procesos y qué factores influyen en la transformación de un espacio minero abandonado a un próspero paisaje productivo que celebra y protege sus valores culturales, humanos y naturales.

Palabras clave: producción de sal, abandono, puesta en valor, desarrollo local

1. Introduction

1.1 Saltscapes as former cultural landscapes

The Association of Friends of Inland Salinas defined ‘saltscapes’ as “any landscape type whose elements are strongly influenced by the presence of salt and forms a defined ecosystem” (Hueso Kortekaas & Carrasco Vayá, 2009). Saltscapes can be natural, such as salt rivers, lakes, lagoons and meadows, or manmade. The latter are usually created with the specific purpose of producing salt or improving the efficiency of its natural formation. Estimating the numbers, or even the location, of the saltscapes and salt production sites in Europe has not been accomplished yet, only partial results have been obtained. Marín and d’Ayala (1997) estimated the number of salt making areas in the Mediterranean in “100 large scattered enclaves which, up until recently, were home to more than 4,000 groups or individual historical saltworks”. According to Sadoul *et al.* (1998) the number of salinas recognisable within the Mediterranean Basin amounted to 170. Partial inventories estimate the number of salt making sites (present and former) to be over 700 in Spain; 116 in Germany; and ca 380 in Greece (Emons & Walter, 1988; Petanidou, 1997; Carrasco Vayá & Hueso Kortekaas, 2008; Petanidou & Dalaka, 2009; see also Table 1).

Even though artificial, salt production sites are a specific form of saltscapes and can be considered as saline ecosystems, in which human intervention is, not only tolerated, but necessary to effectively produce an economically viable product while serving a critical role in nature conservation and biodiversity (Korovessis & Lekkas, 1999; Petanidou, 2000; Hueso Kortekaas & Carrasco Vayá, 2008; Petanidou & Dalaka, 2009). Humans have the power to transform, enlarge or even create these ecosystems, provided there is the relative abundance and proximity of naturally occurring salt. The combination of natural and cultural factors, with the addition of elements to the landscape (buildings, infrastructures, roads...), leaves unique traces on the landscape and enriches the diversity of saltscapes that are found worldwide. Salinas epitomise the complexity of cultural landscapes, in which human, cultural and natural features are intimately linked and are mutually dependent in order to achieve and maintain sustainability (Hueso Kortekaas, 2019).

Saltscapes are associated with a wide variety of values that may justify their conservation. As has been seen, salinas offer a rich material heritage in the form of infrastructures, buildings, devices and tools. Yet they are also the cradle of a vast intangible heritage, composed of traditions, beliefs, language and art (Petanidou, 1997; Viñals, 2002; Hueso Kortekaas & Petanidou, 2011). Among the most relevant intangible values, is the professional know how of the salt makers with respect to the building of the salt making site, the technique or the understanding of natural processes and meteorology. Also, highly relevant is the management of the work tasks and the distribution of water rights, among others. Saltscapes are also a powerful source of inspiration for material and intellectual creativity. From modest ceramic salt cellars to renowned paintings, artists and craftsmen have used numerous references to salt in their work (Bisaccia *et al.*, 1997; Román López, 2013).

The abandonment of salt making in Europe responds to a combination of social, environmental and economic factors. Most sites have been gradually abandoned during the 20th century. Of the thousands of salt making sites found in Europe in mediaeval and modern times, only a few dozen survived the industrialisation process during the late 18th and 19th centuries. Others, which were more isolated, continued producing salt by artisanal methods, producing a double gap among them: on the one hand, industrialised sites enlarged their production numbers and on the other, required less manpower to do so. Since artisanal salt was not particularly appreciated at the turn of the 20th century, those salinas survived only in isolated areas, where there was no other source of salt. However, no comprehensive studies on the abandonment of salt making and salinas have been made, but some partial inventories performed in different European regions, can provide an indication of the degree of heritage loss associated to salt making (see Table 1). Taking into consideration all the necessary precautions

when comparing such studies, in most cases, a loss of around 90% has been registered. By all accounts, this is a serious threat to the remaining sites. Those which have not been transformed into industrial salt works (e.g. roughly half of the remaining coastal sites in Spain), are under threat of abandonment or land use changes, thus becoming a fossilized mining heritagescape. This contribution looks at those sites that have been able to shift from a merely productive activity to a heritage-based multifunctional, living landscape.

Region	Past	Today [†]	% of heritage loss
Spain and Portugal ¹	517 inland salinas 182 coastal salinas	ca 45 inland salinas ca 30 coastal salinas	91% (inland salinas) 84% (coastal salinas)
Germany ²	115 seething facilities	5-10 seething facilities	91-96%
Greece ³	356 salinas	178 salinas	50%
Mediterranean basin ⁴	4,000 salinas	170 salinas	99,5%

[†]Operating or in reasonable state of conservation

Table 1 Evolution of the number of salt making sites in certain regions of Europe. Sources: Hueso Kortekaas, 2019, with data from:

¹Carrasco Vayá & Hueso Kortekaas, 2008; ²Emons & Walter, 1988; ³Petanidou & Dalaka, 2009; ⁴Luengo & Marín, 1994; ⁴Sadoul *et al.*, 1998, own data

1.2 Selection of study sites

The selection of all cases responds to one criterion, that is, whether the sites are, or have been, in the process of patrimonialization. This means that the selected sites besides from producing salt (in case they do), they have other areas of economic activity focused on the public, such as tourism, health services, or educational activities.

1.2.1 Spanish inland Salinas protected as BIC

In the case of Spanish sites (see Figure 1 and Table 2 for a brief description), an additional criterion has been that the nine sites selected were the only inland salinas protected as a BIC (*Bien de Interés Cultural* or Good Cultural Interest), at the start of the research for this work (autumn 2014). The reason to choose this protection measure is that it acknowledges, not only the cultural values of the site, but also its patrimonialization process. In some of these cases, the natural values are also protected. On the other hand, many (former) salt making sites are only protected for their natural values, but these are acknowledged in spite of, rather than thanks to the salt making activity.

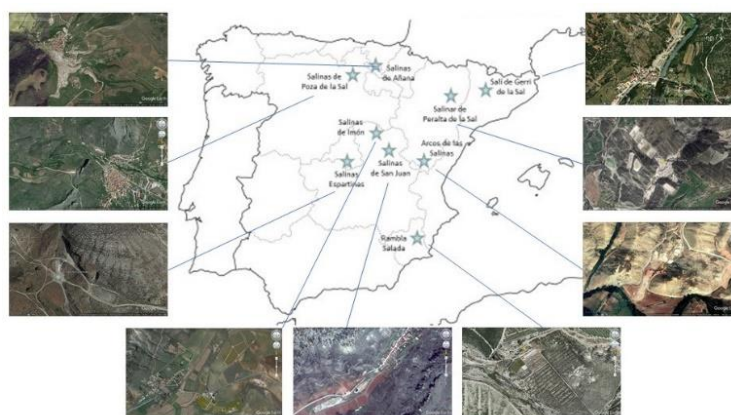


Fig. 1 Location of the nine study sites in Spain. Source: Adapted from: Hueso Kortekaas, 2019; ©Google Earth / Landsat

1.2.2 Patrimonialized Salinas elsewhere in Europe

The three cases chosen elsewhere in Europe (see Figure 2 and Table 2 for a brief description) respond to a more empirical criterion. These are sites known for their successful management of the artisanal salt making

activity in a balanced combination with the protection of natural and cultural values, as well as the provision of a livelihood for the local community. There are certainly more cases in Europe, but these are representative of very different processes and may act as paradigms for others.

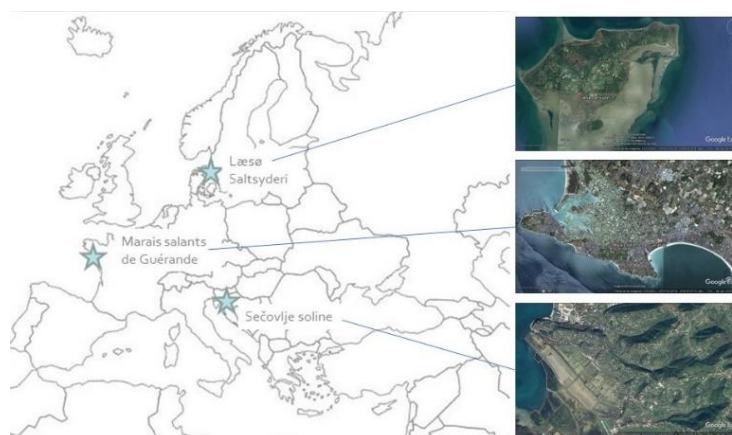


Fig. 2 Location of the nine study sites in Spain. Source: Adapted from: Hueso Kortekaas, 2019; ©Google Earth / Landsat

Table 2 provides a general summary of the main features of each study site, both in Spain as elsewhere in Europe. Quite relevant to understand the patrimonialization processes are the type of ownership and management of the site, the drivers of the patrimonialization process, the assets of the immediate surroundings and the primary and secondary activities of the site.

Site	Threats it faced	Ownership and management	Process (driven by)	Main activity	Secondary activities	Best known heritage asset
<i>Sites in Spain</i>						
Añana	Abandonment	Public (trust)	Top-down (public admin.)	Tourism, salt making	Wellness	Ethnographical & built heritage
Arcos	Abandonment	Private (individual)	Horizontal (municipality)	None	None	Built heritage
Espartinas	Abandonment	Private (individual)	Bottom-up (civil society)	None	None	Archaeological remains
Gerri	Abandonment	Private (individuals)	Horizontal (municipality)	Tourism	Salt making	Nature & landscape
Imón	Abandonment & misuse	Private (industrial consortium)	Bottom-up (civil society)	Industrial salt making	None	Built heritage
Peralta	Abandonment	Private (individual)	Horizontal (municipality)	None	None	Built heritage
Poza	Abandonment	Private-Public (individuals and municipality)	Bottom-up (civil society)	Salt making	Tourism	Ethnographical & built heritage
Rambla S.	Abandonment	Public (regional admin)	Bottom-up (civil society)	Tourism	Salt making	Nature (birds, wetland)
San Juan	Abandonment	Public (trust)	Horizontal (municipality)	Salt making	Tourism	Nature (geology)
<i>Sites in the rest of Europe</i>						
Guérande	Speculation	Cooperative (salt makers)	Bottom-up (civil society)	Salt making	Nature Tourism	Nature (birds, wetland)
Læsø	Lost know-how	Corporate (SME)	Horizontal (municipality)	Salt making	Tourism Wellness	Ethnographical & built heritage
Sečovlje	Abandonment & change	Corporate (transnational)	Top-down (private sector)	Tourism	Salt making Wellness	Nature (birds, wetland)

Table 2 Main features of each of the cases studied. Source: Hueso Kortekaas, 2019

a) Guérande salt marshes (France)

The Guérande salt marshes (47°17' N, 2°27' W, 0 m a.s.l.) are located in the southern half of Brittany (France) between the mouths of the rivers Loire and Vilaine, facing the Atlantic Ocean. They form a very large wetland zone in western Loire-Atlantique and occupy a surface of 2,000 hectares. Salt has been harvested on the peninsula since the Iron Age. In the mid-20th century the salinas were threatened by the encroaching urban sprawl, however certain public sectors, sensitive to the cultural and natural values of the site, managed to stop this threat and recover the salt marshes as they had always been. The tradition of the salt worker's profession was recovered and the preservation of these skills have allowed the Guérande marshes to survive through to modern times (see Figure 3). The Guérande salt marshes harbour an abundant and diverse flora and fauna. Guérande is a favourite over-wintering and reproduction site for birds with over 280 species of migrating birds passing through every year. The salt marshes on the Guérande peninsula were awarded the *Label Paysage* in 1992, have been listed as a *Zone Naturelle d'Intérêt Écologique, Floristique and Faunistique (ZNIEFF)* (Site of Special Interest) since 1991 and as a *Zone Importante pour la Conservation des Oiseaux (ZICO)* (Bird Protection Area) under the 1979 European directive on Birds. Since 1995, the salt marshes have been protected as wetlands of international importance under the Ramsar convention. Finally, the site forms part of the European Natura 2000 network and is candidate to Biosphere Reserve by UNESCO (Buron, 1990; Thompson, 1999; Chadenas, 2005; Gallicé & Buron, 2010).



Fig. 3 The Salinas of Guérande. Photo by Hjalmar Dahm

b) Sečovlje Salinas, Piran (Slovenia)

The Sečovlje salt pans (45°29' N, 13°36' E, 0 m a.s.l.) are located in the south-west region of Slovenia, next to the border with the Republic of Croatia and consist of two parts. The northern region, where salt is still being actively produced and harvested, is known as Lera. The southern part, called Fontanigge, is separated by the Grande-Drnica channel (see Figure 4). The golden age of salt making in Sečovlje lasted from the 15th century to the end of the 18th century, under the control of the Venetian Republic. Their salt is well known throughout

the Eastern Mediterranean and the site represents an example of good management practices and the smooth transition from a communist to a capitalist economic system. The Sečovlje salt pans are, today, the largest coastal marsh wetlands (650 hectares) in the country and, at the same time, are the most important Slovenian locality from an ornithological standpoint. Today, 272 bird species have been found in the Sečovlje salina, with some 90 breeders among them. In 2001 the Government of the Republic of Slovenia declared the Sečovlje Salina Natural Park and the adjacent Museum of Salt-making as a cultural monument of national importance. In 1993, the salinas became the first Slovene wetland included in the Ramsar convention (Hocquet, 1982; Benčič & Žagar, 2002; Sovinc, 2009; Faganel & Trnavčević, 2012).



Fig. 4 The Grande-Drnica channel, separating the Lera and Fonttanigge sections of the Sečovlje Salinas. Photo by Katia Hueso

c) Læsø Saltworks, Northern Jutland (Denmark)

The Læsø salt works (57°15' N, 11°2' W, 0 m a.s.l.) are located in the south-east of the island Læsø in northernmost Denmark. Salt is being produced by seething, using wood as fuel. The brine is pumped from the salty water table of Rønnerne, in the nearby sandbanks of the southern edge of the island. This brine is twice or three times as concentrated as seawater and is collected in wells to be further concentrated. The brine is then boiled or seethed in order to obtain a high-quality product. During the Middle Ages the Læsø salt works were the most important workplace on the island and were considered the first industry of the time. Salt production stopped in 1652 because seething salt in the huts required large amounts of biomass. There are remains of ca. 1,000 seething huts on the island (see Figure 5). In 1991 a municipal employment project allowed the restart of the salt making activity in the island, according to 16th century methods. Today, the salt works represent an important contribution to the economy of Læsø, selling both locally as well as throughout Scandinavia. The salt is highly valued by customers and visitors and has become a culinary reference in high-end restaurants in the region. There is no official protection status for the salt works. Plans by the Danish Government to declare the island as a maritime national park were dismissed by the local community (Stocklund, 1985; Velle, 1991; Hansen, 2010; Hueso Kortekaas & Carrasco Vayá, 2010).



Fig. 5 Salt making hut in the Læsø salt works. Photo by Katia Hueso

2. Methodology

The methodology used for the research of the selected case studies is based on a combination of qualitative methods (bibliographic survey, field visits, focus groups and in-depth interviews) and a quantitative assessment tool (indicators), as shown in Figure 6. The combination of methods provides a simple and objective, yet deep insight on the patrimonialization process of each site. The qualitative methods reflect the complexity of the management of saltscapes, but also provide information needed for the indicator-based tool, which feeds on a combination of the three. Both the quantitative and the qualitative analysis sum up the narrative of the site; which, in other words, is the story of its patrimonialization.

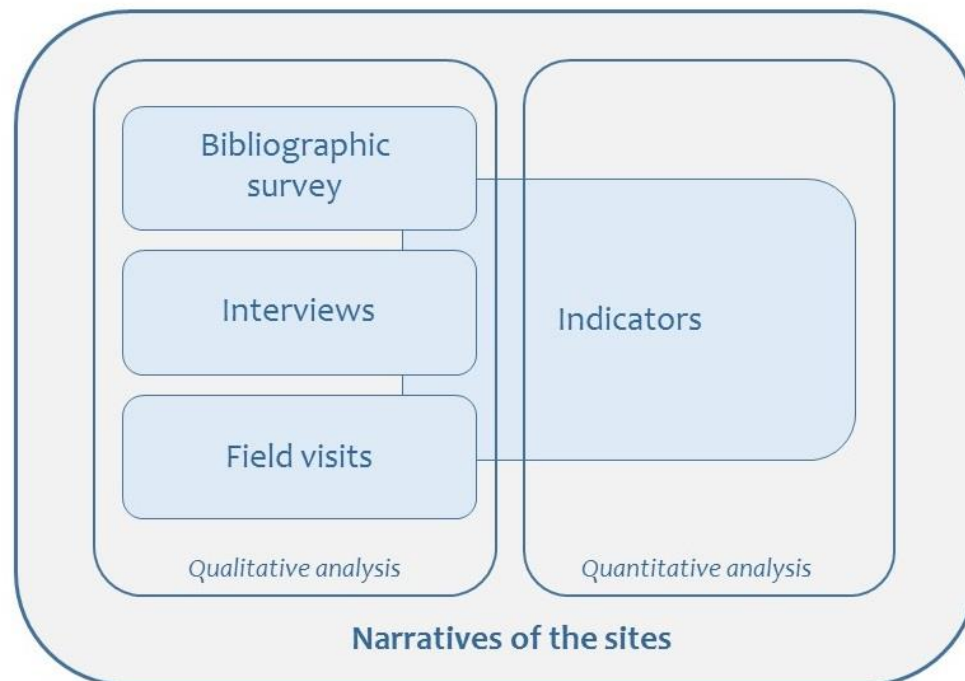


Fig. 6 Schematic representation of the methodology used. Source: Hueso Kortekaas, 2019

2.1 Bibliographic survey

An important part of the work relied on the consultation of written literature. The written sources covered both scientific as non-scientific literature. Obviously not all sites will offer the same quantity and diversity of literature. When possible, scientific literature covered parts of the narratives of the sites, but most often grey literature was consulted. Examples of the latter are unpublished reports, plans and projects or internal documents, often provided by non-profit organisations and authorities. Conference proceedings and theses also proved to be an essential source of information and potential informants.

2.2 Interviews

Understanding local development around a saltscape (or any other form of landscape-based heritage) requires an appropriate identification of stakeholders (see Figure 7). Stakeholders are not only decision makers, owners or managers of the site, but any person or organization that feels affected by whatever happens to this piece of heritage or landscape. Stakeholders can be classified by the type of influence they have on the site's management (and *viceversa*) and the nature of the influence (government, management, NGO, informal opinion leaders...). Also important is their spatial distribution, that is, the administrative level at which they operate (from individual, to local, regional, etc.). Some of them may have the right information, but not the capacity of willingness to participate in the research. Finding the right stakeholders in each of the study sites requires a deep knowledge of their recent history, given the variety of roles and profiles, such as owners and /or managers of the site; local and regional authorities, scientist and scholars, salt makers, etc. The author's long-term involvement with the study sites has contributed to find and interview a range of 5-15 stakeholders per study site (see Hueso Kortekaas 2019 for further details).

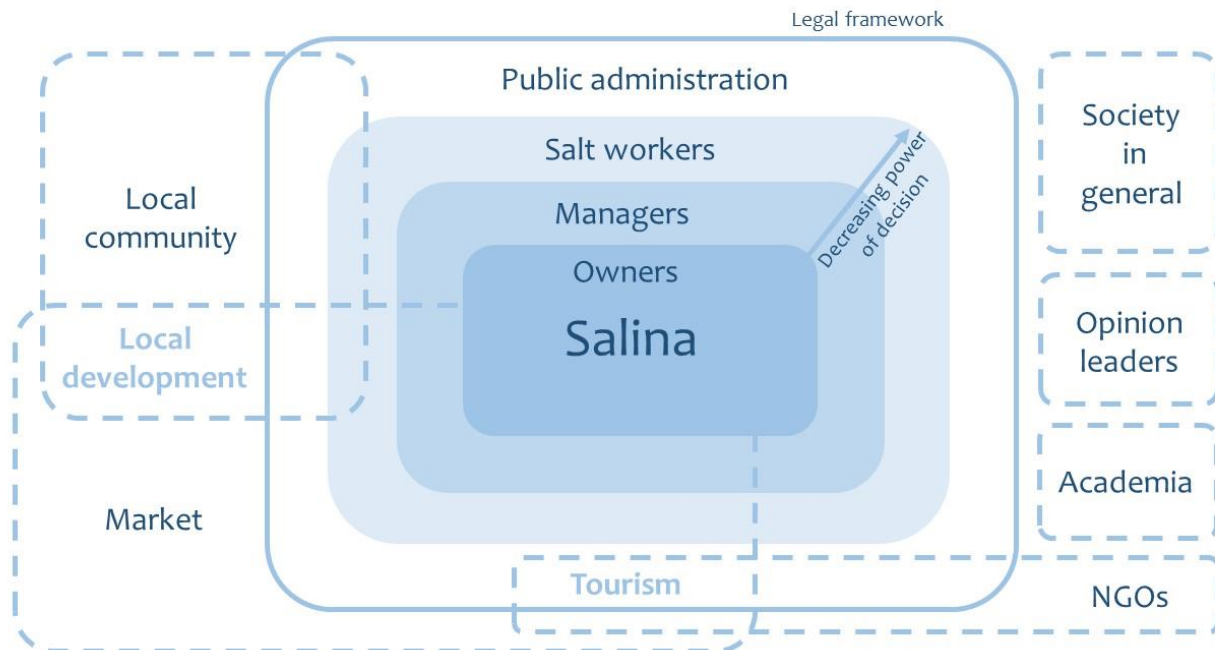


Fig. 7 Structure and relations between stakeholders around a salt making site. Source: Hueso Kortekaas, 2019

2.3 Field visits

The field visits were intended to observe, first-hand, the state of the salt making site and the surrounding landscape, to visit the businesses and other facilities associated to salt and to perform the interviews with local stakeholders. This direct observation allowed to better understand the circumstances of the site, the decisions of its owners or managers and the relationship between stakeholders. No two sites are alike, and a personal visit significantly increases the insight into the features of each one. These personal observations help in acquiring a holistic view of the management of the site, as well as improving the understanding of both the strengths and opportunities and the challenges and difficulties involving the saltscape.

2.4 Indicators

Indicators are a powerful tool to provide objective and easy to understand information about a specific site and allow for a comparison between similar sites. They can also provide an early warning of the trends, needs and challenges that lie ahead for the sites assessed (Dale & Beyeler, 2001; Field *et al.*, 2010). Some studies have specifically focused on the use of indicators to identify changes in saline wetlands and salinas (Castañeda & Herrero, 2008; López *et al.*, 2010, although focused on ecological features of the sites. The indicator system used in this study is a set of simple yet robust indicators, providing an overall picture of the state, trends, needs and challenges faced by each site assessed. The tool is based on two subsets of so called intrinsic and extrinsic indicators. The former refers to site-specific information while the latter refers to information about the tourist market and the business environment of the hinterland. Examples of intrinsic indicators are the size of the site, its state of conservation, devices and tools remaining, protected flora and fauna species on site, etc. On the other hand, examples of extrinsic indicators are the number of visitors to the area, their motivation and seasonality, the quantity and quality of tourist facilities in the hinterland, etc. (see Tables 3 and 4). The tool consists of 25 indicators (15 intrinsic and 10 extrinsic). Some of these are quantitative, that is, show discreet, measurable amounts (figures, sizes, percentages...) while others are qualitative (yes/no options, existence or not of certain features...). Each indicator can obtain a value of between 0 and 4, hence the sum of all 25 indicators can range between 0 and 100. Efforts have been made to eliminate subjectivity in the measurement

of the indicators, at the risk of eliminating some features that may have been of interest, such as the emotional attachment of visitors (e.g. Viñals *et al.*, 2011).

Indicators	Intrinsic	Extrinsic
General	IG1 Historical relevance IG2 Protection status of the site IG3 State of natural conservation IG4 State of cultural conservation IG5 State conservation of intangible heritage	
Local development	ID1 Site in operation ID2 Development plans ID3 Organisation of salt makers ID4 Participation projects / networks	ED1 Stakeholder diversity ED2 Companies using salt ED3 Visibility of the salt business ED4 Direct employment
Tourism	IT1 Tourism plans IT2 Visitor infrastructures on site IT3 Motivation of visitors IT4 Yearly nr of visitors IT5 Accessibility of the site IT6 Visibility of the site	ET1 Climate/Seasonality of visitors ET2 Tourist attractions nearby ET3 Time of travel tourist markets ET4 Eating facilities close to the site ET5 Site included in package tourism ET6 Aesthetic aspects

Table 3 List of indicators used in the tool. Sources: Hueso Kortekaas & Carrasco Vayá, 2012; Hueso Kortekaas, 2019

Nr	Indicator	Criteria				
	Value	0	1	2	3	4
IG1	Historical relevance	Unknown relevance	Site not so relevant (located among more relevant sites in the region)	A reference site in the region (size, historical importance)	Only site in the region of this type (location, buildings, habitat...)	Site of national importance (from historical or technical point of view)
IG2	Protection status of the site	None	Natural or cultural at least at regional level	Natural or cultural at national or EU level (i.e. BIC, Natura 2000)	Both cultural and natural at least at national or EU level	Both cultural and natural protection at least at global level (Ramsar, UNESCO...)
IG3	State of natural conservation	Confirmed and regular presence of 0 species of Habitats and Birds Directives	Ibid. 1 - 10	Ibid. 10 - 25	Ibid. 25 - 50	Ibid. > 50
IG4	State of cultural conservation	No structures visible, original state unknown	Bad (structures useless, original state known)	Regular (most traditional structures need reconstruction or replacement)	Good (most structures need restoration and/or have been replaced by modern ones)	Excellent (most traditional structures are capable of being used)
IG5	State of conservation of intangible heritage	No (former) salt makers who can tell the story of the site	Yes, but initially not interested	Yes, retired but willing to tell the story	Yes, it is in operation	Yes, in operation and includes popular traditions and festivities around salt
ID1	Site in operation	Abandoned >100 yrs ago	No (abandoned < 100 yrs ago)	Yes (only brine or salt for industrial purposes)	Yes (only demonstration purposes)	Yes (artisanal salt)
ID2	Development plans	No plan at all	Several proposals, none actual	Internal plan in operation	Public plan (PDS, PRUG...), no funding	Public plan with guaranteed funding
ID3	Organisation of salt makers	No salters present	Individual / unorganised	Registered freelance / family business	Cooperative, SME	Cooperative, SME with quality seals
ID4	Participation in projects or networks	No	Yes, with other salinas in the region	Yes, with other businesses in the region	Yes, active at national and international level in the past	Yes, currently active at national and international level
IT1	Tourism plans	No plan at all	Several proposals, none actual	Internal plan in operation	Public plan (public use, PDT...), no funding	Public plan with guaranteed funding
IT2	Visitor infrastructures	None	Informative signs	Interpretative panels	Museum, visitor centre (limited opening times)	Museum, visitor centre (open year-round)
IT3	Motivation of visitors	None/unknown	Casual, unorganised, spontaneous	Captive audiences (schools, elderly)	Mainly generalist tourists (secondary motivation, stay < 1hr)	Often eco/cultural tourist (choose site actively, informed, may have a specialised interest)
IT4	Yearly nr of visitors (municipality)	None/Unknown	Hundreds	Thousands	>10,000 (mainly regional)	> 10.000 (also relevant nrs of national and foreign visitors)

IT5	Accessibility of the site	No	Limited	Yes (only buildings, not the site)	Yes (only reduced mobility)	Yes (all disabilities)
IT6	Visibility of the site	Not publicised	Secondary references in internet, leaflets...	Specific leaflets on site	Specific website, leaflets at hotels and tourist office, books...	Plus: signposted on roads, references in local businesses, social media)
ED1	Stakeholder diversity	No stakeholders involved / interested	Known owner / Local authority	Plus: Local NGO or SME	Plus: Supralocal authorities, other organisations (but not coordinated)	Coordinating entity representing stakeholders
ED2	Companies using salt	None	Owner sells salt, brine to non-local companies	Owner sells salt and simple salt by-products also locally, no other businesses	Few businesses, basic or no transformation of the product	Salt as a base for multi-sectorial local activity (food, tourism, spas...)
ED3	Visibility of the salt business	Not publicised	Secondary references in internet, leaflets...	Signs on site	Specific websites, leaflets at hotels and tourist office...	Plus: references in specialised media, in the international market...
D4	Direct employment	None employed	Seasonal work, only saltmaking	Seasonal work, also tourism	Year round, only salt making and/or tourism	Year round, multi-sectorial

Table 4 Calculation of quantitative values for each indicator. Sources: Hueso Kortekaas & Carrasco Vayá, 2012; Hueso Kortekaas, 2019

3. Results

3.1 Study sites in Spain

In general, the nine study sites faced a general decline due to the higher production costs and lower profitability of their salt. The ultimate reasons for this are complex and analysing them goes far beyond the scope of this work. Suffice to say that the process of decline lasted more than a century and was initiated in the 19th century, several years before the privatisation of the salt making businesses in 1869. The first serious blow to traditional salt making sites occurred shortly thereafter, with the consolidation of the chemical industry in Spain, which took place around 1905. The chlor-alkali industrial processes required large quantities of high-quality salt that could not be provided by traditional salinas and the market shifted towards mechanised saltworks and salt mines. Later on, the improvement to the (rail-)road networks in the mid-20th century allowed the introduction of cheaper salt to most parts of the country, usually coming from coastal areas with a longer productive season and larger production figures. By the 1960s, the demand for salt for domestic use had plummeted as a consequence of the widespread introduction of refrigerators in private homes and the salt market further concentrated on industrial activities. This last period coincided with the rural exodus that took place in Spain, with a general abandonment of traditional productive activities. Therefore, these salinas experienced a general decline that found its climax halfway the 20th century. In all of them, the salt making activity, as it was known until then, was finally abandoned in the second half of the 20th century (see Figure 8). Up to that time, none of the nine study sites had been declared a BIC.

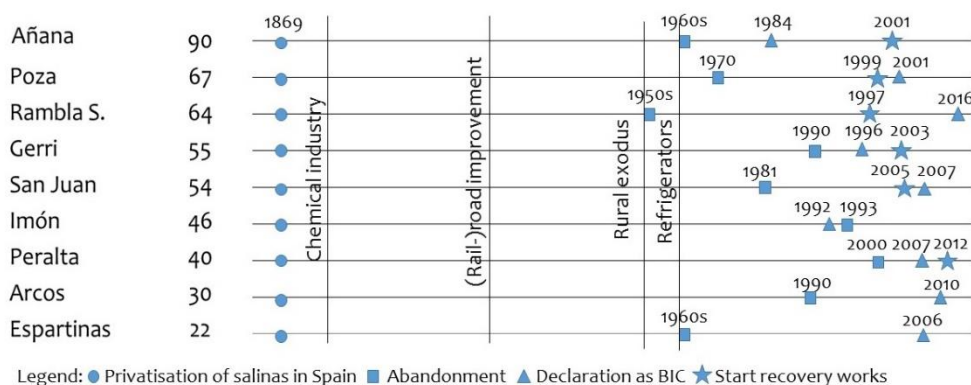


Fig. 8 Main stages in the patrimonialization of the Spanish study sites. Source: Hueso Kortekaas, 2019

However, at some point, institutions and scholars began to express an interest in traditional salt heritage. On the other hand, in some sites, former salt makers with a strong sense of belonging to their activity and their site started to search for solutions to the abandonment of 'their' salinas. How each process continued and how far it got, strongly differs from one site to the other. In some cases, it has not even been initiated, save for the declaration as a BIC.

Site	Sum indicators	In production	Open visitors	Declared BIC	Institution declaring BIC	Influence in management	Ownership
Añana	90	Salt	Yes	1984	Gov	+	Private ¹
Poza de la Sal	67	Salt	Yes	2002	NGO	+	Public/Private ²
Rambla Salada	64	Salt	Yes	2016	Gov	+	Public
Gerri de la Sal	55	Salt	Yes	1996	Gov	+	Private/Public ³
San Juan	54	Salt	Yes	2007	NGO	+	Public
Imón	46	Brine	No	1992	Priv	-	Private
Peralta	40	No	No	2007	NGO	-	Private
Arcos de las S.	30	No	No	2010	Gov	-	Private
Espartinas	22	No	No	2006	NGO	-	Private

¹Transferred to public authority

²Only publicly owned part is recovered

³Salt making area is private; salt storage building (now museum) is public

Table 5 Features of the patrimonialization process of the nine inland salinas protected as BIC in Spain. Source: Hueso Kortekaas, 2019

The resulting scores of the indicators are presented in decreasing order in Figure 8 and Table 5. Salinas de Añana has obtained the highest, with 90/100, thereby indicating that it has a solid recovery project and a strong relationship with the local community. The lowest grading, Salinas de Espartinas, is 22/100. It is a site that is currently unmanaged and is abandoned within private grounds and where the owner is not investing efforts in its recovery or use. Hence, grades are highly variable, despite the protection by law. Those salinas with a grade above 50 are actively selling salt and offer the possibility of public visits. Although the quality of the salt (-packaging) and the conditions of the visit also vary considerably, there seems to be a correlation between the fact that the salina is operating and its grading above this landmark. On the other hand, the date of declaration does not seem to have an influence on how well a salina scores. Among the three top grades are the oldest BIC (Salinas de Añana, declared in 1984) and the youngest (Rambla Salada, in 2016).

In Spain, the process to declare a site as a BIC is usually initiated by an institution that requests this protection status to the regional authority in charge of historical heritage. The institution is then required to present a file with information that justifies this declaration and, if it is deemed just, the regional authorities ultimately do so. In the case of the nine salinas, the institution initiating the process also varies considerably. Four of them have been initiated by the public administration itself (Regional Administration in the case of Rambla Salada; Provincial Administration in the case of Añana; local administration in Gerri de la Sal and Arcos de las Salinas). Four others have been initiated by NGOs (one local trust in the case of San Juan; the rest by local cultural associations). In the case of Salinas de Imón, the process was initiated by a writer/journalist who considered the site worthy of it. Regardless of the institution initiating the process, what seems to have had an influence in the grades is the implication of this institution in the current management.

The sites marked with a plus sign on the table, indicate that the institution promoting its protection is actively engaged in the current decision making processes or is the actual manager of the site; whereas those marked with a minus sign have no influence in the decisions affecting the site. Again, there seems to be a clear correlation between the motivation to declare a site protected and the implication regarding its future, actual protection.

With respect to ownership, the recent history of each site varies considerably since privatisation, and according to how well the patrimonialization process of a given site is doing given the strong relationship between the type of owner (public or private), management and the process itself, as a BIC. In some cases, after privatisation, public institutions have been invited or have taken the initiative to buy (a part) of these salinas. Hence, the role of public-private partnerships and the approach towards the participation of stakeholders has also influenced the outcome of each site. One of them, Salinas de Añana, stands out as the strongest patrimonialization process, with an institution devoted exclusively to the management of the site. Others that reflect an ongoing, steady process, are Poza de la Sal, Rambla Salada, and San Juan where there are independent organisations in charge of the management. Imón, in spite of its relatively high score, is the only site actually moving away from patrimonialization, in a downward direction. The remaining sites are in the hands of private individuals or companies without the will or capacity to lead a patrimonialization process and the minor efforts that exist are taken over by other stakeholders, which makes the processes themselves weak and unstable.

3.2 Study sites elsewhere in Europe

When looking into the patrimonialization process, the three case studies are very different from each other (see Table 6). Interestingly, all three have reached a status of successful recovery, in spite of having followed very different 'roadmaps'. The patrimonialization process at each site has been triggered by different events, that usually were a (final) consequence of the decline of the salt making activity. In Guérande, during difficult economic times, there was the threat that the marshes were to be transformed into a tourism development area. They are now in hands of a cooperative run by the salt makers themselves. In Sečovlje, the fall of the communist regime in former Yugoslavia left the state-owned salinas in a management vacuum. The salinas were then purchased by a large state-owned company, which now exploits them via a subsidiary company. In Læsø, on the other hand, salt making had been abandoned several centuries earlier with reconstruction of the activity executed from scratch, almost as an academic exercise. This site is now managed by a small local company. In all cases, major investments were needed to transform the sites into sustainable, environmentally friendly and socioeconomic stable activities. Funding came from many different bodies, depending on each site. European funds have been very helpful, especially in the cases of Sečovlje and, to a lesser degree, Guérande. The reconstruction of Læsø was made possible primarily by the provision of local and national funds. The three sites have similar extrinsic values: a stable business and a growing partnership with tourism. All have a tight interdependence between the primary activity (salt making) and the tertiary sector (tourism). The accent may shift slightly, but maintaining this relation is deemed to be crucial for their success.

Site	Score	Patrimonialization process	Approach	Cause of change	Owner	Manager	Main source of funding
Inland salinas (BIC)*	22-90	Institutional	Top down / on paper	Abandonment	Mostly private	Public / Private	Public
Guérande	93	Social	Bottom up	Threat of land use change	Private	Cooperative	Largely private
Sečovlje	91	Corporate	Top down	Abandonment / Political change	Public	Large corporate	Largely private
Læsø	75	Institutional	Bottom up	Historical reconstruction	Private	SME	Private (initially public)

*Provided for comparison. More details can be found in Chapter 5

Table 6 Main features of the three study sites. Source: Hueso Kortekaas, 2019

The sound recovery of a salt heritage will largely depend on the local conditions and circumstances. However, to this end, most (former) salt making sites that have been, or are, in the process of being recovered in Europe, rely on the ‘trilogy of salt’ (see Figure 9). As opposed to industrial salt making, in historical or traditional salinas where the production of salt, not only stays central, but is also the only activity taking place, a combination of approaches is apparent. In part, this responds to a need to diversify the economic activities in order to minimise any risk and maximise revenues. In addition, it responds to a deeper meaning salt heritage has for people: salt as an essential condiment; salt, brine and mother lay as sources of health, and salinas as scenic landscapes of historical value. These apparently very different uses of salt are rooted in the collective memory of both local communities, as well as the general public, and recovered salinas are taking legitimate advantage of them.



Fig. 9 The balance between the activities and backgrounds around artisanal salt making. Source: Hueso Kortekaas 2019

Although salt making stays central, the associated products and services have been classified in three groups: food and gastronomy, eco-cultural tourism and wellness and health. These may be provided also when salt making is no longer possible, albeit in a weaker form. Abundant examples of the different products and services, as well as the combinations among them, are offered, within the European context. Although each salt making site has focused on certain aspects of the associated products and services they offer (e.g. tourism in Añana, health in Sečovlje, or food in Guérande), most of them provide a wide array of the same without neglecting the quality of their salt. Those sites with a consolidated patrimonialization process have, thus, invested in a healthy diversification of these products and services, while trying not to lose their identity. Sites with a partial patrimonialization process in its early stages, aim at diversifying, too. In most cases, importance is given to the focus of this offer on the local community and how the latter may benefit from the cultural, gastronomic and health services provided by their landscape of reference. The relationship of the sites to their protection and planning measures is also relevant. Legal protection needs a planning instrument to support actual salt making according to a sustainable criteria. Educational and social activities in, and around, salt constitute an invaluable resource to creating identity and a sense of belonging and may even contribute to create employment and strengthen the undergoing patrimonialisation process on the site. Finally, the aesthetic and symbolic perception of the natural and cultural context of saltscapes and salt heritage provides a framework of reference that supports the narratives of the salt making sites under patrimonialization and links them to others and to our own cultural background.

4. Discussion and conclusions

The patrimonialization processes of the nine study sites in Spain share common features with respect to recent history, location and socioeconomic challenges. All of them were privatised in 1869 and, prior to that, had been historically relevant at a regional, or even, national scale. They generally lie in isolated areas, with a low population density and a harsh climate. However, the results of the indicator tool, show major differences in the

characterisation of the sites, as well as their heritage values and potential of sustainable use, both as tourist destinations as well as active salt making sites. Out of a possible range between 0 and 100, the sites have obtained scores between 22 and 90, revealing the importance of local idiosyncrasies despite their common features. While the indicators offer a picture of the current situation of each site, the narratives reconstructed from an array of sources, including interviews, bibliography and field visits, provide a possible explanation for these differences.

In the rest of Europe, Guérande epitomises the sustainable local development around artisanal salt making and has become a paradigm of reference for most artisanal salt making areas in the world. From a dire situation of decline, which reached its lowest point in the 1970s, the salt harvested in Guérande now has worldwide fame as a top-quality product which is even imitated by industrial companies and many foreign salt making sites. The key to the success has been the strong social fabric built around the activity, with a well-balanced coordination between stakeholders. The creation of an all-encompassing organisation devoted to the protection of the product, with many lessons learnt on the way, plus the combination of sustainable uses of the land (eco-cultural tourism, gastronomy, health), has provided a diversified economy to the region that is not only going strong but will undoubtedly expand.

The salinas of Sečovlje benefit from the coordinated action of the different managers of the site (owners, local and national authorities). Over a relatively short span of time, the salinas were recovered from a dwindling pre-industrial operation to a full-scale artisanal activity, without any important conflict or resentment from any of the stakeholders involved. They have managed to create a common brand for their different products and services, with a coherent message of sustainability. Given the fact that this process has taken place smoothly in a complex region from a geopolitical point of view and just after the transition from a communist to a capitalist regime, only adds merit. Possibly, all that remains is to improve communication between the nature driven and cultural conservation authorities, as well as with other stakeholders present in the territory. Also, care should be taken not to transform this message of sustainability and care for nature and culture into an elitist one, which is an ever present risk in these patrimonialisation processes.

The saltworks of Læsø owe their success to being a unique, place-bound local development project, that cannot be replicated elsewhere. The success of Læsø salt relies on the strong story it tells, plus the result of a combination of local governance, local learning, stakeholder cooperation and the return of the profit into the local community. Although the saltworks do not establish strong partnerships with other salt making sites, they have created a tight social fabric in the island, not only creating a fair amount of jobs and business-related wealth, but especially generating a solid sense of pride and belonging. Their main challenge, now, is how to keep the business running, within their self-imposed limits of identity (focus on Scandinavia) and resources (availability of fuel and brine).

In summary, traditional salinas have suffered a shift in paradigm. From a productive activity inserted in the primary sector, these sites have experienced varied activity in which the production of salt is combined with the provision of services, such as tourism, health, nature and culture. This shift has also implied a U-turn towards society: from a productive activity with a certain degree of business secrecy and workers' suffering, to a multifunctional landscape with close ties to the local community and that enjoys the pride of workers and residents. The diversity in the offer of products and services is enormous, despite having the same starting point: salt. It should be possible to find a unique combination of all of them that suits the site. The challenge is to maintain this offer within the limits of sustainability and to keep the identity of the sites alive.

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References

- BENCIC, E. & ŽAGAR, Z. (2002). Salinas and the museum of salt-making in Piran. In: T. PETANIDOU & H. DALM (Eds.), *Salt and salinas as natural resources and alternative poles for local development*. Mytilene: University of the Aegean, p: 44-47
- BISACCIA, C., DE SANTO, R. M., DE SANTO, L. S., DE SANTO, D., BELLINI, L., & DE SANTO, N. G. (1997). The symbolism of salt in paintings. *American journal of nephrology*, num. 17(3-4), p. 318-339.
- BURON, G. (1990). De l'origine des marais salants guérandais. *Bulletin de la Société Archéologique et Historique de Nantes et de Loire-Atlantique*, num. 126, p. 9-62.
- CARRASCO VAYÁ, J.-F. & HUESO KORTEKAAS, K. (Coords.) (2008). *Los paisajes ibéricos de la sal. 1. Las salinas de interior*, Guadalajara: Asociación de Amigos de las Salinas de Interior
- CASTAÑEDA, C. & HERRERO, J. (2008). Measuring the condition of saline wetlands threatened by agricultural intensification. *Pedosphere* num. 18 (1), p. 11-23.
- CHADENAS, C. (2005). Des oiseaux et des hommes: biogéographie salicole dans les marais guérandais. *Cahiers du Pays de Guérande*, num. 45, p. 18-26.
- DALE, V. H. & BEYELER, S. (2001). Challenges in the development and use of ecological indicators. *Ecological Indicators*, num. 1, p. 3–10 .
- EMONS, H.-H. & WALTER, H.-H. (1988). *Alte Salinen in Mitteleuropa*. Leipzig: VEB Deutscher Verlag für Grundstoffindustrie
- FAGANEL, M. A., & TRNAVČEVIČ, A. (2012). Sustainable natural and cultural heritage tourism in protected areas: case study. *Annales: Series historia et sociologia*, num. 22(2), p. 589-600.
- FIELD, C. K., SOUSA, P., DA SILVA, P. M. & DAWSON, T. P. (2010). A framework to assess indicators of biodiversity and ecosystem services: implications for indicator development. *Biodiversity Conservation*, num. 19, p. 2895–2919.
- GALLICÉ, A. & BURON, G. (2010). Histoire et patrimonialization du marais salant du Pays de Guérande depuis les années 1970. *Les Cahiers du Pays de Guérande*, num. 50, p. 3-45.
- HANSEN, J. M. (2010). The salt industry on the Danish Kattegat island of Læsø (1150–1652): Hypersaline source, climatic dependence, and environmental impact. *Geografisk Tidsskrift-Danish Journal of Geography* num. 110(1), p. 1-24.
- HOCQUET, J. C. (1982). *Le sel et la fortune de Venise: Production et monopole* (Vol. 1). Lille: Presses Univ. de Lille.
- HUESO KORTEKAAS, K. (2019). *Salt in our veins: The patrimonialization processes of artisanal salt and saltscapes in Europe and their contribution to local development*. Kaiserslautern: Parthenon Verlag, Archaeologica et Anthropologica IV.
- HUESO KORTEKAAS, K. & CARRASCO VAYÁ, J.-F. (2008). *Las salinas de los espacios naturales protegidos de la provincia de Guadalajara*. Guadalajara: Asociación de Amigos de las Salinas de Interior.
- HUESO KORTEKAAS, K. & CARRASCO VAYÁ, J.-F. (2009). Biodiversity of inland saltscapes of the Iberian Peninsula. In: S. J. & J. E. QUINNEY (Eds.), *Saline lakes around the world: Unique systems with unique values*, Logan, UT: Natural Resources and Environmental Issues (Vol. XV), Natural Resources Research Library, p: 163-171.
- HUESO KORTEKAAS, K. & CARRASCO VAYÁ, J.-F. (2010). Las salinas de Læsø (Dinamarca) como ejemplo de desarrollo local responsable. In: Florido, P. & Rábano, I. (Eds.) *Una visión multidisciplinar del patrimonio geológico y minero. Cuadernos del Museo Geominero*, num. 12, p. 397-406.
- HUESO KORTEKAAS, K. & CARRASCO VAYÁ, J.-F. (2012). *Assesment of the ecotouristic potential of Atlantic salinas. An indicator-based tool*. Interreg IV B ECOSAL Atlantis project, Activity 5: Sustainable Territorial Development, Report on Action 5.1. Collado Mediano: IPAISAL.
- HUESO KORTEKAAS, K. & PETANIDOU, T. (2011). Cultural aspects of Mediterranean salinas. In: T. PAPAYANNIS & D. PRITCHARD (Eds.), *Culture and wetlands in the Mediterranean: An evolving story*. Athens: Med-INA, p. 213-226.
- KOROVESIS, N. A. & LEKKAS, T. D. (1999). *Solar saltworks production process evolution – wetland function*. Samos: Proceedings of the Post Conference Symposium SALTWORKS: Preserving Saline Coastal Ecosystems-Global NEST.
- LÓPEZ, E., AGUILERA, P. A., SCHMITZ, M. F., CASTRO, H. & PINEDA, F. D. (2010). Selection of ecological indicators for the conservation, management and monitoring of Mediterranean coastal salinas. *Environmental monitoring and assessment*, num. 166 (1-4), p. 241-256.

LUENGO, A. & MARÍN, C. (1994). *El Jardín de la sal*. Santa Cruz de Tenerife: Ecotopía Ediciones Tenydea, S. L.

MARÍN, C. & D'AYALA, P. G. (1997). *Nature and workmanship. Information and awareness promotion project*. Brussels: Insula / UNESCO / European Commission.

PETANIDOU, T. (1997). *Salt in European History and Civilization*. Athens: Hellenic Saltworks.

PETANIDOU T. (2000). The postmodern saline landscape in Greece and the European Mediterranean: salinas for salt or what? In: N. KOROVESIS & T. D. LEKKAS (Eds.), Athens: *Saltworks: Preserving saline coastal ecosystems*. Global NEST – Hellenic Saltworks S.A., p. 67-80.

PETANIDOU, T., & DALAKA, A. (2009). Mediterranean's changing saltscapes: A study of the abandonment of salt-making business in Greece. *Global NEST Journal*, num. 11 (4), p. 415-433.

ROMÁN LÓPEZ, E. (2013). Paisajes de la sal en Andalucía. *Identidades: territorio, cultura, patrimonio* (Barcelona), núm. 4, p. 45-74.

SADOUL, N., WALMSLEY, J. & CHARPENTIER, B. (1998). *Salinas and nature conservation*. Tour du Valat: MedWet, p. 71–82.

SOVINC, A. (2009). Secovlje Salina nature park, Slovenia- New business model for preservation of wetlands at risk. *Global nest. The international journal*, num. 11(1), p. 19-23.

STOKLUND, B. (1985). Economy, Work and Social Roles. Continuity and Change in the Danish Island Community of Læsø, c. 1200-1900. *Ethologia Europaea* XV num. 1.

THOMPSON, I. B. (1999). The role of artisan technology and indigenous knowledge transfer in the survival of a classic cultural landscape: the marais salants of Guérande, Loire-Atlantique, France. *Journal of Historical Geography*, num. 25(2), p. 216-234.

VELLEV, J. (1991). Saltproduktionen på Læsø - den danske industris vugge. *Humaniora*, num. 5(2), p. 25-27.

VIÑALS, M. J. (2002). *El patrimonio cultural de los humedales*. Madrid: Organismo Autónomo Parques Nacionales.

VIÑALS, M. J., MORANT, M. & QUINTANA, R. (2011). Análisis de los criterios para la valoración turística del patrimonio natural. *Investigaciones turísticas*, num. 1, p. 37-50.