ALAS
All About Salt

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The ALAS Project is an initiative that aims the safeguard of traditional salinas. It is carried out within the framework of an ECOS-Overture Programme. More information on this project can be obtained at www.alas.gr and www.aegean.gr/alas/general.htm

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Traditional saltworks in southern Europe

Traditional saltworks in southern Europe: historical development and operation

Salt is an essential element to mankind, first because it corresponds to our physiological requirements and *salt hunger*, second because it constitutes a major source for food seasoning and, third, because of its preservative character that imposed its wide, imperative and influential use to the humanity. Its making, though, demands a series of prerequisites limiting its production to few areas only, and excluding vast regions from this resource. As a result, since the beginning of Civilisation, salt production and trade have attained a strategic character, comparable to products like gold, silk or spices. In fact, salt has been the *white gold* of history, with a role comparable to that of crude oil today.

To obtain salt in the Mediterranean, different peoples used various techniques: most important was solar evaporation of brine obtained from the sea or inland salt-springs, whereas salt making through direct mining of rock salt or ebullition of brine (from the sea and salt-springs) has also been employed. Due to ideal climatic conditions, with long, warm, and dry summers, the Mediterranean basin is a region where salt exploitation through solar evaporation in coastal areas has been practised for thousands of years.

The first to have exploited intensely this resource at a large scale, were the Romans: they regarded salt as an agricultural activity, and created the first real solar saltworks named *salt-gardens*, probably consisting of a simple evaporation basin. Outside the Mediterranean, Romans continued to produce salt with the ebullition techniques adopted from the newly conquered or neighbouring countries, at the limits of the Mediterranean. Yet, of major importance have been the *self-formed salterns* of the Basin, already exploited since the Greek Classical Times. According to Pliny, who categorized the roman salt making techniques and provenances into four groups, Romans exploited all types of salt resources of the Empire: salt rock, salt springs and lakes, lagoons, salt-plants and, certainly, sea brine. According to the scholars Herodotus, Aristotle and Strabo, particular methods of salt making, including ebullition and use of rock salt, were already known in the antiquity. It is most unlikely, however, that ancient Greeks were aware of any techniques of salt making at industrial scale, as naturally produced sea salt satisfied their needs. This was not the case for Romans seeking for huge quantities of salt to cater for the requirements of their immense cities. With them, salt for the first time attained an outstanding importance, triggering the start of its Mediterranean and European *routes*.

Salt continued to be an important commodity in the Mediterranean during the obscure years of the Middle Ages, both in the West and in the East. Interestingly, it was during this period that major changes in the technique of salt making modified gradually the method of sea salt making in favour of the oncoming centuries and peoples. First, from the 5th or 6th century onward the standard practice of harvesting salt was done with the help of special tools. Second, long before the 10th century, the *method of successive evaporation basins* was introduced into the Mediterranean, probably by the Arabs through Spain and by the Ottomans to Crete. The first saltworks on Christian territory to have applied this method was that of Pag, under the control of Diadora (modern Zadar) and former capital of Byzantine Dalmatia. Soon after, the technique was passed to many Adriatic salinas, such as Chioggia and Cervia, and a few centuries later to the Aegean through the Venetians. The first illustration of this rather sophisticated method was done by the German scholar Agricola in his *De re metallica* (16th century). By the 17th and 18th centuries almost all major saltworks of the Mediterranean operated with the method of *successive evaporation basins*.


Solar evaporation salinas depicted by Agricola (16th century)

The method is based on the circulation of brine through successive basins in which different salts precipitate successively according to their solubility. Millenary improvements diversified several techniques in conformity with the climatic vicissitudes of the different geographical areas. For instance, according to the frequency of salt harvesting salinas may be of *continuous crystallization* (one harvest per season or less) and of *periodical (intermittent) crystallization* (several harvests per season, varying from few times to everyday). Despite the changes performed the last century, such as mechanization of the Mediterranean salinas, the basic operation principles remain.

Most of the salinas operating in the Mediterranean today have been modernised and transformed into large-scale or industrial saltworks. Among the few, still operating in a fully manual *traditional way*, we distinguish the *primitive* and *artisanal* salinas, as inseparable elements of the Mediterranean cultural landscape.

Primitive salinas, of a simple basin carved on rock (coastal or inland) and filled with brine during storms or simply by man in summer, are the salinas of remote islands or isolated communities. Almost all islands in the Aegean (Greece) had or, in many cases, still employ salinas of different levels of primitiveness, in parallel to those of Malta and the Canarian Bañaderos carved on the rocks or the soil. *Artisanal salinas* share the same basic operation principles with *industrial saltworks*: seawater circulates through successive compartments, from basins to crystallisers, to an increasing concentration of sodium chloride, releasing along its flow the undesirable salt elements from the brine (e.g. gypsum). The difference between them lies on their outline, dimension and exploitation mode.


Plastered saltpans carved on the rocks of Mani (Greece)

Artisanal salinas differ substantially with geography. The Atlantic typology, common from Cadiz (Spain) and northwards where high range tide plays an important role, differentiates clearly from the Mediterranean type, corresponding to several specific typologies, all conditioned by a limited tidal range. All these salinas share the same characteristics: small dimension, almost no mechanization, thus, use of soft energy for brine transfer, intense manual work, imperative human presence, several harvests per season. Such artisanal salinas are in Sicily, the Adriatic (Italian, Slovenian, Croatian), as well as on the Black Sea coast (eg. Pomorie in Bulgaria). Industrial saltworks, either occupying former traditional salinas or newly constructed on favourable grounds, have large dimensions, powerful pumps for transferring brine, mechanized harvests carried out once per season.


Aerial view of the Atlantic salinas landscape in Guérande (France)

As there is no commercial differentiation between industrial and traditional salt, artisanal salinas, with operating costs much higher compared to the industrial ones, have been gradually abandoned during the last decades. This is why artisanal salinas are a threatened landscape in the Mediterranean and in Europe.