

FROM A LOVELY COAST TO A DESIGNATED BATHING BEACH: STEPS, CHALLENGES, LEGISLATIVE FRAMEWORK

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Abstract: Offering good quality bathing beaches to the public is a necessity faced by Local and Tourist Authorities of coastal areas. Recreation by the sea or inland waters provides multiple benefits to local communities: health, physical and social activities, the local economy through the attraction of tourists. The increase of population in the coastal zone has caused an increase in the demand of recreational spaces.

These days a multitude of coasts used (or with a potential to be used) for recreational purposes are not designated beaches. The benefits of their inclusion in the lists of designated bathing waters are substantial, because the regular microbiological monitoring safeguards public health. Additionally designated, monitored beaches become visible to international tourists through the relevant sites (i.e. in Europe through the European Environment Agency). To cover this emerging need for new monitored beaches we set a framework of actions necessary to transform a coastal recreation area to a designated bathing beach, suited for use with no health concerns. In this systematic, analytical, step by step Coastal Zone Management approach, we guide and support the competent authorities to design and develop a listed bathing beach.

Keywords: listed bathing beach, recreational bathing, standards, criteria

Introduction

Designated/listed beaches became coastal areas historically used at the time when the then European Economic Community (EEC) published in 1976 the first Bathing Water Directive [4], which demanded monitoring of bathing recreational areas. At that time, the majority of beaches were not far from urban areas and holiday resorts. The increase of population in the coastal zone, the expansion of cities, the increased availability of transportation, the rapid increase in tourist visits (the most fast expanding and profitable economic sector in many countries), combined with an improvement of the standards of living, allowed people to travel farther away in pursuit of a coast to swim. The number of beaches used for recreation increased, and parallel to that more coastal areas claimed their right to be listed as designated. Each country proceeded to characterise more bathing places of marine, estuarine and inland waters. Today the situation is that in the EU alone the numbers of listed beaches is high: 14 698 marine, 7383 inland waters [2] claim the attention of bathers and attract tourists at the same time.

The Mediterranean countries are the world's leading tourism destination. This covers international and domestic tourism. More than 300 million international tourist arrivals (30 % of total world tourists) were reported for 2014 [9, 10, 11]. Tourist arrivals grew from 58 million in 1970 to 314 million in 2014, with a forecast of 500 million in 2030. (Figure 1).

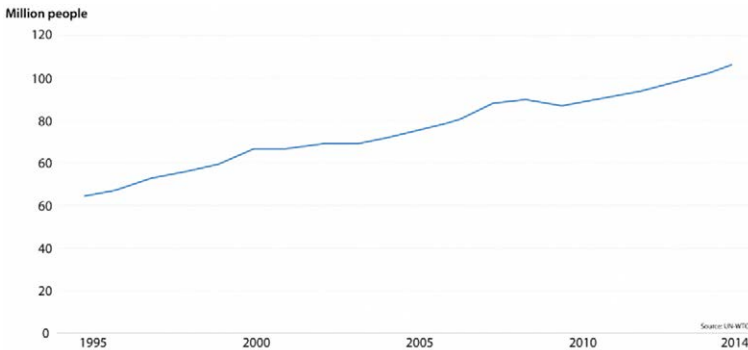
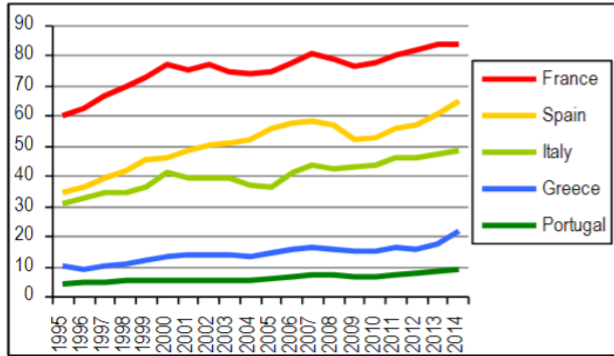


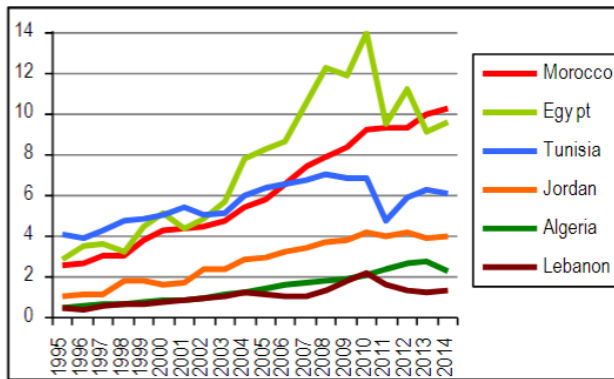
Figure 1 – International Tourist Arrivals in the Mediterranean [11].

Advanced economy countries, such as the countries of the north coast of the basin, get the majority of tourists (Fig 2), but tourist arrivals in the rest of the region are showing an upward tendency (Fig 3).



Source: World Tourism Organization (UNWTO) ©

Figure 2 – International Tourist Arrivals in the Mediterranean: selected advanced economy destinations of European countries (in million) [12].



Source: World Tourism Organization (UNWTO) ©

Figure 3 – International Tourist Arrivals in the Mediterranean: selected MENA destinations (in million) [12].

All around the Mediterranean, but mostly on the eastern and southern coasts, a multitude of beaches used for recreational purposes are not designated beaches. The potential benefits of their inclusion as listed bathing waters is substantial, because the regular microbiological monitoring safeguards public health. Additionally designated, monitored beaches become visible to international tourists through the relevant sites (i.e. European Environment Agency - Yearly publication of the State of Bathing Waters [4]). This produces an emerging need for new monitored beaches.

Our objective is to set a framework of actions necessary to transform a coastal recreation area to a designated bathing beach, suited for use with no health concerns. In this systematic, analytical, step by step Coastal Zone Management approach, we guide and support the competent authorities (Local authorities, Tourist Boards, Public Health officials, owners and operators of recreational beaches) to design and develop a bathing beach in a correct manner, adhering to current safety and sanitary requirements, with the least inconvenience and delays. We start from the issue identification and conclude with the final implementation. The legal framework set by the European Union, the World Health Organisation and the USA is discussed.

Major considerations in designing a bathing beach

To design a bathing beach with the view of achieving to get it listed/designated, one has to create a complete file and submit it to the competent authorities of their country for approval. Several points should be considered. Sanitary considerations, location, access, safety, availability of services are some of them.

Because of the critical social and economic roles, the coastal tourism industry plays, attention is required of the decision-makers and stakeholders in adopting approaches to ensure sustainable economic, social and environmental growth of this industry.

Location

All types of waters (marine and inland) can be used for bathing. Suitable coastal areas are the most frequently used for recreational purposes. In countries with extended estuarine systems, these locations can be also suitable for establishing bathing beaches. Fresh waters such as lakes and ponds, rivers and streams, have traditionally been used for recreation and may have a good potential of becoming bathing beaches and attracting beachgoers. Criteria for selecting a suitable area include proximity to large numbers of potential users: urban or holiday resort center. Favourable meteorological conditions and/or oceanography are of importance: it is preferable that a new bathing beach is established on a coast with mild winds during the bathing season. Under-the-surface water movement, in the form of currents, should not endanger bathers, so such currents should be either weak or at a distance from the coast. Beach and bottom morphology must be beachgoer friendly: the most acceptable substrate is sand or small gravel. The same goes for the bottom. The slope of the bottom should preferably be gentle. Deep waters near the coast can be uncomfortable for bathers, especially older people and children. Land use of areas surrounding the beach like ports, waste disposal areas, landfills, waste water treatment plants, animal farms, fisheries, industries emitting toxic effluents are potential sources of pollution. Boat traffic is to be completely avoided. In case the selected area is used by boats, an appropriate area should be excluded to boat traffic. Restrictions concerning environmental issues must be taken into consideration: Natura 2000 protected areas often cause difficulties in

granting of permissions, other environment protection networks may cause similar problems. In most Mediterranean countries all activities are prohibited within archaeological sites, including underwater. This is a possibility that better be investigated before any attempt to proceed to organising a file for at the new beach.

Hygiene

The epidemiological evidence in the literature, from the '50s onward, suggests that there is an association between contact with polluted recreational waters and illness [6]. Children, the older and tourists who do not have immunity against locally occurring endemic disease infections, are the groups that appear to be at higher risk of disease. Microbiological examination/monitoring of bathing water is designed to protect bathers from contact with pathogenic microorganisms which could cause illness. For the sake of the safety of the beachgoers we need information on water microbiological quality data and sources of potential pollution. In the designated beaches of the European countries this monitoring is carried out routinely by the authorities, and the results are communicated to the European Commission, along with a description of the water quality management measures. They are then made available to the general public. In non European countries, particularly those investing on tourism, the water quality of designated beaches is also monitored, and measures are taken if the water quality is not satisfactory.

To complement the good hygiene level of a beach, there should be provision for toilets, hand washing facilities, showers, waste bins. Visual aspects of pollution should be removed. Animals, such as dogs, are as a rule excluded, although in some countries domestic animals are not forbidden.

Access

Easy and safe access increases the popularity of a recreational beach. Road access via a pre-existing road is desirable, as construction of a new road will add considerably to the cost of a new beach. Parking is essential. A suitable area attached to the beach is needed, large enough to accommodate the cars and wagons of beachgoers and personnel. Public transportation is not obligatory, but it is a plus, as it will allow access to a wider public. In case where access to the new beach is through private land, all necessary permissions will have to be obtained. This could take time and complicated paperwork, but many beaches are known to operate like that. Signposts are needed to signal access to the new beach. The posting of signals could be undertaken by the local authorities, but this is not always the case.

General requirements

Beachgoers' satisfaction is crucial in order to secure that the beach will be frequented. Satisfaction relies the availability of amenities that are not necessarily connected to safety, but create a pleasant - functional environment. Certain

facilities are common to the majority of bathing beaches, and in demand: dressing/changing rooms, coffee shops, kiosks, picnic tables and benches. Supply of drinking, washing, showering water must be ample. Access ramps for the handicapped are a requirement. Shade provided by trees or manmade constructions is useful, especially in the warmer summer months. Beach cleaning equipment maintains not only the visual aspects of the sand, but removes dangerous small debris like broken glass particles, aluminium can openers and other hazardous articles.

Safety

Every measure should be taken to avoid health hazards and prevent accidents: first aid kits, presence of certified life guards, whistles, loudspeaker, life vests, rescue boat(s), lifesaving equipment (rescue boards, spine boards etc). Regular inspection and maintenance of beach gear (chairs, lounge chairs, tables, shade umbrellas, beach canopies and sun shades). The presence of a nurse is an added plus.

Legal Framework

Over the last 50 years implementation of existing regulations (guidelines, criteria, standards) has succeeded in achieving an overall high quality of bathing beaches. Water quality policies are not uniform, they differ from country to country, but most countries expecting a high income from tourism adhere to existing recommendations. Any new designated beach should comply with the standards used in the country it is situated.

European countries conform with European Directive 2006/7/EU [7]. This Bathing Water Directive introduced, in 2006, new principles for the monitoring and management of bathing waters, replacing the initial 1976 Directive [5]. The last had succeeded in securing the high quality of bathing waters throughout the countries of the EU, but its intervention was limited to bacteriological examination of the bathing water. The 2006 Directive introduced improved management measures, and made information for each designated beach available to the public through large signposts and the internet. Citizens are offered the opportunity to make suggestions, remarks or complaints.

In the USA the US Environment Protection Agency (USEPA) issues Criteria as recommendations/guidance to the individual States and Tribal governments [13]. They concern bacterial indicators of faecal contamination and, unlike the EU standards, they are not elaborating on the management of the beach. These criteria are used as such by the majority of the 50 States. Individual States are at liberty to use these recommended criteria as guidance and set their own bathing water quality standards. In that case they have to argue that the criteria they use are scientifically defensive and protect human health. The USEPA recreational water quality criteria are designed to protect the public from exposure to elevated levels of pathogens when bathing or occupied with water-contact activities. Recent addition to the

USEPA criteria is the introduction of the use of a microbial risk assessment approach to estimate beachgoer health risks [14].

The World Health Organisation (WHO) has issued Guidelines on Recreational Water Quality [15] which “outline health-based water quality targets and best practice for monitoring and surveillance, pollution control and communication approaches such as predictive models to let users know in real time when it is safe to go in the water”. The latest (2021) guidelines include “targets and risk management approaches based on scientific evidence and best practice from around the world summarized in several recommendations. These are meant to offer better protection of recreational water users and anticipate risks to water quality”. The WHO Guidelines are intended to provide a basis in order countries who have no other relevant standards can adhere to them for the benefit of public health.

The EU and USEPA criteria differ in several ways. In the EU the bacterial indicators of faecal pollution are enterococci and *E.coli*. In the US solely enterococci are examined for determining marine water quality, the addition of *E.coli* is required for fresh waters. They also differ in their comprehensiveness and enforceability, but also in their perceived success to date. Nonetheless overall the quality of bathing water and the safety for the bathers is at a high level. The WHO standards are more relaxed but still sufficient, when observed, to safeguard bathers’ health.

A general observation is that the countries interested in attracting international tourism adopt and apply either set of Standards (EU, USEPA or WHO), and publish on the internet their annual results of beach monitoring.

Once a beach is introduced into the list of designated beaches the Administration (competent authority) of the country has the responsibility of monitoring it and publicising the results, which leads to international recognition. For the European Union countries this is done annually by the European Environment Agency [3,4].

Discussion and Conclusions

The benefits of including a bathing beach in the list of designated beaches are numerous, all for the benefit of the local population and the revenue of the area. Designated beaches attract tourism: visitors (local tourism and tourists from abroad) support local economies in a multitude of ways, new job creation being one of many. A designated beach secures regular inspections by the authorities and the absence of pollutants that could cause health issues to swimmers. Additionally, recreation close at hand for locals is of importance. The annual monthly holiday offered by employers is a necessity, but the opportunity to relax and get some exercise at the beach during the weekends greatly enhances the good health and morale of working people. Children and pensioners can benefit from regular visits to the beach, swimming in the sea and other recreational activities. Last but not least, the creation of a new designated bathing beach means utilisation of an environmental asset.

Drawbacks could be that the creation of a new beach can be costly - or not - depending on the existing infrastructure. Running properly a beach carries a considerable annual cost, including beach managerial salaries, maintenance and cleaning staff, safety personnel etc. Extra traffic may add to atmospheric pollution, too many beachgoers may discourage bird nesting and add a burden to habitats. Generally speaking, the activities conducted within the tourism industry may contribute to many environmental problems, including climate change, natural resources depletion and losses, water and air pollution, plastic, light and sound pollution, which cause species disturbance [1,8]. It is not always easy to combine the preservation of an environmental asset to the economical benefits. Every consideration should be given to assign value to the coast whilst preserving the landscape and its ecological functions. This industry (tourism), if allowed to grow extensively and uncontrolled, may impose a negative impact on fragile natural coastline areas.

The sustainable use of the mediterranean coast by monitoring the tourist product (bathing beaches in this case), in a way that is desirable at international level, while at the same time acceptable from the preservation of the environment point of view, is a task that requires the use of multidisciplinary tools. As tourism is a major driver of the economy of coastal cities and represents a serious part of the income for the population living around coastal areas, new designated/listed bathing beaches have serious advantages for local societies and economies. Provided suitable coastal areas exist, such beaches are easy to plan. The cost of creating a new designated beach and getting it listed is weighted against the revenue expected and the benefit of access of the local population to monitored bathing waters.

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