
**Tourism and related services —
Requirements and recommendations
for beach operation**

*Tourisme et services connexes — Exigences et recommandations pour
les opérations de plage*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is Technical Committee ISO/TC 228, *Tourism and related services*.

Introduction

At present, there are no specific standards for beaches and very little guidance for beach management to help operators determine and plan for beach management. As a result, many beaches have not been developed or managed in a sustainable way, resulting in some loss of the natural beauty of the site and, consequently, a negative beach user experience. This International Standard seeks to provide guidance in helping to establish international benchmarks for beach management and safety.

The aim of this International Standard is to help beach operators make better-informed decisions about managing the beaches for which they are responsible, using a consistent approach based on best practice. In addition to general beach organization, this International Standard includes other important aspects, such as providing education and information on beach safety, signage, access and zoning, supervision and rescue, water quality and beach facilities.

Every beach is unique and has its own characteristics. A particular beach could be defined as a low activity beach for the majority of the year, but classified as high activity beach for two weeks of the year (e.g. during a high season or a carnival period), thus requiring a different management approach to be adopted and temporary features to be added. This International Standard covers both high activity beaches and low activity beaches, without a clear segregation of beach type.

The beach operator can apply specific features of this International Standard to a particular beach, as stipulated in the results of a beach risk assessment exercise. The beach risk assessment exercise is a simple way to help review the management and safety issues for each beach.

In order to determine how to implement this International Standard, it is intended that a robust risk management process is used which highlights the risks and hazards present at each beach and which identifies the appropriate control measures required to reduce the likelihood of frequency or impact (see [Clause 6](#)). The risk assessment also identifies the beach type (i.e. high activity beach or low activity beach).

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Tourism and related services — Requirements and recommendations for beach operation

1 Scope

This International Standard establishes general requirements and recommendations for beach operators that offer tourist and visitor services. It provides guidance for both beach operators and users regarding the delivery of sustainable management and planning, beach ownership, sustainable infrastructure and service provision needs, including beach safety, information and communication, cleaning and waste removal.

This International Standard is applicable to beaches during the bathing season.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7001, *Graphical symbols — Public information symbols*

ISO 20712-1, *Water safety signs and beach safety flags — Part 1: Specifications for water safety signs used in workplaces and public areas*

ISO 20712-2, *Water safety signs and beach safety flags — Part 2: Specifications for beach safety flags — Colour, shape, meaning and performance*

ISO 20712-3, *Water safety signs and beach safety flags — Part 3: Guidance for use*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

accessible beach

beach (3.3) that fulfils a number of requirements which make it safe to use by people with specific needs

3.2

bathing season

period of the year in which *beach services* (3.13) are available and a significant presence of bathers is foreseen, taking into account local factors and risk assessment

Note 1 to entry: See 6.2 for information on risk assessment.

3.3

beach

natural or artificial area, formed by sand, gravel, pebble, rock or another material, that facilitates access to the water and the bathing area where leisure activities are carried out and where *services* (3.13) are provided by the *beach operator* (3.4)

Note 1 to entry: This does not include promenades, pedestrian paths or similar that are joined to, or adjacent to, the beach.

3.4

beach operator

organization (3.11) assigned to manage and inspect aspects related to a *beach* (3.3), including its public management, as well as its scope of influence

Note 1 to entry: The beach operator can be the local authority, or any organization that has been legally assigned to the management of the beach.

3.5

carrying capacity

maximum number of *users* (3.16) who can access and be accommodated on a *beach* (3.3) or in the water, within a given period of time

Note 1 to entry: See [Annex A](#) for additional information.

3.6

emergency services controller

appropriate and competent person who coordinates coastal emergencies or plans and liaises with external agencies

Note 1 to entry: External agencies include the police, fire service, ambulance, coastguard, military, civil protection or lifeguards.

Note 2 to entry: An agency or service normally has legal status for coordinating coastal-based emergencies.

3.7

environment

conditions in which an *organization* (3.11) operates, including air, water, land, natural resources, flora, fauna, human beings and their inter-relationships

3.8

first aid

emergency procedures aimed at maintaining vital functions whilst ensuring that the condition of a person who is wounded, unconscious or whose life is in danger is not aggravated, until he or she receives more qualified assistance

[SOURCE: ISO/TR 21102:2013, 2.9]

3.9

high activity beach

beach (3.3) where recreation and commercial activities occur frequently

Note 1 to entry: High activity is due to ease of access, availability of facilities, traditional use or where the beach is well advertised/supervised for enjoyment by *users* (3.16).

3.10

low activity beach

beach (3.3) where recreation and commercial activities occur rarely

Note 1 to entry: Low activity is mostly due to either poor beach access issues or proximity to settlements.

3.11

organization

group of people and facilities with an arrangement of responsibilities, authorities and relationships

EXAMPLE Company, corporation, firm, enterprise, institution, charity, sole trader, association, or parts or combination thereof.

Note 1 to entry: Note 1 to entry: The arrangement is generally orderly.

Note 2 to entry: An organization can be public or private.

Note 3 to entry: This definition is valid for the purposes of quality management system standards. The term “organization” is defined differently in ISO/IEC Guide 2.

[SOURCE: ISO 9000:2005, 3.3.1]

3.12

rescue service

agency or *organization* (3.11) with trained and equipped personnel that can respond immediately to coastal-based emergencies

Note 1 to entry: Rescue services include the police, fire service, ambulance, coastguard, military, civil protection or lifeguards.

3.13

service

provision specifically to individuals or groups of individuals in order to facilitate activities of public use

Note 1 to entry: A service usually requires the support of specific installations, even though in some cases it can function without them.

3.14

supplier

organization (3.11) or person providing a product or *service* (3.13)

Note 1 to entry: Products and services include concessions and contracts.

3.15

surveillance tower

surveillance point

facility on or near the *beach* (3.3) at locations that allow trained personnel to have good observation of, and quick access to, the beach and water in order to perform a rescue or to inform the *users* (3.16) of hazards

Note 1 to entry: Lifeguards and wardens are trained personnel.

3.16

user

person who visits the *beach* (3.3) for leisure or for work

Note 1 to entry: Users can be visitors, tourists, workers and local residents.

4 General requirements and guidance for managing beaches

4.1 General

Coasts around the world face increasing demands to cater for a wide range of recreational activities, with millions of tourists visiting coastal areas each year. Tourism is the world's third largest industry and the primary economic sector in many regions. As a result, there is increasing competition for the use of resources in coastal waters and beach areas.

Beach activities are becoming more varied, ranging from para-karting to power boating; swimming to sailing and from horse riding to beach barbecuing. Many activities, particularly those involving more active participation, require some form of management to reduce potential conflict between different user groups, and trying to cater for such a diverse range of activities can cause difficulties. Not only do conflicts need to be resolved between different users, but differences between locals and tourists also need to be considered. The requirements of local residents differ from those of tourists, and balancing their respective needs is a major contributory factor in successful beach use and management.

Beaches can have several uses, including:

- recreation and leisure;

- coast protection;
- sporting activities;
- educational events, socio-cultural, religious or sporting;
- nature conservation;
- fishing and collecting shellfish;
- military activities.

Safety and security are increasingly important issues on beaches, and beach operators and local authorities now pay closer attention to the physical safety of individuals and the protection of the natural environment

It is not possible to have easy access to each beach, but all beaches should be made as accessible as possible. Wherever feasible, all beach equipment and facilities provided should be made accessible to all users, including to people with specific needs (e.g. by providing parking with designated places, sanitary services, first aid services, bars and restaurants, and practical information at the beach entrance).

4.2 Benefits of standard compliance

4.2.1 Benefits

There are sustainable benefits associated with this International Standard. Its value to tourist destinations is not only to help beach operators improve the beach experience for users, but also to help improve the economic and social fabric of beach resorts and local coastal communities as a whole. This International Standard seeks to:

- a) provide consistency and credibility to beach management issues;
- b) improve the visibility of beach issues within policy setting on coastal-related legislation and regulation;
- c) harmonize national practices into global systems;
- d) improve understanding and information of beach risks and issues;
- e) increase recreation and access to beaches and near-shore waters;
- f) encourage monitoring and evaluation;
- g) provide information on the general environmental management on the beach;
- h) contribute to the growing public awareness of, and commitment to sustainable development;
- i) contribute to beach environmental protection;
- j) improve the tourist experience and the satisfaction of the users by providing a quality service, in order to build customer loyalty and increase the tourism demand of the destination and therefore the economic growth for the region.

4.2.2 Risks

There are many potential risks in maintaining the status quo and not undertaking a standards-based approach to managing beaches, such as the following examples.

- a) Economic impact:
 - lose out to neighbouring competition;

- poor beach tourism development planning: insensitive landscaping, views to the sea and badly-designed coastal engineering structures;
- investment in the tourism product reduced;
- negative portrayal in the media;
- poorly managed facilities and equipment.

b) Social implications:

- not meeting users expectations;
- health and safety: accidents and illness;
- residents staying away from the beach: perceptions challenged;
- reputation for criminal and nuisance activity;
- poor planning management;
- pollution.

4.3 Linking beach operation with hazard management

This International Standard considers how best to instil appropriate beach designs into climate change adaptation and disaster risk reduction strategies. For example, coastal flooding and erosion will continue to occur as the frequency of severe flooding events is likely to increase with the onset of climate change and increased storminess. Beach infrastructure damage, however, often only occurs when one exposes items of value to coastal processes (e.g. building too close to high tide mark). The lack of formal building regulation and development control is a significant issue, especially with regard to the appropriate construction of beach facilities.

In addition to building regulation, codes of practice in general are a recommended way forward to help developers design and manage beaches for specific beach recreational and water based activities. Any code of practice produced should be scientifically justifiable, and so where additional evidence-based and/or fact finding studies are needed (i.e. beach hazard risk assessment work, see 4.5), this should be clearly outlined as a requirement prior to production of the code of practice.

The beach operator should develop a code of practice which can include recommendations on:

- a) beach access design manual;
- b) beach facilities (comfort services) building and design manual;
- c) development control on beach (setback) area;
- d) beach conservation;
- e) establishing and regulating zones on beaches;
- f) placement, maintenance and management of public rescue equipment and facilities;
- g) beach safety information;
- h) effective beach management and maintenance.

4.4 Beach ownership

Clarity is needed on beach ownership, responsibility and other regulatory measures. If beaches are deemed as public, this shall be clearly communicated by the beach operator, even if a beach lies in front of a hotel, which means that users can (in theory) frequent every beach. As a general approach, it is the

beach operator's responsibility to gain clarity on whether any part of the beach could be purchased or leased by third-party (private) operators.

4.5 Planning

4.5.1 Identification of health risks

The beach operator shall establish, update, review annually and maintain a documented procedure to identify direct or indirect health risks related to beach activities, services, installations and resources that could have an impact on the health and well-being of users. The identification of possible health risks to beach users shall include groups of risks associated with the following:

- drinkable water supply points;
- the cleanliness of the beach surface;
- the quality of bathing water (measured, recorded and presented in accordance with national/international best practices (see [Annex B](#)));
- tidal conditions regarding sanitary risks;
- heavy rains causing flooding, flow of discharged water and material onto the beach, temporary poor water quality;
- the physical characteristics of the beach (e.g. surfaces, man-made structures, rocks);
- coastal erosion and flooding;
- flora and fauna including marine life;
- installations and equipment associated with services provided at the beach;
- basic safety information and warnings.

The result of applying each criterion set out in the above list shall be based on objective evidence that allows verification of the results of any evaluation carried out.

The bathing water quality should comply with the quality guidelines defined by the World Health Organization (WHO) (see Reference [\[7\]](#)).

4.5.2 Emergency planning

The beach operator shall:

- a) establish and document specific plans for emergency situations in order to prevent and reduce the impact and risks that are associated with them; these plans shall include:
 - identification of resources to address emergency situations;
 - identification and definition of responsibilities and authorities related to the responses in these situations;
- b) have the emergency response plan from stakeholders and establish systems to coordinate with them;
- c) have the necessary resources to address emergency plans;
- d) check and record the effectiveness of the emergency plans in a practice exercise each year and every time that an accident or emergency situation arises, and revise them accordingly;
- e) communicate the updated emergency plan to the emergency services controller.

4.5.3 Beach operation, organization plan and maintenance

In accordance with the defined scope, a beach operation and organization plan shall be established. It shall include the following, as a minimum:

- a) definition of the different bathing and non-bathing seasons;
- b) uses and organization of the beach in different seasons, emphasizing the bathing season;
- c) uses and organization of the bathing area (e.g. buoys, motorboats and floating platforms);
- d) identification, use and organization of access points;
- e) national/local regulations that define the possible uses and conditions in which any activity (bars, open-air eating places, bans, different signs) shall be carried out;
- f) zoning studies for tourist use and the carrying capacity of the beach (see [Annex A](#)).

Regarding maintenance, the beach operator shall:

- designate a person who (in addition to any other functions) shall have the task of ensuring that the infrastructure that exists at the beach is maintained in a good state;
- designate a supplier to carry out the maintenance of any installations at the beach, ensuring that the instructions established to attain the levels of quality and service indicated in this International Standard are respected;
- maintain beach cleanliness;
- maintain the beach installations and equipment in good condition for use and establish necessary activities that permanently ensure their correct operation and conservation;
- periodically revise and record the maintenance activities to ensure the correct operating status of the installations and equipment (whenever possible, these should be checked during cleaning and special attention should be paid to preventative maintenance activities).

Any anomalies detected by beach users shall lead to an evaluation, repair, removal or replacement of the required element, ensuring the good safety and hygiene conditions of the services provided.

All personnel that carry out maintenance work on the beach shall be adequately qualified and the beach operator shall ensure that they have sufficient material resources to perform the activities correctly. Maintenance personnel in contact with beach users shall be uniformed and easily identified, and informed of the rules of courtesy for customer attention.

Together with the person responsible for maintenance, the beach operator shall define the necessary indicators to be used to monitor the level of the service provided and the level of satisfaction perceived by the user.

The beach operator shall have a maintenance and monitoring plan that:

- includes all installations and equipment at the beach, whether mobile or fixed;
- ensures they are in good condition for their intended use;
- provides for adapting them to the expectations of the users;
- includes maintenance routines and frequencies (daily, weekly, monthly, annual activities);
- incorporates the verification process of the operations carried out;
- includes the conditions that could arise from the characteristic environmental situations at each beach.

Preventative maintenance tasks shall be carried out preferably during periods of low activity at the beach. Activities that have to be carried out for imperative reasons (corrective maintenance) during times of high activity shall be announced and indicated, offering users alternative uses.

A corrective maintenance system shall be established that, through the use of adequate human and material resources, makes it possible to put the affected installations back into use as soon as possible. The beach operator shall define the response time in accordance with the type and seriousness of the problem.

The beach operator shall establish an efficient communications system so that any person involved in providing the services can contact the maintenance services to inform them about incidents in the operation or maintenance of the installations. At the same time, it shall also have adequate mechanisms for users of the installations to communicate any anomalies.

The supervision tasks should also be recorded.

4.6 Stakeholder communication

The beach operator shall define who is responsible for communication and establish the necessary communication channels, in order to:

- a) provide information about the services offered to the users, and when they are not available;
- b) inform both the competent authorities and the users about possible emergency situations;
- c) respond to complaints, suggestions and consultation from the users and other groups of interest;
- d) provide information about restrictions related to legislation and regulation which can affect the user;
- e) provide information about water quality and provide environmental information.

4.7 Promoting the beach

The beach operator shall make a list of services available to users. It shall include information for beach users relating to:

- a) services that are offered;
- b) how to make suggestions and complaints;
- c) established service indicators and commitments made by the beach operator;
- d) the results of indicators from relevant health and safety risks;
- e) the results of indicators from relevant environmental aspects;
- f) objectives established for the current period and the results of their attainment in the previous period;
- g) prices and opening times.

A summary of the most important services shall be made available to the public indicating where its complete contents can be found.

The beach operator shall establish the appropriate mechanisms to ensure that the promotional information about the beach that reaches the user is complete and accurate and shall avoid introducing errors of interpretation.

The information shall be provided in the official local languages. In addition, the information shall be provided in at least one foreign language determined by the beach operator (preferably in English,

except for countries where English is the native language). The information should be available in formats accessible to users with specific needs.

The person responsible for the selection of promotional information shall be determined, as well as which channels of distribution are used, and how the information is periodically updated and withdrawn when it becomes obsolete.

4.8 Performance measurement

The beach operator shall:

- establish a system of indicators that provides relevant information relating to beach evolution, environmental impacts, health and comfort of users and the quality level of the services provided;
- ensure that the plans established at the beginning of the bathing season are implemented, and that when there are deviations in compliance with the safety and rescue provisions or if there is an increase in the number of incidents, the necessary corrective actions shall be taken to ensure the safety of the beach users;
- provide means for measuring customer satisfaction.

4.9 Customer satisfaction and feedback compilation

The beach operator shall have a system to respond to the complaints and suggestions submitted by the users, as well as the instructions for their resolution and the person in charge. Customer satisfaction surveys should be undertaken on an annual basis. The findings of these surveys should be collated and presented in an easily accessible format for future reference (i.e. clear annual incident reporting documents).

5 Infrastructure

5.1 General

The beach operator needs to be aware of applicable national building and coastal regulations, and shall comply with the minimum requirements for services and infrastructure listed in [Annex C](#).

Some coastal activities are regulated:

- building regulations are extremely important on vulnerable coastlines prone to change;
- safety regulations ensure appropriate safety measures are put in place which are relevant to individual locations.

Individuals/companies/organizations should take responsibility for activities such as:

- maintenance of comfort services and sanitary provisions;
- general management (needs to be audited and regulated on a regular basis);
- training of staff.

5.2 Permanent infrastructure

5.2.1 Sanitary services

5.2.1.1 General

The following sanitary services shall be available:

- toilets;
- showers and foot washes.

The beach operator shall designate a person who (in addition to any other functions) shall ensure that these sanitary services are in a good operating condition, clean and well kept. If any deficiencies are detected, the necessary corrective actions shall be taken to ensure they function adequately.

A record of the supervision of the sanitary services shall be made and kept.

Following customer satisfaction surveys and/or suggestions for improvement that arise from user complaints, the beach operator shall inform the supplier about possible claims regarding the service.

Any waste water from toilet facilities shall be treated separately and shall not be discharged into the bathing area or any streams feeding that water.

All sanitary services existing at the beach shall be available to the users during the operating hours of the beach. The times available shall be defined by the beach operator and communicated to the users (as operating times can vary throughout the year).

If the beach is accessible, it shall have sanitary services adapted to people with specific needs.

The sanitary services shall be indicated at the main accesses to the beach, as determined by the beach operator and on the map (see [6.1.5](#)).

The design of the sanitary services shall fit in with the natural or urban environment in which they are located.

All the installations and equipment provided in the sanitary services shall be included in the cleaning and maintenance plan for the beach.

All personnel that provide sanitary services shall be uniformed and easily identified, and shall understand the rules of courtesy for taking care of customers.

Together with the person responsible for the sanitary services, the beach operator shall define the necessary indicators to be used to monitor the level of service offered and the level of satisfaction perceived by the user.

5.2.1.2 Toilets

In accordance with the carrying capacity of the beach (defined in the organization plan), the beach operator shall define a sufficient number of toilets to cover the demand of the users.

The toilets shall have the following equipment and fittings:

- a) toilet;
- b) durable non-slip floor;
- c) waste bin with a lid;
- d) toilet paper;
- e) coat hanger or hook;

- f) natural or artificial ventilation;
- g) wash basins with hygiene wash and if not possible, with disinfectant liquid.

If the beach is accessible, it shall have at least one toilet adapted for people with specific needs.

5.2.1.3 Showers and foot washes

There shall be freshwater showers at the beach unless:

- there are legal stipulations to the contrary;
- water resources are scarce in the town or region that the beach belongs to.

In the two cases described above, there shall be foot washes.

The water flow in the showers and foot washes shall be adequate.

In accordance with the carrying capacity of the beach, there shall be a sufficient number of showers and foot washes that meet the demand for this service.

The showers and foot washes should have appropriate devices (where possible) for saving water and for waste water provision.

All prohibitions and recommendations for use of the showers and foot washes shall be displayed:

- a) the use of soap;
- b) wasteful use of water;
- c) consuming water that is not drinkable.

If the showers and foot washes are located on platforms, this surface shall be above the sand to allow for the drainage of water. The surface shall be clean and kept free from the presence of fungi. If they are installed directly on the sand, the growth of vegetation in the sand around the showers shall be controlled.

In both cases, the accumulation of water in the surrounding area shall be avoided.

If the beach is accessible, it shall have showers or foot washes adapted for people with specific needs.

5.2.2 Drinking water

If there is a drinking water supply point, this shall be protected to avoid the hygiene-sanitary risks caused by pets.

If the beach is accessible, it shall have at least one drinking water supply point adapted for people with specific needs.

The drinking water supply points should have appropriate devices for saving water and the code of conduct for the users (see [6.1.4](#)) should establish water conservation measures.

5.2.3 Lockers and changing facilities

If changing facilities are available, they shall include:

- non-slip floor;
- coat hooks;
- natural or artificial ventilation;
- stools or benches.

The changing facilities should be located near to the access points.

If there is a locker service, it shall allow users to leave their personal belongings. The design of the installations providing a locker service shall fit in with the natural or urban surroundings in which it is located.

5.3 Temporary infrastructure

5.3.1 Beach shade

The beach shall provide some form of shade to protect users of the beach from the sun. Where possible, the natural approach is preferred by both tourists and locals alike. See [Annex D](#) for further guidance.

5.3.2 Beach infrastructure

The beach infrastructure can include sunbeds, toilets, showers and surveillance towers. These shall be well integrated within the natural and built environment and shall satisfy appropriate environmental and aesthetic criteria.

Beach infrastructure shall be regularly maintained and checked in order to ensure that it is safe to use. The beach operator shall check the following, as a minimum:

- the cleanliness of equipment;
- the serviceable condition of equipment;
- the environmental effects of paint and other materials used for maintaining the equipment and infrastructure;
- any potential risk associated with the deterioration and malfunction of equipment.

Wherever possible, environmentally friendly products should be used.

5.4 Access to the beach

5.4.1 General

The beach operator shall plan the access of any vehicle to the beach and develop a method to ensure that the accesses are maintained in an adequate condition for use. The results shall be recorded and analysed so as to be able to take actions for improvement.

- a) All beaches shall be made accessible as far as possible.
- b) If a beach is categorized as public, this shall be communicated by the beach operator.
- c) Access to public beaches shall be free, although at some beaches, public access may be provided through charging a small and reasonable fee.
- d) Access paths to the beach shall be safe, clean and maintained at all times.
- e) The majority of the beach shall be designated entirely vehicle-free. Vehicles (except for those used for the purpose of cleaning and safety, such as emergency vehicles) should not be allowed. The beach operator shall plan the access of any vehicles to the beach parking area(s).

5.4.2 Responsibilities

The beach operator shall designate a person who (in addition to any other functions) shall have the task of ensuring that the access points and areas are maintained to the level of quality defined in this International Standard.

The beach operator shall carry out the necessary supervision tasks to ensure that these are maintained in good condition for use, and shall record the status of the installations.

5.4.3 General requirements concerning accessibility

Access to the beach should be facilitated by access ramps, adapted to users with specific needs. If possible, access to the water should also be facilitated.

If the beach is accessible, it shall provide access to the dry surface, to the bathing area and all the existing installations and equipment, adapted for people with specific needs. Where locally permissible, entrances at accessible beaches shall be clearly marked and shall display the ISO 7001 graphical symbol for accessibility.

5.4.4 Car park

At those beaches where there is a car park, this shall be maintained in adequate operating conditions and shall be well kept. If any deficiencies appear, these shall be reported to those responsible for managing the car park.

Car parks shall have designated spaces for people with disabilities.

If it is necessary to pay to park, the price shall be indicated at the entrance to the car park.

5.4.5 Prohibitive vehicle access

Unauthorized camping, driving and dumping shall be prohibited on the beach. There shall be information about these restrictions displayed at the beach. Vehicles, except for those used for the purpose of cleaning and safety (e.g. for moving lifeguard equipment or emergency vehicles) should not be allowed on the beach. For cases where vehicles cannot be entirely prohibited, these shall be adequately justified and properly managed. Areas for driving and parking, as well as car-free zones, shall be designated and, whenever the situation requires it, police or traffic guards shall control the beach. If vehicles are allowed, these should be prohibited from entering the high water zone at any time. The majority of the beach should be designated entirely vehicle-free.

Where there are no physical barriers preventing access to the beach by vehicles, and where there are problems with unauthorized vehicles, camping or dumping, by-laws should be put in place to prohibit these activities. Information about these by-laws should be displayed. The beach and its nearby areas shall not be used for the dumping of litter and other waste.

In the case of special events that involve the use of vehicles on the beach, a special management plan shall be drawn up and applied to prevent damage to the ecosystem, as well as risks to beach users. Parking for emergency vehicles shall be provided in close proximity to the beach. If necessary, additional resources (e.g. cleaning staff and portable toilets) should be brought in to ensure that the quality level does not drop.

6 Service provision

6.1 Information services

6.1.1 Information about the services provided at the beach

The beach operator shall appoint a person who (in addition to any other functions) has the duty of ensuring that the user is suitably informed of all matters relating to their safe and enjoyable use of the beach and its facilities, as follows:

- beach operator information;
- codes of conduct;

- safety;
- sanitary, medical and environmental issues.

The information shall be provided on information panels, tourist information, flags or any other means that can be understood by the beach user.

The beach operator shall communicate the duration of the bathing season to the beach users, clearly indicating when the period of high activity (the maximum presence of users) is expected.

The beach operator shall define and inform the users about the minimum service offered during the bathing season and outside of it.

For all services offered, the timetable shall be specified, as well as the conditions of use and access to the beaches for the users, including any applicable tariffs.

Any services at the beach for which payment is required shall show their prices and shall be clearly visible to the users.

The beach operator should unify the style and design of all signs.

The beach operator shall establish the necessary mechanisms to ensure that the information given to the beach user is complete and updated periodically, and that it is available in the most commonly used languages.

The person responsible for communication shall inform beach users when new services are provided at the beach, as well as when services already being offered undergo any modification or adaptation. At the main access points to the beach, as identified by the beach operator, there shall be a map indicating the location of the existing facilities and the services that are provided.

NOTE ISO 28564-1 can provide guidance for the design of the map.

The information provided in the map shall include the following aspects, as a minimum:

- a) location of the access points (including those for people with specific needs, where applicable);
- b) location of the different services provided;
- c) seasonal dates and times for the use of the services;
- d) code of conduct for the beach;
- e) safety information;
- f) sanitary and environmental information;
- g) location of toilets.

The information system should use graphical signs in addition to the other forms of information means, in accordance with ISO 7001.

6.1.2 Tourist information

The beach should have an information point that displays tourist information about the local and surrounding area that might be of use and interest to the beach user.

The users shall be given advance warning of any events planned for the beach area. This could be in the form of posters or other information at the beach, through announcements in the local media or on local authority/beach operator websites if appropriate. A notice indicating information (e.g. details of an event, duration of an event, where more information can be obtained and where complaints can be made) shall be posted at the beach.

6.1.3 Tariffs and levies

The local authority/ beach operator should consider levying a fee on the organizers of events hosted at a beach area, and this income should be used to make improvements to the beach or within the local area.

6.1.4 Information about codes of conduct

Information shall be provided at the main accesses to the beach about the codes of conduct for the user of the beach. In order to communicate this information, graphic symbols shall be used that can be understood by the users regardless of their nationality.

The beach operator shall develop a code of conduct for the users, which shall include at least the following aspects:

- presence of pets;
- nudism;
- depositing waste and containers in unauthorized places;
- camping;
- mooring boats;
- unauthorized vehicles;
- use of detergents in outside showers;
- other activities that can disturb the rest of users (e.g. noise, practising unauthorized sports);
- environmentally sensitive areas;
- zoning for activities.

6.1.5 Information about safety

There shall be information signboards at the main access points to the beach, including information regarding the rescue services at the beach and recommendations for the health of the users.

The signboards shall contain the following information, as a minimum:

- map or plan of the beach;
- limits of the monitored bathing area;
- flags and their meaning (see Reference [8]);
- location of the safety, surveillance and rescue services;
- ways of contacting the emergency services controller;
- seasonal dates and times for the use of rescue services;
- location of first aid service and emergency telephone.

The beach operator shall inform beach users if the beach or any part of it is closed or has restricted use.

NOTE Detailed information on signs related to sanitary and environmental information can be found in ISO 20712-3.

6.1.6 Sanitary/environmental information

There shall be information at the main access points to the beach relating to the following, as a minimum:

- a) the results of the analyses carried out on waters regarding the quality of the water in the bathing areas;
- b) the possible sanitary risks that might exist at the beach and the way to prevent them;
- c) the environmentally sensitive areas that exist at the beach or in its surroundings.

6.2 Beach safety services

6.2.1 General

The information in this clause concerns the safety of the user, although many of the general safety principles described (see Reference [10]) can also be relevant to the protection of employees.

The beach operator's responsibility is to minimize the risks of injury or drowning to users. Local safety plans should be developed that give consideration to the following remedial measures:

- education and information;
- denial of access and/or provision of warnings;
- supervision and provision of rescue equipment;
- acquisition of rescue and survival skills.

Together, these measures can constitute a drowning prevention strategy.

The beach operator shall conduct a full beach risk assessment prior to implementing any beach safety services. The risk assessment should highlight appropriate beach safety control measures for the defined beach area, which the beach operator is responsible for.

The purpose of a risk assessment is to:

- a) ensure that potential safety problems are properly understood;
- b) check whether existing control measures (including emergency plans) are adequate;
- c) determine what is necessary to reduce risks to a reasonable level;
- d) prioritize unacceptable risks identified by the assessment and determine further action.

The risk assessment should comply and use the principles of ISO 31000 and IEC 31010.

Beach safety services should be determined and implemented as a result of the beach risk assessment. A competent risk assessor should review the risk assessment annually. The control measures identified from the results of the risk assessment should be categorized under the following sub headings:

- community education;
- signage and zoning;
- lifeguards, beach safety flags and first aid services;
- public rescue equipment;
- beach evacuation and closure.

Control measures are unique to each location and individual risk assessments should be conducted for each beach taking into account local hazards and management information.

The beach operator shall establish a procedure for coordinating and responding to loss and found persons (see [Annex E](#)).

6.2.2 Responsibilities

The beach operator shall designate a person or persons who (in addition to any other functions) shall be responsible for ensuring that the quality of the services (defined in this International Standard) in relation to the beach safety provisions are maintained, monitored and reviewed.

The person(s) responsible for the safety provisions should also be responsible for the communication and coordination between the organizations that provide the beach safety services and the beach operator of the beach.

6.2.3 General requirements

Beach safety services shall be provided at times and locations identified through the risk assessment. The beach operator shall ensure users are provided with the necessary safety cover.

Information shall be provided to the user concerning the location and operating times of the safety services. Notices should be displayed at key access and entrance locations, with consideration given to foreign users and other languages, and to visitors with specific needs.

Personnel that participate in providing the beach safety services shall be uniformed and easily identified, and informed of the rules of courtesy for customer attention in compliance with the requirements established by the appropriate authorities, beach operator and/or internationally recognized guidelines.

NOTE In many countries, lifeguards wear the red and yellow colours for their uniforms in accordance with international best practice to help users identify the appropriate rescue service personnel.

There shall be action procedures in place for emergency situations. The resources, processes and action plans shall be established and documented. A drill/exercise shall be carried out at least once a year to test the emergency action plan, and a record shall be kept.

In accordance with the requirements of appropriate authorities, the beach operator shall ensure that adequate communication is provided among the agencies involved in beach safety and among the personnel involved in the management of the beach. Adequate communication systems/equipment are essential for this task.

6.2.4 Planning and monitoring risk

The beach operator shall have the following, approved by the appropriate authority:

- an operational plan during the bathing season;
- a safety plan for general operations outside the defined bathing season.

The planning shall include:

- a) available safety resources and response times;
- b) surveillance routines;
- c) means of communication and coordination with the rescue services and/or other safety groups (national police, civil police, coastguard, lifeguards, ambulance service);
- d) extraordinary measures for special events (e.g. dangerous marine creatures or hazardous sea conditions);
- e) evacuation routes in extraordinary situations and beach closure procedures;
- f) influences of tidal and environmental conditions regarding risks;

- g) identification of marine life hazards;
- h) record of all incidents and their response times;
- i) other plans related to identified hazards within the beach risk assessment.

The surveillance routines shall be established with special emphasis on critical aspects (e.g. special events, areas with a larger number of users or conflicting activities).

NOTE The response time to an incident at a beach is from the moment a competent body is notified until the moment the incident is being dealt with at the scene by trained personnel.

6.2.5 Control measures

The control measures in 6.2.6 should be identified through the beach risk assessment. It is important to review and monitor the control measures and revise as and when required.

6.2.6 Signage, flags and zoning

6.2.6.1 Signage

Signage plays an important part of the overall education programme that aims to reduce the number and severity of incidents in the aquatic environment.

Signage systems provide important messages to the public. These messages fall into three categories:

- a) messages that indicate that certain activities are prohibited or the requirement to follow the information is obligatory (prohibitions/mandatory signs);
- b) messages that warn the users of a danger, a potentially dangerous situation or a hazardous environment exists (warnings/safety signs);
- c) messages that indicate direction or give general information, location (public information signs).

Where locally permissible, the beach operator shall comply with ISO 20712-1 and ISO 20712-3.

An effective and cohesive signage system should be procured and established in accordance with the findings of the risk assessment to provide users with both up to date safety and public information.

6.2.6.2 Flags

Beach safety flags shall be used where lifeguards are in operation.

Where locally permissible, the beach operator shall comply with ISO 20712-2 and ISO 20712-3.

6.2.6.3 Zoning for activities

There should be specific buoyage (zoning) to ensure that beach users can enjoy their time without threatening their safety. Zones are generally used to ensure the harmonious coexistence of different user groups within a confined area, at beaches where there are bathers and watercraft (or other users) and where potentially dangerous conflicts could arise (see [Figure 1](#)).

Zone demarcation should include the use of buoys, where appropriate, in the water, so that a designated swimming area is still retained. It is not recommended that the whole beach be designated to the event. The sustainability of the beach can also be influenced by environmental and building regulations relating to any events and/or the construction of facilities on the beach. This includes the possibility of undertaking environmental impact assessments or producing environmental reports on the impact of the event on the natural surroundings, in which case, permission from the relevant environmental authorities in the region would be necessary.

In the interests of bather safety, specific areas within the beach should be zoned for swimming. The size of the swimming area should be at least 100 m wide and extend out to sea at least 50 m. Tidal conditions should be taken into consideration.

If an area has been identified as suitable for craft to leave and return to the shoreline, then this area should be buoyed. The lane demarcated by buoys should be located up to 100 m offshore and should be at least 30 m wide to enable craft to use the buoyed lane safely.

Consideration should be given to tidal conditions and access to craft launching sites (e.g. slipways). When nautical activities require more than one access to the sea, the beach operator shall evaluate the need and provide any additional accesses they consider appropriate.

The buoys should be attached by a floating line and be coloured yellow. The buoyage system should be anchored to the seabed and not present an entanglement hazard. Buoys should be spaced no more than 2 m apart.

Any installation of a buoyage system (zone) should be notified to the relevant national body responsible for marine navigation.

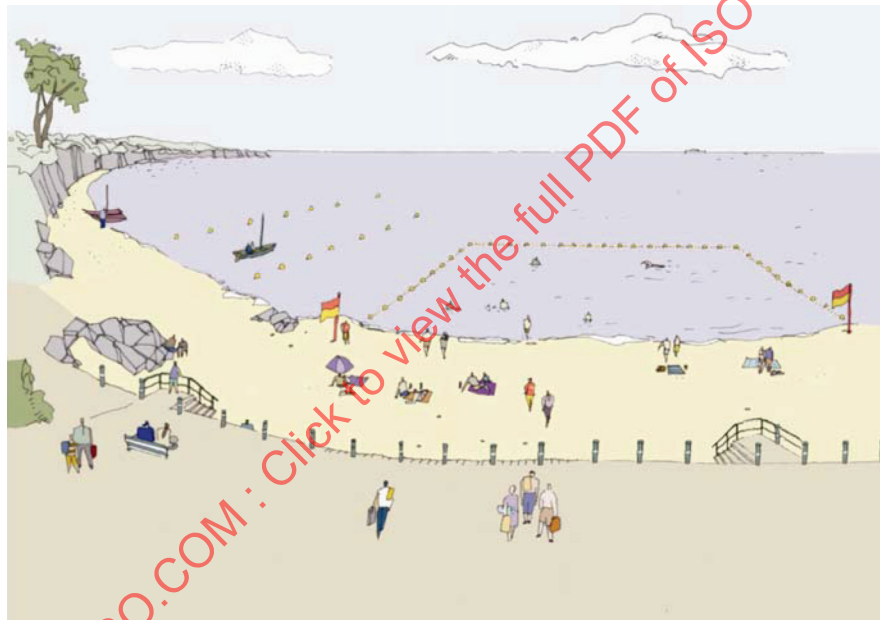


Figure 1 — Example of a buoyed-off swimming area and boating channel

6.2.7 Lifeguards and first aid services

6.2.7.1 Lifeguards

The lifeguard services shall be provided by personnel with the appropriate training and sufficient rescue resources as identified through the risk assessment. The team shall ensure an immediate response time from the moment that the incident is reported to the rescue in less than 4 min.

The following services shall be provided, as a minimum:

- surveillance duties, rescue and assistance of persons in difficulty;
- a proactive approach shall be in place to ensure the safety of swimmers/beach users to prevent accidents and incidents on the beach happening;
- manage the application of identified safety measures;
- monitor and ensure any conflicts between beach and water users are managed effectively;

- monitor and ensure local laws and/or regulations are upheld and/or reported to the appropriate authorities;
- keep the areas designated for bathing free from activities that could be a danger to those using them;
- manage any kind of activity that could endanger the users.

The minimum personnel present at the beach shall be:

- service coordinator (may be shared with other beaches/duties);
- lifeguards in accordance with the risk assessment (lifeguards should not undertake other duties).

Where locally permissible, the minimum equipment at the beach, if identified from the risk assessment, shall be as follows:

- a) red and yellow flags to identify each surveillance point or other designated observation areas;
- b) first aid equipment;
- c) communications equipment;
- d) rescue equipment comprising binoculars, spinal board, whistles and any other material considered appropriate;
- e) surveillance towers located at appropriate distances/locations as identified in the risk assessments and connected by radio, mobile telephone or an equivalent electronic means to the rescue craft and service personnel;
- f) a sufficient number of rescue craft to ensure an appropriate response time (these may be shared with other beaches).

All personnel that are part of the rescue and first aid contingency shall be in possession of the minimum required qualifications for each post. These qualifications shall be defined in accordance with the activities they are to carry out and shall be made available to the beach operator.

The beach operator shall keep accurate information relating to the development of the services. This requires a daily record of the activities undertaken. Activities include the actions carried out during the day, the personnel on duty, resources used, incidents and the flags used during the day. The information obtained shall allow a continuous evaluation of the service.

6.2.7.2 First aid services

According to the time of year, the type of beach and its degree of danger, sufficient first aid posts shall be established to ensure that users receive adequate medical attention (first aid, nursing care or supervision) as required.

First aid posts can be manned by lifeguards or by independent first aid providers.

Each first aid post shall be attended by qualified personnel and, in accordance with the risk assessment of the beach, shall have adequate personnel to ensure medical attention for the beach users. At each beach there shall be the required quantity of first aid equipment as specified in the rescue plan.

Each medical post shall have a statistical record of the attention given.

When a person is transferred to a medical centre, the following recorded data is recommended, as a minimum:

- a) description of the person attended;
- b) patient observation;

- c) treatment applied;
- d) place of origin and later derivation;
- e) date and time the service was given;
- f) data corresponding to the medical personnel that provided the treatment.

The documentation shall be confidential and available to the beach operator and be used to identify any accident trends.

6.2.8 Public rescue equipment and emergency communications

Public rescue equipment in coastal areas shall be appropriate for the features and conditions of the coastline and water (see Reference [9]). The equipment should be easy to use by members of the public with minimal hesitation and without putting the safety of the rescuer at risk.

Consideration should also be given to the provision of emergency communications (e.g. telephones and call points), especially at locations with poor mobile phone coverage or at isolated locations where help might not be nearby.

For beaches where public rescue equipment has been identified as a suitable control measure, the following equipment should be considered:

- a) In shallow shelving beach: a 46 cm – 61 cm life ring;
- b) In medium and deep shelving beach: a 46 cm – 61 cm life ring;
- c) In beach area with fast moving water (river entrance): throw line with floating buoy;
- d) In cliffs and rocky areas: a 46 cm – 61 cm life ring;
- e) In man-made areas (harbour walls, piers): a 61 cm – 91 cm life ring.

The use of these items needs to be related and appropriate to the specific location and in accordance with the recommendations of the dynamic risk assessment. Equipment that places the rescuer themselves at risk should be avoided.

Public rescue equipment should be:

- clearly positioned and in colours of red, orange or red at an optimum height for access;
- located at intervals determined by the risk assessment;
- regularly inspected throughout the year, with the inspections recorded, and replaced where necessary.

6.2.9 Beach evacuations and closure

As part of the beach safety plans, there should be procedures on evacuating the beach and its closure if required. The following circumstances can result in the need to evacuate or close the beach:

- a) pollution or contamination;
- b) dangerous conditions (e.g. rips, waves, tides and winds);
- c) dangerous marine life (e.g. sharks, jellyfish and crocodiles);
- d) tsunami or natural disaster;
- e) public disorder or civil unrest.

NOTE ISO 20712-3 provides guidance regarding tsunami escape systems for those areas that are particularly at risk from this natural occurrence.

6.3 Beach cleaning and waste removal

6.3.1 General

The beach operator shall appoint a person who (in addition to any other functions) has the duty of organizing, supervising and ensuring compliance with the requirements established in this International Standard for the processes of cleaning and the selective removal of waste, ensuring that the user is suitably informed of all matters relating to their safe and enjoyable use of the beach and its facilities.

The beach operator shall establish a cleaning plan and supervise compliance with this plan and, in the case of deviations or if the beach operator considers it insufficient, shall take the necessary corrective actions.

In order to oversee the cleaning and selective waste collection services, the beach operator shall maintain an updated record of the inspections carried out to ensure that the requirements established in this International Standard are met.

The inspections shall take the following aspects into account, as a minimum:

- the degree of compliance of the cleaning routines;
- the degree of compliance of the location and the status of the cleaning of installations and equipment;
- checking the efficiency of the cleaning and selective waste collection plans.

6.3.2 Planning requirements

The beach operator shall devise a detailed cleaning plan incorporating the following points:

- a) available human and equipment resources;
- b) frequency and times of the service;
- c) cleaning routines;
- d) routines for collecting natural waste;
- e) action plan for dangerous waste.

During the bathing season, the execution of the cleaning plan in the dry and wet area of the beach shall involve the following activities, as a minimum:

- collecting waste from the dry and wet areas of the beach;
- relocation of the sand, if necessary;
- removal of waste from the water;
- appropriate removal of sea grass/seaweed without impacting on beach ecosystem dynamics.

The frequency of the cleaning service shall be planned and implemented taking into account the season, the level of use, the weather and other relevant factors.

Consideration shall be given to the removal of animal waste, in particular dogs and horses.

A record of the cleaning activities shall be kept.

6.3.3 Cleaning installations and equipment

The cleaning plan of the installations and equipment at the beach should define the types of detergent substances or chemical products to be used and shall involve the cleaning of at least:

- toilets and changing facilities;
- showers and foot wash;
- bins and waste containers;
- accesses to sand and water;
- safety and customer-attention infrastructures;
- other equipment and installations.

Following special events and other unusual situations, the cleaning plan shall include activities that ensure attaining the required levels of cleanliness of the installations and equipment.

In the case of concession of services, the beach operator shall ensure that the suppliers plan and maintain the installations and equipment in a good state of cleanliness.

The minimum frequency and timetable for providing the service to clean installations and equipment shall be as follows:

- a) toilets and changing facilities: at least three times during the day and at the end of the service, and whenever the situation so requires to ensure an adequate state of cleanliness;
- b) showers and foot washes: at least once a day, preferably outside the timetable for the use of the service, and as many times as are required to ensure an adequate state of cleanliness;
- c) access to the sand and to the water: at least once a day, preferably outside the timetable for the use of the service, and as many times as are required to ensure an adequate state of cleanliness;
- d) safety and customer-attention infrastructures: at least once a day, preferably outside the timetable for the use of the service, and as many times as are required to ensure an adequate state of cleanliness;
- e) other installations and equipment at the beach: at least once a day, preferably outside the timetable for the use of the service and as many times as are required to ensure an adequate state of cleanliness.

A record shall be kept of the cleaning activities carried out.

6.3.4 Waste disposal, collection and recycling

Containers or bins for collecting waste shall be located on the sand.

If the selective containers are not located on the sand surface, they shall at least be available at the main accesses to the beach, as determined by the beach operator.

The beach operator shall have a plan for the selective collection of the waste generated on the dry surface of the beach, which shall include at least the following:

- a) the number of containers or bins required for the collection of the following groups of waste:
 - packaging;
 - paper and cardboard;
 - organic material;
 - glass;

- b) the distribution of the containers or bins on the beach;
- c) the routines for emptying the containers or bins;
- d) the necessary human and material resources;
- e) the authorized managers or deposits for the collected waste.

In the selective waste collection plan, the beach operator shall include activities that ensure attaining the required levels of cleanliness after the celebration of special events and other unusual situations.

In the case of concession of services, the beach operator shall ensure that the suppliers plan and maintain a correct selective waste collection system and try to recycle waste where possible.

The frequency and timetable of the service to empty the bins and containers shall be defined in accordance with the nature of the waste generated, and the following minimum frequencies shall be established:

- collection bins or containers, selective or not, for organic material: empty daily, preferably outside the times of high activity at the beach, except in cases where the receptacle is full, making it impossible to use it;
- containers or bins for other waste: empty as frequently as necessary to avoid the receptacle being full, making it impossible to use it.

6.4 Commercial services

6.4.1 General

The beach operator shall make sure that the leisure services are in a good operating condition, clean and well kept. If any deficiencies are detected, the necessary corrective actions shall be taken to ensure they function adequately.

A record shall be kept of the results of the supervision of the leisure services.

The requirements of this International Standard shall apply at the beach if any of the following leisure services are provided:

- a) establishment selling food and drink;
- b) sunbed/chair/sunshade rental;
- c) practising leisure activities;
- d) practising sporting activities;
- e) hawkers.

On beaches where hawkers are legally permitted to trade, the beach operator shall regulate their activity and take into account the carrying capacity of the beach.

For those leisure activities at the beach for which payment is required, the prices for using the service shall be clearly visible.

All leisure installations and equipment at the beach shall be included in the general cleaning and maintenance plan, ensuring that they are always clean and maintained to a high standard.

The timetable for the leisure services shall be defined and communicated to the users.

The leisure services shall be signposted at the main access points to the beach and on the beach map itself.

The personnel from the beach operator (or the supplier that is involved in providing the services) shall be uniformed and easily identified, and informed of the rules of courtesy for customer attention.

Together with the person responsible for the leisure services, and in line with the policy and objectives of the management system, the beach operator shall apply the necessary indicators to monitor the level of the service offered and the level of satisfaction perceived by the user.

6.4.2 Food and drink

Food and drink vendors shall maintain high standards of hygiene and, where locally permissible, they should follow the guidance of the WHO and the Food and Agriculture Organization (FAO) of the United Nations on food hygiene (see Reference [11]).

6.4.3 Sunbeds and sunshades

The suppliers of sunbeds and sunshade services shall have correctly uniformed personnel who are easily identified. Personnel shall be informed of the rules of courtesy for customer attention. The prices of the services and timetables shall be on display for the users.

6.4.4 Sports and leisure activities

If beaches contain play areas for children and areas for sporting activities, these areas shall be clearly marked.

The beach users shall be informed of the opening hours, the price (if applicable) and the rules of use.

The beach operator shall plan the sporting and leisure activities for each year and shall communicate the plan to the users.

During the development of the activities, there shall be mechanisms in place for the communication and coordination of safety matters.

The beach operator shall designate a person responsible for the maintenance of the materials and installations required to provide the service, and a person responsible for organizing the activities.

The personnel involved in these activities shall have adequate training for the job and shall be clearly identified so that users can recognize them.

The beach operator shall establish the necessary mechanisms to prevent the sporting and leisure activities from disturbing the rest of the beach users, especially with respect to an excess of noise. If disturbance is unavoidable, the beach operator shall inform the rest of the users of the activity and its duration.

Annex A **(informative)**

Carrying capacity concept

Carrying capacity is an important concept in beach management. It is used to set parameters for the intended or reasonably expected uses of the beach, particularly in planning the infrastructure.

One of the critical aspects in beach management is for the conditions for access to the beach to be compatible with the carrying capacity, in order to ensure that is not exceeded.

Beaches are usually free access areas, but legislation and regulation can control access to the beach. There are several measures that can be adopted to manage the access to the beach and prevent the carrying capacity being exceeded. The selection of these measures depends on several factors, such as:

- customs;
- location, especially the distance to the nearest urban centre;
- access conditions;
- topography;
- environmental sensitivity;
- infrastructure;
- intended use or reasonably expected use of the beach;
- climate.

Urban beaches are those that are more challenging for access management, especially because the access is usually free. However, there are some measures that can be adopted to manage the access, such as:

- restricting the parking of tour buses near the beach, thus preventing an excess of concentrated flow;
- distribution of the car parking areas and establishment of parking fees, which help to control the volume of influx of users to the beach;
- limiting the offer of services and facilities (including safety) at the beach.

The establishment of defined beach access points can help with access management, as can the establishment of green belts in the beach surroundings.

Access planning and access management should be implemented to achieve effective beach management. This could involve the need for coordination and interaction with authorities with responsibilities for:

- public space management;
- multiple activities on the beach;
- other activities that have an impact on beach access (e.g. transportation, security and traffic authorities).

Annex B (informative)

Bathing water quality

In 2003, the WHO published the first *Guidelines for safe recreational water environments* [12], which suggested a combined system of bathing water management and water quality assessment designed to limit health risk attributable to recreational bathing to accepted levels. Chapter 4 explains the science behind the WHO approach which became the principal basis of the EU (2006) revised *Bathing Water Directive* [14]. A WHO addendum [13] was published in 2009 but did not change the beach management principles or water quality standards significantly.

The microbial standards for sea water in the WHO are based on UK research using healthy adult volunteers and funded by the UK government between 1989 and 1992. The principal health outcome examined in this work was minor self-limiting gastroenteritis (GI) and the water quality standards derived by the WHO were set to limit this outcome to levels accepted by the population at large.

In marine waters, the best predictor of illness was the intestinal enterococcus concentration. The average incidence of GI illness in developed nations was approximately 1 incident per year. The WHO wished to define a water quality exposure level which would approximately double the risk of minor GI illness for the keen sea bather. Analysis of the UK study data suggested that this risk level was broadly equivalent to 20 bathing exposures where the water quality was characterized by a 95 percentile intestinal enterococci level of 200/100 ml at the bathing site (see Reference [15]).

In addition to setting water quality guidelines, the WHO suggested a new approach to bathing water management. This suggests production of a bathing water sanitary profile in order to determine the principal sources of bacterial pollution, such as rivers bringing agricultural pollution from livestock, treated sewage effluents (these are mostly disinfected in the UK) and intermittent sewage discharges from combined sewage overflows.

Agricultural pollution input was considered to be less likely to contain human pathogenic viruses and hence presented a lower risk to bathers, although it could not be considered risk free as it might contain animal derived protozoan and bacterial pathogens. It was accepted that this flux of non-human pollution was very difficult to manage with technological interventions. However, it could often be predicted because rainfall and elevated stream flow tends to drive this pollution into bathing waters. The WHO suggested that, where the sanitary profile of bathing water indicated that this intermittent pollution was not human, it was appropriate to protect the public by warning them of the potential risk with physical signs and/or electronic communication (e.g. text and internet). This “predict and protect” approach requires appropriate models for the bathing water which predict water quality from simple environmental measurements (e.g. rainfall and sunshine intensity). The WHO “predict and protect” approach is designed to limit health risk from livestock.