SUSTAINABILITY GOOD PRATICES GUIDE FOR NAUTICAL TOURISM SUPPORT INFRASTRUCTURES ON THE COAST, RIVERS AND RESERVOIRS





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# /1. INTRODUCTION

The vision set out in the 2027 Tourism Strategy (ET27) centres Portugal on a strong commitment to the role that the tourism sector can and should play in achieving the Sustainable Development Goals defined by the United Nations.

Within this context, the ET27 is based on the affirmation of "Tourism as a hub for economic, social and environmental development throughout the territory, positioning Portugal as one of the most competitive and sustainable tourist destinations in the world" through eight strategic objectives of economic, social and environmental sustainability:

1. Increase tourism demand in the country and in the various regions

2. Grow faster in revenue than in overnight stays

3. Extend tourist activity to the whole year

4. Increase the qualifications of the population employed in tourism

5. Ensure that tourism activity has a positive impact on resident populations

6. Increase energy efficiency levels in tourism companies

7. Promote the rational management of water resources in tourism

8. Promote efficient waste management in national tourism activity

The pandemic situation that we have experienced since 2020 has changed the dynamics of societies due to the negative impact caused on the global economy, particularly in the tourism sector, and has required a focus on responsible and resilient recovery to ensure the resumption of tourism activity in a sustainable and competitive manner. Thus, bearing in mind the urgent sustainability challenges, Turismo de Portugal, I.P. brought together in the Plan Turismo +Sustentável 20-23 (20-23 +Sustainable Tourism Plan) a set of 119 initiatives and projects aimed at strengthening the sustainable performance of the sector, which aims to contribute to stimulating the circular economy in tourism, fostering the transition to an economic model based on prevention, reduction, reuse, recovery and recycling of materials, water and energy, thus strengthening the Circular Economy in the Tourism Sector Agenda and placing the tourism ecosystem in the lead of the climate transition to a new green and inclusive economy.

The 20-23 +Sustainable Tourism Plan contemplates 4 axes of action: Structuring an increasingly sustainable supply; Qualifying sector agents; Promoting Portugal as a sustainable destination; Monitoring sustainability metrics in the sector.

The "Structuring an increasingly sustainable supply" axis, namely in the area of action concerning the enhancement of the nautical and bathing supply, has the challenge of affirming tourism in the marine economy as a sustainable activity, making it necessary to qualify and enhance the infrastructure, equipment and services related to this strategic asset, as well as to promote the sustainable management of nautical tourism activities.

This Guide therefore stems from one of the actions envisaged in the Plan and aims to list a set of good alternative management practices, or of recognised efficacy, that allow to improve the environmental, economic and social sustainability associated with the development and management of nautical tourism support infrastructures, whether in coastal areas or inland waters, with a view to improving the quality of the experience for nautical tourists and visitors, without neglecting the wellbeing of the local host community and minimising the impact on fauna. flora, soil, water resources and the continuous improvement of energy efficiency.

The aim is thus to make the managers of these infrastructures aware of the contribution they can make to Sustainable Development within the scope of their activities, challenging them to continuously improve their processes in order to achieve better performance levels. The recommendations in this Guide are of a voluntary nature, without exempting compliance with the legislation applicable to the activities that are organised, and are based on encouraging the implementation of the Sustainable Development Goals (SDGs) by the business communities, in general, and by nautical infrastructures management bodies, as well as by tourist entertainment companies, in particular:



Figure 1 — Pictogram of the 17 Sustainable Development Goals illustrating the global targets set by the United Nations' General Assembly

## / 2. ENVIRONMENTAL MANAGEMENT

### / 2.1 MANAGEMENT PRACTICES



Image 1 — Entrance of the Yachting Harbour of Oeiras

#### FRAMEWORK

The definition of an environmental policy aims to affirm the commitment to the environment, and should reflect the entities' commitment to good environmental performance and establish their broad guidelines in this matter. For this purpose, the establishment of environmental goals and targets allows for a continuous improvement in the environmental management of the entities and in their performance, and should be in line with the established environmental policy.

These goals and targets should be based on the planning of actions that aim to achieve the defined environmental policy, ensuring its implementation and monitoring, and should include the following environmental aspects: waste management, consumption reduction, energy efficiency and prevention of water pollution. Furthermore, the existence of written procedures is fundamental to guarantee the execution of relevant tasks from the point of view of environmental performance in compliance with the assumed environmental policy and the stipulated environmental goals and targets. They also guarantee the establishment of the organisation's know-how and the standardised performance of tasks by all members of the recreational nautical infrastructure.

The need for the nautical infrastructures to comply with the applicable environmental legislation and requirements regarding the environment and sustainability should also be taken into account, covering all the descriptors included in this Good Practices Guide. Finally, the importance of defining and implementing environmental monitoring and control plans should be highlighted, as these are instruments that enable systematic and permanent control in order to act proactively. Within this scope, measurement and monitoring procedures must be prepared and implemented, identifying possible non-conformities and opportunities for improvement, allowing the establishment of corrective and preventive actions.

#### GOOD PRACTICES TO IMPLEMENT

There must be an environmental policy that reflects the commitment of the recreational nautical infrastructure to the sustainability of the activity, which must:

\_Be adequate to the nature of the activity (considering, for example, the possible implementation or proximity to sensitive areas) and consider the protection of the marine environment;

\_Be defined in a collaborative way among the stakeholders and approved by all actors;

\_Be disclosed to customers, nautical users, employees and other interested parties.

\_Measurable whenever possible, and their fulfilment should be monitored;

\_ Revised whenever necessary, having in mind the continuous improvement of the organisation;

\_Disseminated to the team.

Written procedures should be in place to ensure the correct execution of tasks critical to the environmental performance of the recreational nautical infrastructure. Each organisation should identify and write down those procedures that are considered critical, such as:

\_Waste management;

\_Minimisation of the consumption of water, electricity, fuel and other critical resources;

\_Handling and storage of chemical products;

\_Prevention of water pollution;

\_Use of sustainable resources/materials and circular economy;

\_Maintenance of buildings, green spaces, equipment and structures;

\_Purchase of products and services;

\_ The procedures must be disseminated to all employees and updated whenever necessary.

A methodology must be defined for the identification of all legal requirements applicable to the marina / recreational harbour in matters of environment and sustainability. Compliance with identified legal requirements shall be evidenced and the list of applicable legal requirements shall be updated whenever necessary;

All relevant environmental aspects (water, electricity, fuel and chemicals consumption, waste production, environmental occurrences, among others) should be monitored and followed up. Goals and targets should be set for the identified indicators, with improvement actions to achieve them, in order to continuously improve the environmental performance of the recreational nautical infrastructure. Whenever deviations from the set targets are observed, corrective and/or preventive measures should be identified.

Goals and targets for the improvement of the environmental performance of the recreational nautical infrastructure should be set and be:

\_ Coherent with the defined environmental policy;

\_Translated into concrete actions to improve environmental performance;

### / 2.2 WASTE MANAGEMENT

#### FRAMEWORK

Waste management consists of a set of practical techniques and methods and their respective planning, used in the identification, collection, classification, segregation, separation, storage, transport and disposal, allowing the adoption of procedures to optimise these operations and the adoption of an advantageous and appropriate disposal

To this end, adequate waste reception facilities should be made available to enable the separation of waste at the point of production, enabling the promotion of its recovery and allowing it to be forwarded to destinations where it can be reused, recycled or recovered, promoting its circularity.

Waste is produced in recreational nautical infrastructures in various functional areas / activities, namely:

\_Waste produced on board of boats

\_Waste produced during maintenance and repair work on boats (shipyards)

\_Waste produced by passers-by / visitors

\_Waste produced by recreational nautical infrastructure maintenance services

\_Waste produced by the administrative activities of the harbour

\_Waste produced by the restoration support services (when applicable)

\_Waste produced at construction sites (occasional)

All this waste must be correctly managed, promoting its selective collection and its forwarding to an adequate disposal, privileging prevention, reuse, recycling / recovery and disposal, in this order.

#### GOOD PRACTICES TO IMPLEMENT

The recreational nautical infrastructure must make containers available in all functional areas / spaces for the selective collection of the waste produced therein;

Containers must be appropriate for the type of waste to which they are destined, be properly identified (with labels in standard colours for each type of waste, with pictograms and captions in Portuguese and English, at least);

The contents of the containers must be collected with the appropriate frequency so as to avoid the accumulation of waste and the containers must be cleaned as often as necessary;

In the docks, surrounding area, reception and administrative buildings there must be, at least, containers for the deposit of plastic and metal packaging (yellow), glass (green), paper and cardboard (blue) and general waste (grey or brown); In the shipyard area, there should be, besides those referred to in the previous topic, devices for depositing or delivering used oils, oily water, oil filters, contaminated packaging, batteries, paint remains, varnishes, solvents and antifreeze, pickling waste, contaminated absorbent material, electrical and electronic equipment waste, fluorescent lamps and very-lights. Given the hazardousness of some of this waste, there may not be containers accessible to the public, but the marina / recreational harbour must ensure the existence of capacity to receive all these types of waste, store them properly (in proper containers, with retention basin) and forward them to appropriate disposal (licensed operators);

In the restaurant area, besides the common waste (packaging, glass, paper/cardboard) in line with the previously mentioned, the appropriate management of frying oils must be guaranteed;

In the case of works, the correct management of resulting waste must be guaranteed, namely from construction and demolition;

Compliance with all legislation applicable to this matter must be guaranteed, both with regard to general waste management legislation and specific legislation on port facilities for waste reception;

Procedures must exist that describe how the correct management of waste produced in the marina / recreational harbour is guaranteed, and must be known by all employees;

All users must be informed about the waste management procedures in force, as well as the existing means of collection / disposal (e.g. information boards, leaflets, website).





Image 2 and 3 — Information posted at the Tróia Marina

## / 2.3 PREVENTION OF WATER POLLUTION AND WASTEWATER MANAGEMENT

#### FRAMEWORK

Water quality is a key requirement for any recreational nautical infrastructure. On the one hand, it is closely linked to the quality of the facility and the service provided, so that a marina with high quality standards should ensure the compatibility of its activity with the water resources around, with a view to the sustainability of both, not least because the safeguarding of natural values contributes unequivocally to the promotion and demand of associated economic activities. On the other hand, it is the most critical factor with regard to the environmental impact of recreational nautical infrastructures, insofar as any failure to comply with good environmental practices is directly reflected in water quality and in marine and coastal ecosystems. It is thus evident that the management and strict control of all effluents, whether direct (wastewater) or diffuse (in the form of run-off water), is a fundamental aspect that should be at the centre of attention of any effort to improve and maintain the environmental performance of the organisation.

Among the aspects that should deserve special attention are the discharges made by the boats themselves, both domestic wastewater, which includes sanitary waters (black waters) and washing waters (grey waters), and waters contaminated, for example, with hydrocarbons (oily bilge waters), and marinas should be prepared to receive and manage these effluents properly. Another fundamental aspect is the wastewater produced in the land-based facilities and structures, whether domestic wastewater (resulting, for example, from toilets and laundries) or industrial (resulting from the yard area / repair and maintenance of boats), direct or diffuse (of run-off). Lastly, there are accidental spillages, for which procedures must be in place to prevent, contain and minimise potential negative effects.

#### GOOD PRACTICES TO IMPLEMENT

Promotion of information and awareness among users and employees of the nautical infrastructure, regarding the non-pollution of water resources, in accordance with the applicable legislation in force, Decree-Law no. 226-A/2007 of 31 May;

Promotion of the dissemination of the procedures implemented for the correct disposal of wastewater produced on the nautical infrastructure facilities or received from boats, according to its type (domestic wastewater, industrial wastewater (oily bilge water), contaminated rainwater, etc.;

The recreational nautical infrastructure must provide a system for collecting wastewater produced by the boats (domestic wastewater, oily water and other waters that may arise) and ensure that it is sent to an appropriate final destination, in compliance with the legislation in force and according to the licensing conditions established in the respective title(s) for the use of water resources, issued by the Portuguese Environmental Agency or in the permit for discharge into the public drainage system, issued by the territorially competent management entity. This system must cater for all types of boats that the nautical infrastructure receives and preferably be free of charge in order to encourage its use;

All the domestic wastewater produced in the sanitary facilities, changing rooms, restaurant establishments or other similar services provided by the nautical infrastructure must be forwarded to the public drainage system equipped with a Wastewater Treatment Plant serving the nautical infrastructure, possibly preceded by a prior treatment with a grease separator in situations where food is prepared;

Industrial wastewater produced in the shipyard and/or boat repair and maintenance area, as well as contaminated rainwater (duly routed, collected and stored) must be subject to prior treatment appropriate to the type of wastewater involved and its disposal, in compliance with the legislation in force and in accordance with the licensing conditions established in the respective title(s) for the use of water resources issued by the Portuguese Environmental Agency or in the permit for discharge into the public drainage system issued by the territorially competent management entity; Procedures and/or rules must be defined for the prevention of spillages and consequent water pollution, such as:

\_ Prohibition of carrying out work involving the handling of chemical products on the pontoons and near the water plane;

 Creation of suitable conditions for the storage of chemical products;

\_ Regulation of the refuelling of boats (e.g: refuelling only allowed by qualified personnel).

Procedures and/or rules must be defined for the containment of spillages and the minimisation of the potential associated impacts, and these must be disseminated to all operational staff. Simulations shall also be carried out periodically to test the response readiness and assess the effectiveness of the implemented procedures or the need for their possible revision and adjustment;

There must be sufficient material to combat spillages, and the stock of this material must be replenished whenever necessary;

An emergency plan should be in place, approved by the competent authorities, to respond to situations that go beyond the small spillages covered in the previous topics;

All procedures shall be disseminated to all users of the recreational infrastructure, for example in the form of information boards, leaflets, website, among others.

## / 2.4 NOISE AND LIGHT POLLUTION

#### FRAMEWORK

Nautical tourism support infrastructures are commonly complemented by a range of restaurant, retail and entertainment activities, among others, which as a whole give rise to shared activities on the water surface and beyond, with recreational, sporting and tourism uses for both nautical and non-nautical users. The compatibilisation in mutual benefit of these activities passes through the understanding and reciprocal respect between the water-based and land-based activities, a partnership that is itself often the inducer of identity and attractiveness of these territories.

In terms of noise, if the municipality where the infrastructure is located has not yet made the respective noise map for the area - as seems to be the most common situation - the space and activities will be governed by the General Noise Regulation (RGR) - Decree-Law no. 9/2007 of 17 January, subsequent rectifications and amendments. The RGR establishes the prevention and control regime of noise pollution, for the safeguard of human health and the well-being of populations, aiming to prevent and control noise in places where sensitive receptors exist or are foreseen, which in this case configures the residential areas, accommodation in tourist establishments and on board of boats. When no classification is defined for the area in guestion, good practices must strictly observe point 3 of article 11 of the RGR, according to which, in the absence of classification as a mixed area and sensitive area, the exposure limit values to be applied to sensitive receptors are: 63 dB(A) for the Lden indicator and 53 dB(A) for the Ln indicator. Lden being the 24h average value, considering the day, evening and night periods and the Ln value for the night.

In terms of light pollution, the nautical activities on the water surface usually generate a very low and not significant impact on this type of pollution. When existing, this type of pollution is more often produced by emitting sources in the immediately surrounding areas and activities. Portugal is recognised in the European Union as a country where light (non) pollution has a long and urgent way to go, with excess light sometimes being wrongly interpreted at different levels as a sign of "development". "Darkness" is fundamental to the functioning of ecosystems, not only of nocturnal species, as is more commonly evident, but also of diurnal species that depend on it to regulate their circadian cycle. The good sustainability practices for nautical tourism support infrastructures on the coast, rivers and reservoirs, should, as a whole, position themselves and provide societal evidence of the importance and benefits of adopting measures to combat the impact of light pollution on the environment.

**GOOD PRACTICES TO IMPLEMENT** 

Strict compliance with applicable municipal legislation and licensing, namely in the licensing of the type and hours of activity and special noise licenses for specific events, both on the water surface and on the surrounding public maritime domain;

Encourage the respective municipalities and actively participate in the implementation of the noise map of the nautical infrastructure's area of influence;

Place the environment of quality and tranquility around nautical activities and infrastructure as a priority commitment to sustainability, with respect for and appreciation of the serenity and rest of nautical users, residents and non-nautical tourists in the surrounding area;

Encourage, increasingly, the use of boats with propulsion systems powered by non-fossil and non-noisy energy sources (e.g., electric), with a parallel incentive to develop the provision of boat maintenance and repair services in the local or regional area;

Participate together with the competent authorities - Maritime Police, Public Security Police, Municipal Police, or others in the area in question - in the definition and implementation of a framework of effective means of management, control and punishment of excessive noise, namely from the use of jet-skis near bathing areas and/or anchoring leisure boats, as well as by boats in maritime-tourist operations with an open-air "disco" on board when moored in marinas and recreational harbours, or navigating in sheltered waters or anchored in them; Use of lighting only where necessary;

Preference for low intensity light sources with a timed period of operation according to need;

Directing light sources to specific areas, close to the ground, directed and shielded to avoid light dispersion;

Use of lights with reduced or filtered blue, violet and ultraviolet wavelengths or preferably amber (long wavelength);

When the infrastructure is located on or adjacent to an area with environmental protection status (e.g. Natural Park), encourage the licensing entities to anticipate the response to future legal requirements by adopting more restrictive criteria in terms of time and volume of noise (particularly at night) and lighting efficiency;

In the briefings associated with the rental of boats (with or without skipper), as well as in those associated with boarding for tours in tourist maritime boats, include the theme of noise and light pollution as mandatory content.

Favour the extensive use of channels and coastal landing and recreational areas served by nautical tourism, over the intensive use of "nanovisitation" of multiple points in a hop-on hop-off sailing regime in a short period of time;

## / 2.5 USE OF HAZARDOUS SUBSTANCES

#### FRAMEWORK

Priority and priority hazardous substances, as well as specific pollutants, have harmful effects on aquatic ecosystems, as they behave as persistent, toxic and bioaccumulative (PBT) substances. They can also be endocrine disruptors, have carcinogenic properties and remain for decades at levels that represent a significant risk to the aquatic environment.

In order to minimise possible negative impacts related to nautical tourism activity on water quality (rivers, reservoirs, transitional and coastal waters), the substances to be controlled were listed in accordance with Decree-Law no. 103/2010 of 24 September, amended by Decree-Law no. 218/2015 of 7 October, referring to priority substances and priority and hazardous substances in surface waters.

Taking into account that there are other anthropogenic substances that may also be present in the aquatic environment from nautical activities, it was considered pertinent to include other substances, namely the specific pollutants published in the PGRH (Hydrographic Region Management Plans).

In this context, and given the activities associated with nautical infrastructures, the substances of greatest concern within each group are detailed below:

#### **Detergents:**

\_nonylphenols and nonylphenol ethoxylates \_domestic anionic detergents with phosphates

Paints and varnishes:

\_Antifouling biocidal substances (Product type 21 according to Annex V of BPR Reg. (EU) No. 528/2012 concerning the making available on the market and use of biocidal products) used in paints on boats. It should be noted that the Directorate-General for Health is the Competent Authority for biocidal products, with the exception of substances for veterinary use and for the protection of wood, which are the responsibility of the Directorate-General for Food and Veterinary Matters

\_Metals: copper, lead, zinc, cadmium, nickel

\_Bisphenol A (plastic coadjuvant)

\_PFOS (perfluoro-octane sulfonic acid): water and oil repellent substance

Fuels and oils: total hydrocarbons derived from petroleum from C10 to C40, comprising:

\_gasoline, diesel oils and lubricating oils

\_BTEX (benzene, toluene, ethylbenzene and xylenes)

\_polycyclic aromatic hydrocarbons (PAHs) naphthalene, fluoranthene, anthracene, benzo (a) pyrene, benzo (b) fluoranthene, benzo (k) fluoranthene, benzo (g,h,i) perylene, indene (1,2,3-cd pyrene)

#### **GOOD PRACTICES TO IMPLEMENT**

Packaging and handling of hazardous materials: in the application and storage of these products, the guidelines of the competent authorities, the packaging labels and other guidelines issued by the manufacturers must be followed, particularly for biocide substances;

The packaging and storage of hazardous products and materials must be carried out under safe conditions, namely in a closed place, with restricted access and retention basins, to prevent accidental spillage;

The transfer of hazardous materials must be carried out in safe locations, away from the water plane or other sensitive areas, with the necessary measures to prevent spillage (e.g. trays);

In the use of hazardous materials, adequate means of containment must be used to prevent spillages;

When choosing materials, such as paints and varnishes, detergents or other chemical products, priority must always be given to products with less environmental impact, such as water-based paints, with low VOC emissions, biodegradable detergents, among others;

The surplus products after use should also be well packaged and delivered to the appropriate collection points for this purpose;

Gradual reduction of pollution caused by these substances and the cessation or phasing out of discharges, emissions and losses of priority hazardous substances to the water environment, under the terms of the Dangerous Substances Directive; The environmental quality standards must be complied with, within the scope of the Hydrographic Region Management Plans (PGRH), in relation to the substances included in the list of specific pollutants; as far as other substances are concerned, existing regulations must be complied with.





Image 4 — Warning about oil-contaminated absorbents in the Yachting Harbour of Oeiras

### / 2.6 PREVENTION OF AIR POLLUTION

#### FRAMEWORK

The nautical tourism activity uses equipment, boats of various types, which, in their current activity, produce atmospheric emissions if they use fossil fuels.

The manufacture and maintenance of boats are also a source of atmospheric emissions, particularly particles (dust) and volatile organic compounds (VOCs).

VOC emissions, together with NOx (oxides of nitrogen) emissions, are precursors to the formation of ground-level ozone in the presence of sunlight, an air pollutant that harms human health.

With regard to particles, these come essentially from the operation of "sanding" the surfaces as part of the preparation of the surface for treatment and coating, but preventive measures can be taken to avoid the dispersion of particles.

**GOOD PRACTICES TO IMPLEMENT** 

Encapsulation systems of the emission source and/or work in closed systems;

The emission of volatile organic compounds into the atmosphere occurs in the cleaning of surfaces when solvents are used in the treatment and coating of ships' surfaces and in the storage of these solvents, which may generate diffuse emissions.

In order to reduce VOC emissions into the atmosphere, some mitigation measures can be adopted.

GOOD PRACTICES TO IMPLEMENT

Greater efficiency through the use of optimised application techniques and/or technologies, as most solvent-based paints are applied by spraying and therefore have a high potential for VOC emissions into the air;

Exhaust systems to collect VOCs from the different emission sources (application areas, drying areas, storage and handling areas, etc.) in order to reduce diffuse emissions;

Adequate ventilation in the filling operations of bulk storage tanks;

Use of closed or covered application systems;

Use of closed containers for the transport and intermediate storage of solvent.

Provide "sanding" operation areas with suction means and filters suitable for the size of particles to be retained, thus confining diffuse emissions, or the use of wet particle removal systems.

The surface cleaning process generates waste containing solvents which need to be eliminated or limited in order to avoid emissions to air, soil and groundwater. Within the universe of licensed waste management operators, there are authorised operators for the collection and treatment of this type of hazardous waste (solvent packaging, cleaning remnants, etc.).

The control of VOC emissions is defined in Decree-Law no. 127/2013, of 30 August, as amended.

The installations and activities that use organic solvents, set out in Annex VII of this diploma, when covered by its chapter V, must notify the Agência Portuguesa do Ambiente, I.P., for the purposes of the national VOC register, of the information in part 9 of that Annex, through the one-stop desk. The consumption thresholds of organic solvents that determine the coverage by Decree-Law no. 127/2013, of 30 August, are set out in its Annex VII.

Depending on the activity that uses solvents are defined in part 2 of the above diploma the VOC emission limit values to be met. In order to reduce VOC emissions, when technically feasible, some minimisation actions are identified.

**GOOD PRACTICES TO IMPLEMENT** 

VOC free systems and Replacement of substances with hazard statements

\_Water-based cleaning systems;

\_Semi-aqueous cleaning systems

\_Biological systems;

\_Plasma cleaning technologies;

\_Carbon dioxide cleaning technologies;

\_UV cleaning technologies;

\_Laser cleaning;

\_Avoid the need for dewaxing through the use of films;

\_Thermal stripping.

VOC reduction

\_ Use of products with low VOC content

**Process improvements** 

\_Use of closed systems

\_Use of spraying to improve cold impregnation and steam for degreasing;

\_Improvement of containment

- Improvement of solvent handling

\_Reduction of the need for cleaning activities;

\_Selection of the best technologies..

**Reduction technologies** 

\_Activated charcoal;

\_Thermal oxidation (regenerative / recovery) of solvent emissions.



Image 5 — Eco-collection tank of the Yachting Harbour of Oeiras

### / 2.7 MINIMISATION OF WATER CONSUMPTION

#### FRAMEWORK

Water is the basic compound that allows life on planet Earth. Although it is abundantly present, both on the planet and in the human body, the overwhelming majority of it is not available (only 2.5% of available water is fresh water), since it is found in the oceans in the form of salt water or in the form of ice on the polar ice caps.

Moreover, the pressure exerted by humans on available water resources has increased significantly, both through overuse, contamination and consequent unusability for most uses. In other words, water is an increasingly scarce resource which, as a result of climate change, which is already very evident in our daily lives, is becoming increasingly scarce. It is therefore important to use this resource sparingly, using the best practices available, to minimise consumption to the lowest possible levels. This can only be done by systematically assessing all consumption and identifying efficiency measures for all consumption.

Generally, an important fraction of water consumption in recreational nautical infrastructures is the responsibility of the users, so the involvement and awareness of the users is of fundamental importance. The consumption of the infrastructure where action is needed is mainly in the changing rooms, laundries and sanitary facilities, the washing of boats and the watering of garden areas. **GOOD PRACTICES TO IMPLEMENT** 

In all sanitary facilities, whether for users or staff, water-saving equipment must be installed, namely:

\_Flow reducers in all taps (washbasins, showers, bidets). These are devices that limit the flow rate, in some cases promoting the mixing of air in the water jet, thus maintaining the user's comfort level. Complementary criterion of the <u>Handbook</u> on <u>Green Public Procurement for Sanitary</u> <u>Systems : maximum flow of 7 litres/minute in</u> showers and 4 litres/minute in washbasin taps;

\_Taps with automatic flow control (preferably with a sensor) that interrupts the water flow when not in use;

\_Toilet flushes with dual flush system and reduced flush volume. Blue Flag criteria: 6 litres per full flush.

Urinals should have a maximum volume of 1 litre per flush;

Regularly review calibration of equipment /devices, especially for sensor, timer and foot switch devices;

The washing machines in laundries should be of low water and energy consumption;

Review laundry programmes, adapting times to needs;

Ensure proper maintenance of equipment, devices and installations to prevent water leaks and ensure their proper functioning;

The washing of vehicles and boats should be kept to a minimum, and nozzles that interrupt the flow of water when not in use should be used whenever it is not possible to find an alternative water source for this purpose, such as, for example, water for reuse;

Whenever possible, alternative water sources should be used to suppress non-potable water needs, such as, for example, the use of rainwater for irrigation or salt water for the washing of pontoons or water for reuse for washing pavements and roads, vehicles and boats, for watering landscaped green spaces, toilet flushes and firefighting system (see Decree-Law no. 119/2019, of 21 August);

The water distribution systems and irrigation network should be inspected frequently to detect and repair leaks, thus minimising waste;

Raise awareness among all employees and users about conscious water consumption and the importance of reporting any faults and leaks that they detect;

Systematically record and analyse water consumption data on a regular basis, whenever possible through a centralised technical management system or, alternatively, on the basis of water bills, in order to review and readjust, where applicable, the saving measures and targets to be achieved, and assess the effectiveness of implementing those measures;

Regularly monitor water consumption, anticipating deviations that may be of rectifiable origin, allowing for quick detection and intervention (e.g., water leaks). This monitoring should preferably be done using sensors with detection, alarm and automatic control of leaks, which contribute to avoid excessive consumption due to ruptures in the networks or leaks in devices and also reduce risks of damage by flooding (e.g. systems with water cut-off in case of leaks or floods);

Dissemination of good practices for saving water to users and employees, using different formats (physical and digital) and visible locations. Examples: information boards in the changing rooms, dock and shipyard area, awarenessraising leaflets, website, manual of good practices for employees, among others;

Compliance with established rules (e.g. the use of nozzles on hoses) should be monitored to ensure compliance;

Whenever possible, the costs of water consumption should be charged to the respective consumers, in order to create an additional incentive to save water;

Carry out regular audits, using, whenever applicable, the national water efficiency classification benchmark AQUA+, to identify improvement measures that enable the continuous reduction of water and energy consumption associated with water use;

Turn off the water during periods when the buildings are not occupied (if applicable).

## / 2.8 ENERGY EFFICIENCY



Image 6 — Fuel equipment of the Yachting Harbour of Oeiras

#### FRAMEWORK

According to the 2030 National Energy and Climate Plan (PNEC 2030), approved by the Resolution of the Council of Ministers no. 53/2020, of 10 July, Portugal has, among others, the goals of reducing primary energy consumption by 35% by 2030, aiming at better energy efficiency and, for the services sector, reducing greenhouse gas emissions by 70% (with reference to the emissions recorded in 2005). Thus, in order to comply with these goals and objectives in which everyone is called upon to intervene, it is crucial to implement energy efficiency measures.

The fundamental basis of "energy efficiency" is relatively simple: meeting current needs with lower energy consumption, i.e. doing what is necessary (activities) with less (energy resources). And this balance is achieved by using sources/solutions/equipment with better yields (better efficiency), in order to reduce waste throughout the process, from capture, through conversion in its production phase, transport and finally in its final use (e.g. air conditioning or or lighting a space).

On the energy demand side, the end user should act by choosing more efficient solutions / equipment, reducing the needs (demand reduction) without compromising the activities developed, complementing it with behavioural actions in order to eliminate possible waste.

End users can also play an active role on the energy production side, being also producers of energy, thermal and/or electrical, using renewable energy sources, also contributing to the decarbonisation of the activities developed. (See additional information in subchapter 10.2)

In practice, its application is materialised through the adoption and implementation of measures that promote the reduction of energy consumption allowing to maintain or improve the levels of comfort, quality and/or production. The Energy Efficiency Measures (EEM) are previously identified through diagnostics or energy audits, which are the first steps for the characterisation of energy needs and identification of measures to be implemented to contribute to an improvement in energy efficiency.

Energy efficiency applies to different sectors, with the need to act in buildings being of extreme importance. Common concerns with meeting the targets set by the Kyoto Protocol, together with the security of energy supply and the fact that buildings in the domestic and services sectors consume around 40% of the world's energy, led the European Commission to move forward in 2002 with the publication of a community directive on the energy performance of buildings, made operational in Portugal through the Building Energy Certification System (SCE). The SCE is thus an instrument available to entities that, among other purposes and results, identifies measures and solutions to be implemented that aim to improve the energy (and thermal) performance of buildings, contributing to better comfort for its users.

Additionally, the use of high performance equipment is an important energy efficiency measure and in promoting the (thermal and visual) comfort of the building users. The European Union (EU) Directives on Eco-design and Energy Labelling are a determining combination to ensure that manufacturers design and place on the market more energy efficient products and that consumers are informed about the energy performance of the product they are buying.

The EU energy label is mandatory for several categories of products, including lighting systems, household appliances, pumps and motors, as well as heating and/or cooling, ventilation, sanitary hot water storage and production appliances (AQS). The graphical basis of the energy labels is the same for all products, with energy performance being translated by a letter into a ranking consisting of seven classes, from G (least efficient) to A (most efficient), and reinforced by a colour gradation from red (least efficient) to green (most efficient). Some labels have additional higher classes: A+, A++ or A+++.

In parallel to the EU energy label, there are initiatives that allow for voluntary labelling of products that are not covered by this instrument. With regard to the building envelope, such as walls, glazed openings, etc., there is already an initiative in Portugal which promotes an energy label through which it is possible to compare the different solutions on the market. The CLASS+ energy label is operationalised for windows, classifying this product on a scale from F (least efficient) to A+ (most efficient), and will soon cover more building envelope products, such as solar control films and ETICS (exterior insulation).

We cannot forget that how the water sector uses energy and where and how the main waste occurs is a necessary assessment for improving the resource efficiency of a key sector for the energy and water transition.

The aim here is to introduce new approaches, particularly in the water-energy nexus, which combined water and energy efficiency gains allow for increased savings and have a positive impact on the country, in all sectors.

Thus, the installation of more efficient equipment that meets the operating levels required for the development of different activities, allows not only a reduction in energy consumption (electrical or thermal) but also a reduction in maintenance and operating costs of the systems.

Bearing in mind that nautical infrastructures are complex in terms of their territorial coverage and the diversification of associated activities, ranging from more traditional ones such as shipbuilding, goods transport, industrial and sport fishing, to countless other modalities, and ending with the growing representativeness of tourism, this sector has emerged as a considerable alternative in terms of inducing economic activity and the practice of nautical activities. Thus, there is an enormous range of potential improvement measures applicable to nautical infrastructures.

#### GOOD PRACTICES TO IMPLEMENT

#### (Buildings) envelope:

\_Replace the glazed openings with openings with better thermal performance, namely and in the case of windows, with a CLASS+ label, with a minimum class of A;

\_In case of overheating, opt for the installation of solar control films for the windows, adjusted to the location, orientation, activities and comfort needs; \_Install and/or reinforce thermal insulation on façades and roofs, using, whenever possible, insulation solutions of natural origin and appropriate to the use and location;

\_Choose, whenever possible, shading solutions that can be regulated from the outside;

\_Use, whenever possible, passive solar systems (e.g. trombe walls, shading, green roofs, among others);

\_During the winter months, leave the solar protection of the premises closed at night and open during the day (on sunny days);

\_During the summer months, partially close the solar protection during the day and, whenever possible in terms of safety, leave the windows open at night;

\_Optimise the periodic maintenance of the installations (check the sealing of doors and windows, for example).

Lighting (indoor and outdoor):

\_Give priority to natural lighting, namely through windows, skylights, light tubes, or other systems, to the detriment of artificial lighting;

\_Implement management and control solutions in lighting systems (e.g.: time switches, presence sensors in short occupation areas, movement sensors in passage areas, luminous flux regulators, luminosity sensors in luminaries near glazing, etc.);

\_Parameterising the sensors for more efficient use: location, duration of operation, etc.

\_Replace traditional lighting systems with highperformance LED technology in all installations (indoor and outdoor);

\_Adjust lighting levels to the levels needed for each activity;

\_Sector the lighting circuits according to the occupation and/or other types of use of the spaces;

\_Whenever possible, acquire lighting services instead of acquiring equipment.

Air conditioning and ventilation of spaces:

\_Privilege, whenever possible, the natural ventilation of spaces avoiding the use of artificial climatisation (air conditioning);

\_Keep windows and doors closed in spaces where air conditioning is absolutely necessary;

\_Switch off air conditioning and ventilation equipment whenever these spaces are not occupied;

\_Not obstruct the air vents of the air conditioning and ventilation systems;

\_Adjust the setpoints of air conditioning equipment appropriately, based on the values recommended under the Building Energy Certification System (SCE);

\_Ensure that all air conditioned spaces have devices that display the temperature of the spaces;

\_Ensure that the preventive maintenance plan for the air conditioning and ventilation systems is up to date;

\_Replace/Install air conditioning systems suitable for the type and profile of use, with high energy performance.

Sanitary Hot Water (AQS):

\_Use, whenever possible, hot water production solutions that use renewable energy sources (local);

\_Regulate, if applicable, the setpoints of the AQS to the temperatures recommended by law (SCE), but without compromising the maintenance of the systems in order to avoid legionella;

\_Implement the correct application of thermal insulation in equipment/lines/accessories that use thermal energy;

\_Replace/install hot water production and storage systems suitable for the type and profile of use, with high energy performance.

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Other systems and equipment:

\_Acquire "smart" sockets, e.g. with timer, to switch off the associated equipment at pre-established times;

\_Switch off equipment so as not to leave it in "standby" mode, with the possibility of using a type of electrical connection which allows the equipment to be disconnected from the electrical energy together;

\_Restrict the use of mechanical means of lifting, whenever they exist, and it is recommended that awareness-raising measures be taken to reduce their use, giving preference to the use of stairs;

\_Install Technical Management Systems to control the various technical systems installed;

\_Install electric and/or thermal energy consumption monitoring systems (partial meters);

\_Replace motors, if applicable, if there are old, damaged or low performance motors;

\_Install variable speed drives in pumping systems.

#### Transversal actions:

\_Connect only the equipment necessary for its use;

\_Hire qualified technicians for correct dimensioning and selection of solutions and equipment with better energy performance;

\_Ensure, when applicable, that all systems and equipment have their inspections up to date;

\_Choose the most suitable energy tariff for the usage profile (cost reduction);

\_Install solutions for compensation of the electric power factor (reduction of reactive energy, through the installation of capacitor batteries) (cost reduction).

#### Supplementary actions:

\_Promote internal communication campaigns with measures to be adopted by all;

-Communicate internally and externally the implemented actions, as well as the results of the efficiency measures.

\_Promote awareness actions with the employees for a more rational and efficient use of energy and water resources;

### / 2.9 SUSTAINABLE MOBILITY

#### FRAMEWORK

Sustainable mobility comprises the various means of transport that aim at a decarbonisation of the sector. Considering, thus, means such as public transport, which presents considerably lower energy consumption than private transport, light mobility means, which ensure a level of residual GHG emissions, presenting simultaneous benefits for the health of users, and also electric mobility, which requires significant adaptations to the infrastructure and its planning. In addition to the needs of adapting the infrastructure to electric mobility, it will also be important to take into account the possibility of electrification of the tourist leisure equipment itself, as well as boats, jet skis, and other similar;

Provide space prepared for the stopping or parking of public transport, collective transport and bicycles;

Implement equipment and accesses that encourage the use of light means of transport;

Provide charging points for electric vehicles;

#### GOOD PRACTICES TO IMPLEMENT

Both in the design phase and in rehabilitations, integration with other means of sustainable transport should be taken into account, such as, whenever possible, with public or collective transport, infrastructure that allows easy accessibility and parking of light mobility means of transport (i.e. bicycles or scooters); Promote among employees the use of public transport, bicycles or car sharing instead of individual transport;

Infrastructure must be made available to meet the needs of the various stakeholders interested in charging electric vehicles;

Raise awareness among users about the importance of the use of collective or alternative transport (such as bicycle), for example on information boards, leaflets or website, among others.

## / 2.10 CARBON NEUTRALITY

#### FRAMEWORK

Formalised in the European Green Deal at the end of the last decade, the European Union has set itself the goal of achieving an "equitable and prosperous society with a modern, resourceefficient and competitive economy that has zero net greenhouse gas emissions by 2050 and in which economic growth is decoupled from resource use" (European Commission, 2019: 1). Tourism and in particular nautical tourism is one of the exponents of this need, in particular because they establish a very intense and proper relationship with the sustainability of the endogenous resources of the territory, in which producers and consumers simultaneously share the same space - the destination.

Although the greatest carbon impact of tourism is concentrated in international aviation, which produced 1.04 billion tons of CO<sub>2</sub> in 2018, corresponding to 2.5% of global carbon dioxide emissions (Lee et al., 2021<sup>1</sup>), the stay of the tourist already in the destination is also a source of emissions that should not be neglected. The nautical destination, whether on the coast, river or reservoir, is the object of demand by both nautical and non-nautical tourists, the latter sometimes being much more extensive based on the flow of visitors for whom nautical activities are not the main product to be consumed, but rather a complementary product in the consumption chain during their stay in the region. In these, tourist entertainment activities, especially maritimetourist entertainment had a predominant role, as in January 2023, 1,900 companies were registered as maritime-tourism operators in Portugal, of which only 266 with recognition of nature tourism activity (Turismo de Portugal, 2023<sup>2</sup>).

It is in encouraging this dynamic that the goal of carbon neutrality requires a double action between decarbonisation (not producing any carbon footprint at all), energy efficiency (rational mitigation and control of the "unavoidable" footprint, as well as, maximisation of the benefits associated with aood practices – MIN (minimisation) & MAX (maximisation)). The good practices actions, in this domain, must concretise an approach to the potential of the nautical sector for the decarbonisation of regional economies and the use of renewable, more efficient and smart energy sources, framed by the development and application of management and technological solutions that make them more accessible and effective.

#### GOOD PRACTICES TO IMPLEMENT

Preparation of moorings in marinas and recreational harbours to ensure the availability of greater power in the supply of electricity to boats without combustion engine;

Invest in a network of fast chargers to allow not only the most intense use throughout the day but above all to ensure that the boats that use them, particularly maritime-tourism boats and possibly service boats from the marina or recreational harbour, are not forced into excessive pauses throughout the day for charging, inducing economic losses and/or even risks due to inability to act quickly in emergency situations;

<sup>2</sup> Data obtained from the National Tourism Registry.

<sup>&</sup>lt;sup>1</sup>Lee, D. S., Fahey, D. W., Skowron, A., Allen, M. R., Burkhardt, U., Chen, Q., ... & Wilcox, L. J. (2021). The contribution of global aviation to anthropogenic climate forcing for 2000 to 2018. *Atmospheric Environment, 244*, 117834.

Allocate a share of boats for solar power / noncombustion engine from among the total service boats of marinas, harbours and recreational docks;

Encourage greater use of boats with propulsion systems powered by non-fossil energy sources (e.g., solar) among maritime-tourism operators;

With regard to the teaching of nautical sports, watercrafts used to support and ensure the practice of these sports should also respect the commitments regarding carbon neutrality;

Positive differentiation of tariffs in marinas and recreational harbours, between boats with their own resources of non-fossil energy generation for self-consumption when moored in the infrastructures (e.g., with photovoltaic and/or wind energy installed on board), and boats fully dependent on energy supply through the infrastructure network;

Whenever justified by the size of own consumption and/or in the case of the existence of surplus with the capacity to be injected into the electricity grid, create transition investments in the infrastructures for the diversification of energy sources with a focus on photovoltaic production, to which immediate benefits add the advantages of efficiency by bringing the place of production closer to the place of consumption;

Facilitation of pump-out services (free of charge) and collection of batteries, oils, filters, among other maintenance and shipyard services (dry or swimming), with the consequent elimination of the need to move the boat to another location to use these services, and inherent minimisation of risks and fuel consumption; customer journey and allowing nautical users to create experiences that are safer and more adjusted to their profile during their stay at the destination, for example through simplified monitoring applications and simulation of the individual ecological footprint according to the different transport choices for a trip by a maritime-tourism operator;

Extend the framework of influence of the nautical sector through joint projects to support the energy transition of tourism, catering, retail and service companies in the concessioned area of marinas, recreational harbours and recreational docks, in particular the use of solar photovoltaic energy;

Encourage structured soft mobility in the surroundings of the infrastructure, in a way compatible with pedestrianism and without sharing space/road with means propelled mechanically and/or by combustion;

Facilitate the logistics of use and means available for the use of bicycle transport in a dedicated lane on access to the nautical infrastructure, and from this to the nearest urban space(s), as well as circulation on the waterfront;

Develop new soft mobility shared transport platforms aimed at a wider range of age groups, such as bike-sharing of electric bicycles;

Minimise the limitation in some infrastructures of the photovoltaic potential due to construction volumetry and private occupation in the surrounding area;

Whenever possible invest in projects focused on the increase of the capacity and profitability of local energy storage in face of the accessibility and costs of current technologies.

Creation of new products or services with shared network offers, focused on the knowledge of the



Image 7 — Aerial view of the Vilamoura Marina

## / 2.11 USE OF SUSTAINABLE RESOURCES/MATERIALS AND CIRCULAR ECONOMY

#### FRAMEWORK

The circular economy is a strategic concept that seeks to provide the dynamism of human activity, minimising the exploitation of natural resources. Doing more with less. Less natural resources, less pollution.

The "Circular Economy" has been a recurrent topic on national and international agendas, assuming itself as a key element to promote the decoupling of economic growth from increased resource consumption.

The aim of the circular economy is to reformulate businesses, change strategies and processes with a view to minimising pollution and the extraction of natural resources and regenerating nature.

The circular economy involves an entire resource management that has become known as the 10 R's - the best known: reduction, reuse, recovery and recycling of resources, such as materials, energy or water. Learn more about the 10 R's at: http://www.adene.pt/economia-circular

In a circular economy, the value of products and materials is maintained for as long as possible, and waste production is reduced to a minimum.

This paradigm shift maximises the economic value of the product and brings opportunities, but simultaneously poses a challenge to the different sectors of national economic activity.

#### **GOOD PRACTICES TO IMPLEMENT**

Use of materials that do not include any wood extracts or preservatives in their composition;

For decking on floating infrastructures and other pedestrian areas, adopt solutions using materials that are 100% recyclable and reusable, without recourse to wood or its derivatives, and which also have the following main characteristics:

\_Use of antioxidants in their composition, which is fundamental so that the boards/profiles produced can, in service, resist the weather (effects of the sun, humidity, oxygen in the air, polluting elements, etc.);

\_Retard fire and not encourage combustion;

\_Are non-slip in damp and dry environments;

\_With little absorption of water;

\_Do not rot in damp environments;

\_With protection against UV rays;

\_Resistant to the action of termites and other external agents that do not develop fungus.

Application of "green roofs", which consist of the application of a vegetable layer on a base waterproofed with a PVC blanket. As plants reflect more of the sun's rays than ordinary tiles, green roofs offer excellent thermal and acoustic insulation for buildings. The technology is especially useful in buildings in very hot areas, as it is possible to dispense with the installation of air conditioning units and save resources and electricity;

Building construction using containers. As the structures may come from the transport of goods, it is possible to use recycled containers and save up to 30% in the construction of a house or building, compared to a traditional construction of the same design;

Use of LED lamps, although they are still a little more expensive, the energy efficiency of LED technology is far superior, providing up to 80% energy savings compared to traditional lighting options. In addition, LED lamps do not heat up the environment and have a very long life span - the most technological models can last up to 15 years;

Use of photovoltaic solar panels;

When building or improving buildings, give preference to rehabilitating existing buildings, both in terms of installations and the re-use of materials. Also proceed with the careful choice of materials. In due time, the use of various products and solutions with less environmental impact should be considered. There are currently some sources of information that can be studied, such as the <u>eco products guide</u> of the Sustainable Construction Portal.

Planning of sustainable procurement, favouring the consumption of materials and products of local origin (in the process, one can use, for example, the handbooks of the National Strategy for Green Public Procurement <u>handbooks of the National</u> <u>Strategy for Green Public Procurement</u>).

Currently, there are numerous materials on the construction market with characteristics that meet the objectives of a circular economy. Some of these materials are listed below: Induction Time) values of composites based on organic fibres should be above 15 minutes, in order to ensure that the material does not deteriorate and subsequently collapse due to typical summer temperatures, as well as the respective action of UV rays. The technical datasheet of the materials to be applied this fundamental parameter should be guaranteed;

Use of ecological paints, formulated from totally natural raw materials, such as dyes and oils. Thus, there is no increase in consumption of oil derivatives or use of synthetic components. Some paints are also free of Volatile Organic Compounds - the so-called VOCs - which are aggressive to health and contribute to the destruction of the ozone layer;

Clay mortar. Clay replaces cement in the mortar mix and can be used in internal walls to set the finishing touches, with the advantage of being totally sustainable and also having a better thermal-acoustic performance. In addition, clay mortar also prevents the excessive increase of humidity in environments, and can be applied specifically as an insulating material;

Ecological brick. Produced from mixtures, it can be made of sand compounds, construction waste or sand, water and cement. What makes this option sustainable is the manufacturing process. Unlike conventional bricks, ecological bricks do not use a kiln or burn wood: the brick is formed in a hydraulic press. In addition, this material is an excellent acoustic and thermal insulator and tends to be more resistant for construction.

Composite materials based on organic fibres (already widely used in outdoor applications, such as decking, urban furniture, etc.) Note: For outdoor applications, such as decking, the OIT (Oxidative

Cork: In addition to its properties, including thermal insulation, cork is a typically Portuguese product (the cork oak was declared Portugal's national tree by a <u>Resolution of the Assembly of</u> <u>the Republic</u>), which use benefits domestic socioeconomic activities and can minimise transport compared with other alternative materials. In addition, the use of cork promotes the protection and development of cork oak forests and is a weapon for fire prevention.

On the other hand, a strategy to minimise CO<sub>2</sub> emissions should also be implemented, combining traditional materials with more contemporary ones, with a view to reducing energy consumption and the production of waste on site.

#### GOOD PRACTICES TO IMPLEMENT

Use of common materials that are available on the conventional market such as the use of plasterboard under a light steel or timber frame for new or part walls used in the refurbishment of buildings;

Use of light translucent materials with a high thermal insulation value on the façades, such as polycarbonate panels which allow a longer period of exposure for sunlight to reach the interior of buildings and at the same time make buildings more thermally efficient than using the same area of glass;

Use of exterior cladding materials of national origin, such as for example the use of treated pine boards on modular structures composed of selfsupporting insulating panels, which in addition to this type of exterior cladding being organic, helps to enhance its use in the surroundings.



Image 8 — Algarve SunBoat Trips

## /3. ACCESSIBILITY



#### FRAMEWORK

Often when accessibility is mentioned, the first image that inevitably comes to mind is the wheelchair. First of all, it should be clarified that the need for accessibility is not limited only to people with disabilities, but to all citizens.

Accessibility must be seen as a characteristic of the environment or of an object which allows any person, with or without limitations, to establish a relationship with that environment or object, and to use them in a friendly, caring and safe way.

The concept of accessibility is therefore broader, not limited to physical barriers, but also including communicational, psychological, social and other barriers.

And the diversity of the target audience is huge. Families with babies, families with a pregnant mother, wheelchair users, people of different ages and statures, someone carrying bulky objects, people with limiting chronic diseases, blind or partially sighted people, deaf people, senior citizens, among many others. All are customers who generally encounter difficulties in the physical environment and in using tourist resources and who may also be subject to other obstacles, such as lack of information and possible incorrect service. In fact, all of us may, at some point in our lives, belong to this group and need easy physical and communicational access.



Image 9 — Adapted sea baths in Ria Formosa by Boat Tours

As an example, in Europe it is estimated that about 140 million people have some kind of disability. Studies by the European Commission (2012) showed that tourists with specific needs made 783 million trips, contributing 394 billion euros to European GDP, promoting the creation of 8.7 million jobs. These studies suggest a steady annual growth in demand for accessible tourism in Europe.

In this sense, accessible tourism is defined as the set of tourism services, structures and infrastructures which enable people with specific accessibility needs to enjoy their holidays and leisure moments in an equitable, autonomous, safe and comfortable way. Besides being a legal obligation, it translates a social responsibility and is simultaneously a business opportunity for tourism agents, expanding the universe of potential visitors of these tourist destinations, with gains in competitiveness and revenue.

In Portugal, and since the tourist supply linked to nautical tourism is becoming increasingly important, the entities responsible for managing these support infrastructures, as well as the entrepreneurs who develop their activity there, should include and maintain accessibility in an integrated way in their management, thus adding a new competitive dimension to their supply, in addition to the enormous social importance, not forgetting that guaranteed accessibility is a fundamental condition for people's quality of life, and is essential for the full exercise of the rights and duties of all citizens.

## / 3.1 PHYSICAL ACCESSIBILITY

The infrastructures that support nautical tourism, whether on coastal or inland waters, need to ensure physical accessibility conditions that are appropriate to the functional diversity of their potential users.

**GOOD PRACTICES TO IMPLEMENT** 

Orderly parking with reserved spaces for vehicles at the service of people with reduced mobility;

Easy pedestrian access between the parking area and the access to the support infrastructures, as well as in all its area, by level, ramp or using mechanical means;

Walkways on the beach (where applicable);

Adapted sanitary installations and accessible first-aid post;

Facilitated access to restaurant areas, when existing, ensuring that these spaces are accessible to people with motor or sensory impairments;

Reinforce the necessary chromatic contrast on the floor, showing the existence of small steps and/or changes of level on the floor and of reduced heights, and an anti-slip material should be applied on the floor in more slippery areas; For boat access, the ramp should have a maximum slope of 6%, with side protection fencing between 90 cm and 1 metre high. It should also be confirmed that the ramp can withstand a heavy load, such as that of an electric wheelchair;

Although it may hinder the circulation of wheelchairs and prams, the horizontal (cross) beams along the ramp act as a safety element for the access of other participants. Do not forget the necessary chromatic contrast to avoid possible accidents;

Inside the boats, the participant in a wheelchair should stay close to the group accompanying him/her and should be able to circulate through most of the space. This implies wide spaces and levelled floor;

There may be a specific area for wheelchair passengers, with a fixation system to the floor, making sure that the chairs do not protrude and project in relation to the surroundings, and also so that they do not interfere with the circulation of the remaining passengers.

Use of materials and equipment with relief, and of bright and contrasting colours.

Currently, there are products to support nautical tourism activities which provide technical help for those with disabilities or limitations to perform them. These products are facilitators and enable existing constraints in the support infrastructures to be overcome. We identify some of these support products: Transfer crane (Hoist): equipment that allows performing the transfer of a person in a wheelchair between his/her wheelchair and, for example, a vehicle, the equipment used in the activity or a sanitary equipment;

Pneumatic wheelchair with an ultralight and very functional construction. It offers versatile use, as it can be used to travel on sand, snow, gravel or other uneven surfaces (river banks), and also as a means of access to the sea and swimming pool;

All-terrain walker, light and stable, with a reclining seat, designed for the same environments as the pneumatic wheelchair;

Amphibious wheelchair, easy to move on the beach sand thanks to its balloon wheels, with floats to allow entry and exit from the water in total safety and comfort for the user;

Amphibious crutches that float in the water, allowing the user to always have them within reach without submerging;

Loungers raised to the average height of a wheelchair to facilitate transfers;

Joëlette: a wheelchair with one wheel (or up to four) developed to facilitate mobility in places with rough ground and with great natural obstacles, or with passage through narrow places. The chair is operated by a third party through two handles and has a rest system used at stops. Equipment widely used in pedestrian walks;

Walkway that creates comfortable beach access for all with its pleasant and comfortable surface for walking, easy access for prams, the elderly or people with reduced mobility, reinforced edges to prevent fraying, does not heat up in the sun, resistant to UV rays, quick installation and removal, does not retain sand, made of recycled and recyclable polyester. It is ideal for use in seaside tourist facilities, beaches (sea and river), reservoirs and golf courses; Electric scooter: one-person motorised vehicle, suitable for the elderly and people with reduced mobility, which helps mobility and offers autonomy when moving around indoors and outdoors. Some models are portable, and may be carried folded in the boot of the car;

All-terrain electric wheelchair, with high traction capacity at 4 wheels and stability, which allows total autonomy to the user in all types of road surfaces, beach sand, earth and stones, snow, etc.;

Motorised traction equipment, which can be attached to most manual wheelchairs, which provides thrust for circulation on sloping surfaces;

Mobile ramps: folding ramps for punctual placement on an uneven access.

### / 3.2 COMMUNICATIONAL ACCESSIBILITY

All participants in nautical tourism activities, users of the support infrastructure, must have a detailed, informed knowledge of the area where they are staying and of the activity they are going to carry out. This information (location of the activity, route and surroundings, rules of conduct and instructions) must be provided in a format that can be interpreted, i.e. the accessibility of the information must be ensured.

#### **GOOD PRACTICES TO IMPLEMENT**

In case of visual impairment, information should be provided in Braille or audio format, allowing the possibility of touching objects or people for better identification. A clear description of the physical environment surrounding them should be given, so that they can detect the path and obstacles for easier movement;

In case of hearing impairment, the information should be given in visual form, through a video guide, for example in Portuguese Sign Language. In the presence of an interpreter, address the participant and not the interpreter; Make some information available in paper format (with large letters, with contrast and with pictograms), without prejudice to the fact that technological resources may also be adopted;

It is important that nautical tourism support infrastructures and companies invest in websites that can provide a good presentation of their services to the potential customer, ensuring accessibility for users with some type of specific need, with regard to navigation mechanisms and website presentation, software and hardware operation;

It should be made explicit how to contact the company managing the support infrastructure and those responsible for it, as well as the companies offering nautical tourism activities, what means are available for this contact (telephone, email) and whether information is available in alternative formats;

The booking systems should be accessible so that any potential customer can interact with them independently;

Have knowledge (characteristics and accessibility) of the transport service, accommodation and other places of interest, which may be suggested to the customer.

Some accessibility recommendations are transversal to all nautical tourism activities and infrastructures, and common to all the most vulnerable audiences:

\_Do not prevent the presence of an assistance dog;

\_Having a support vehicle available, as well as a rescue plan for accidents, emergencies or other unforeseen events;

In the case of cognitive impairment, a document similar to a checklist, with associated pictograms, should be made available;

Privilege simple and pragmatic messages, without being patronising.

\_The existence of a communication system to guarantee possible contacts with rescue entities, in case of accident. In certain circumstances it is impossible to provide equal conditions for all participants. Nevertheless, the use of adaptations provides the equity of the services provided.



Image 10 — Parking spots of the Amieira Marina



Image 11 and 12 — Accessible beach, Pedrogão, Leiria



# / 4. MAINTENANCE OF GREEN SPACES



Image 13 — Lifeboat at the Yachting Harbour of Oeiras

#### FRAMEWORK

The green spaces that may eventually integrate recreational nautical support infrastructures contribute to their natural setting and landscape integration with the built environment and should be an attractive place for users.

It is important to promote, in green spaces, environmentally sustainable technical solutions that ensure the reduction of environmental impacts on the water environment, and that mean less water consumption and maintenance needs.

#### **GOOD PRACTICES TO IMPLEMENT**

Invest in green areas and the use of permeable surfaces as a measure to prevent climate change and reduce vulnerability to extreme climate events;

Green spaces should not have large slopes to avoid surface runoff. In cases where the green space is sloping due to the topography of the site, it should be designed with terraces; Use of indigenous plant species that are well adapted to the climate and local conditions, more resistant to pests and requiring less use of fertilisers and pesticides, and which represent less maintenance and irrigation needs, thus reducing the potential pollutants carried by rainwater (which should be forwarded, eventually stored and subject to adequate treatment prior to final disposal, in compliance with the legislation in force);

Preferential adoption of slow-growing plant species as they have a longer useful life, need less pruning, and generate less waste;

Avoid planting invasive plant species and the propagation of any that may exist in the area;

Minimise the use of pesticides and fertilisers so as to avoid them running into the aquatic environment and harming marine life;

If chemical fertilisers are necessary, do not use varieties that contain herbicides or insecticides;

Create an area for composting organic waste and use compost as a good alternative to chemical fertilisers;

Provide a dense vegetation strip to act as a runoff filter between impermeable areas and the water plane;

Install systems for measuring and monitoring water consumption in irrigation networks to support the detection of leaks;

Irrigate during the night and preferably from alternative water sources, such as rainwater harvesting or the use of water for reuse, in order to reduce pressure on water resources, in compliance with the applicable legal requirements, such as the Legal Framework for the Production of Water for Reuse (ApR), established in Decree-Law no. 119/2019, of 21 August;

Irrigation should be done using an efficient system (drip by drip) and should be activated automatically using rainfall and soil moisture sensors;

Lawnmowers should be electric, use unleaded petrol, be equipped with a catalytic converter, have an environmental certificate or be of the manual type;

Green waste should be composted.

If pesticides are necessary, their application should take place when there is little or no wind, so that there is no dissemination in the surrounding area;

Do not wash pesticide application equipment on paved surfaces that drain into the water environment;

## /5. MAINTENANCE OF BUILDINGS, EQUIPMENT AND INFRASTRUCTURE



Image 14 — Yachting Harbour of Oeiras

#### FRAMEWORK

Maintaining buildings so exposed to the aggressiveness of the maritime environment entails several concerns with the internal environment of the buildings and with the external and more visible environment of the infrastructures.

In the design period, still in project, the infrastructures, whether maritime or land-based, are designed with various strategies in mind, called "materials" to mitigate future pathologies, using for this the strengths of the components of each material by applying them juxtaposed in layers with others.

The use of materials with a second use in mind is paramount when designing new buildings, as a first use does not preclude an equally important second use. The rehabilitation of infrastructures entails the knowledge of the pathologies of existing substrates and the application of materials that aggregate and requalify the building. For example: a plastered wall with traces of saltpetre resulting from the continuous presence of water and salt deposits from various sources should be removed down to the structural core and a waterproofing mortar placed to guarantee the stability of the building.

Another of the strategies of rehabilitating with awareness the life cycle of the materials with a view to the sustainability of the rehabilitation of the buildings is to demolish the amount of infrastructures that are strictly necessary and whenever possible to use the resulting aggregates in the rehabilitation of the initial infrastructure. For example, with the demolition of interior walls, aggregates are produced that, after being granulated and sieved, can be used in the filling of non-structural areas.

Rehabilitations and alterations to buildings are also excellent opportunities to improve their environmental performance in all aspects (energy and water consumption, air conditioning, use of materials with less environmental and regional impact, among others), and these concerns should be incorporated into all projects.

In parallel, the maintenance of floating structures and associated infrastructures is crucial, on the one hand to safeguard the safety of users, and on the other to increase the lifespan of materials and thus reduce the consumption of materials and the consequent environmental impact. Special attention should also be given to the verification and maintenance of emergency prevention and combat equipment in order to guarantee their operability.

GOOD PRACTICES TO IMPLEMENT

Adoption of solutions for recreational nautical infrastructures that are adapted to climate change, well integrated into the landscape and that safeguard natural and cultural heritage;

Buildings and equipment built using sustainable materials;

\_Reduction of water consumption - see chapter 2.7

infrastructures, following a plan and a checklist of tasks prepared in advance for this purpose;

Maintenance of the good state of repair of buildings, equipment and infrastructures;

Verification of all emergency prevention and combat equipment (extinguishers, reels, fire centres, self-contained blocks, alarm systems, etc.) which must be subject to periodic checks and maintenance, as stipulated by law and/or specific regulations, carried out by entities qualified for this purpose;

To ensure the verifications and maintenance referred to in the previous points (buildings, floating structures, emergency equipment), maintenance plans must be prepared, which schedule the interventions in all relevant structures, defining the frequency, type of action and responsible party. The plans must be monitored and all actions resulting from them recorded.



Image 15 — Troia Marina

In any reformulation or remodelling projects, measures must be incorporated that improve the environmental performance of buildings:

\_Improvement of energy efficiency - see chapter 2.8

\_Use of products and materials with reduced environmental impact - **see chapter 2.5** 

Systematic periodic checking of the state of conservation of the buildings and nautical

## / 6. WILDLIFE AND HABITATS PROTECTION

#### FRAMEWORK

The growth in nautical tourism and, consequently, the increase in the number of boats dedicated to recreational activities, means busier waterways and greater pressure on coastal and inland habitats.

Another relevant factor that must be taken into account associated with the increase in navigation is related to the spread of invasive aquatic species. Non-native species are those that have been transported from their place of origin to another, presenting in this new location an invasive behaviour, overlapping with other native species, leading to serious ecological imbalances. Some non-native species are completely harmless, but others, known as invasive species, in addition to causing irreversible damage to native biodiversity, and its consequent loss, can also affect public health (many species can transmit diseases, cause allergies or even be toxic) and economic activities, particularly the tourism industry, which depends on natural landscapes, clean waterways and healthy ecosystems. These can be spread in various ways, for example through hulls, anchors and propellers. Once established, it can become extremely difficult and costly to eradicate.

The operation of boats in shallow water is a further consideration as it can result in grounding and turbidity (murky water). Support dredging can directly remove and destroy sensitive submerged resources, including marine prairies and their weeds, which are extremely valuable as shelter, nursery and food for aquatic organisms. Turbidity by reducing water clarity reduces the penetration of sunlight through the water column, negatively affecting the growth of submerged vegetation and interferes with the feeding/breathing of aquatic organisms. The careless operation of motorised boats can result in injury or death of endangered species.

The managers of nautical infrastructures and their users, located in territories with relevant natural and landscape values, must act continuously to adopt good practices in terms of environmental sustainability. In this way, the fact that economic development and the conservation of biodiversity constitute two inseparable pillars is emphasised, which must go hand in hand in order to guarantee the sustainability of the support of the ecological environment and, at the same time, to meet human needs, thus making the necessary compatibility between the conservation of natural values and nautical activities inherent.

GOOD PRACTICES TO IMPLEMENT

Participate or develop environmental volunteering initiatives;

Involvement in nature conservation projects, participating in initiatives to protect aquatic fauna or flora species and to prevent the introduction of invasive alien species;

Prepare environmental awareness codes of conduct for nautical users, tourists and other users of the nautical infrastructure;

Hold and transmit the necessary information on the natural resources present and make nautical users and visitors aware of the most appropriate behaviour for the enjoyment of natural heritage;

Prepare information materials for boat operators on the risks to endangered species and the invasive species present, where applicable, warning of their harmful effects in the area where they carry out their activity;

Prepare information materials for boat operators on the damage that can result from dredging support, which can cause turbidity in the water and damage valuable underwater resources such as marine prairies;

Employees/operators should have annual training specific to their activity and update their knowledge of the sites where they operate and species that are targeted for observation/visit; Employees, nautical users and visitors should be informed about local wildlife and habitats and how they can minimise disturbance when undertaking boating activities;

If the infrastructure is located near or within a classified area, the management entity should be aware of which measures are applicable to it through the respective territorial management instrument;

Avoid noise and disturbance of wildlife, especially in breeding, shelter, dormitory, wintering or resting areas and on migratory routes;

The operator must know and make employees and customers/users aware of the national or international legislation applicable to the activities it develops and which are specific and differentiated for each type of activity/observation;

Observe species at a sufficient distance so as not to cause disturbance and preferably with binoculars or other appropriate optical equipment; Avoid disturbing or shading submerged aquatic vegetation, marshes and native vegetation in riparian areas;

Moor boats at appropriate depths to minimise the need for dredging;

Limit, where possible, the number and speed of support boats during boating activities/events, allowing for the reduction of noise levels, emissions and that may disturb wildlife and deteriorate aquatic habitats;

Nautical sports activities and events should be organised with consideration for wildlife and habitats, making sure they take place away from important nesting, feeding and breeding sites;

Place signs, maps or graphics showing the location of known shallow bottoms, speed zones, marine prairies beds or the occurrence of endangered species nearby.

Where permitted in nautical activities, ensure that pets do not disturb wildlife and interfere with other visitors and residents;

Encourage nautical users and tourists not to feed or disturb mammals and whenever there are sightings, comply with the <u>Whale Watching rules</u> laid down in the law in force;

Raise the nautical users and tourists aware to environmental education about the surrounding ecosystem, promoting dissemination sessions (webinars, lectures or other);

The boats must be unloaded and launched at ramps designated for this purpose, to avoid coastal erosion or habitat disturbance;

/ 7. SOCIAL RESPONSIBILITY AND INVOLVEMENT OF LOCAL COMMUNITIES

#### FRAMEWORK

According to the World Tourism Organisation, sustainable tourism should make the most of environmental resources which are a key element in tourism development, maintaining essential ecological processes and helping to preserve natural heritage and biodiversity. Associated with this factor, social responsibility should also be considered as a central part of business strategies in general and in the tourism sector in particular. Environmental protection, fair working conditions for employees and contribution to the well-being of local communities are key elements that should be incorporated into business plans.

Tourism companies, and related sectors, having strong relationships with local communities in the territories in which they operate, have an important influence on the socio-economic development of these regions. In this context, social responsibility measures can, and should, include fair and responsible treatment of employees and suppliers, fair use of local products and services, and involvement and cooperation with communities to improve the quality of life of the local population, without neglecting respect for socio-cultural authenticity, cultural heritage and their traditional values, contributing to intercultural understanding and tolerance.

For both tourists, visitors and employees, the incorporation of social responsibility strategies is an increasingly relevant and differentiating factor, which should also be contemplated in the management of recreational nautical infrastructures.

**GOOD PRACTICES TO IMPLEMENT** 

Raise awareness among nautical users, tourists and visitors about appropriate behaviour towards local populations and their ways of life; Make visitors aware of the cultural heritage related to nautical activities;

Promote synergies for experiencing the production process of identity products (handicrafts or food products);

Development and/or support for initiatives to enhance local communities;

Socio-cultural valorisation of visitable fishing communities;

Create volunteering opportunities with the local and school community;

Make nautical activities and events available to the school and senior public in an inclusive manner;

Promotion of the employability of the local population by designing training programmes to provide them with the necessary skills to be able to join the team and/or participate in the programmes, events and initiatives developed by the management entities;

Incorporate local services and products in its programmes, events and initiatives developed by the management entities;

Stimulate and develop the local economy, through a purchasing policy that favours the acquisition of local products or hiring of local services;

Donate surplus products (food and/or others) or those in good condition, in disuse, to local institutions;

Ensure that employees are guaranteed fair working conditions, such as, among others: remuneration, flexible working hours and physical

Provide initiatives for the promotion, dissemination and sale of local products;

conditions appropriate to the tasks to be carried out;

Existence of a code of values with rules of conduct for employees that promotes transparency, anticorruption, institutional loyalty and nondiscrimination on the grounds of race, colour, sex, nationality, ethnic origin, sexual orientation, gender identity or other factor.

M VITOR OLIVEIRA 102187-5PT **GEOPARK** SUN AZIBO CRUZEIROS CAVALEIROS

Image 16 — Sun Azibo Cruzeiros, Nautical Station of Macedo de Cavaleiros

## **/ 8. COMMUNICATION** WITH CUSTOMERS

#### FRAMEWORK

The concern with communication is central to the efficiency of good practices. Integrated Marketing Communication in the tourism sector, and particularly in nautical tourism, is an approach that is always present in successful destinations or organisations, in which the consistency of messages across the various channels and variables of the communication mix is an increasingly demanding task. This is not only because we are exposed to a multiplicity of channels and stimuli, but also because there are different challenges faced by Marketing, namely the generation gap, the polarisation of prosperity, i.e. inequality in the distribution of wealth, and digital inequality (Kotler et al, 2021)<sup>3</sup>, to which communication with customers has to provide an inclusive response.

In nautical tourism, the generational gap, from a communication perspective, may be particularly pertinent in choosing the most effective medium for the organisation to communicate with its audiences. Globalisation and technology have increasingly affected the communication policies of organisations from a marketing and consumer behaviour perspective. The tourism sector, too, is increasingly challenged in its ability to communicate. Today, the implementation of good practices requires having this ability updated to modern times, an essential condition for being a winner, bringing together a set of challenges that in the tourism sector range from the ability to follow trends, to the ability to communicate its commitment to sustainability and society in general, to the permanent monitoring of new technologies available to broaden and enrich the tourist experience. Finally, it is important to bear in mind that tourism also has the additional challenge of sharing, in digital terms, the variables of communication and distribution in the same virtual space. Moreover, we are facing a sector with the need to inform nautical users and visitors extremely heterogeneous in generational terms, where Baby Boomers (1946-1964), generation X (1965-80), generation Y or Millennials (1981-1996), generation Z (1997-2009) and Alpha (after 2010) coexist in the same space, with different communication retention habits.

The use of the so-called Marketing 5.0 is encouraged, which, by definition, is the application of humanised technology (humanised approach to technologies - by imitation of the human being) in order to create, communicate, fulfil and enhance value throughout the customer's journey. "Machines are cool, but humans are warm" (Kotler et al., 2021: 5). This is undoubtedly, in the era in which we live, the most challenging tool, with the communication task becoming more and more demanding, with recourse to Next Tech, be it artificial intelligence, augmented (in the visit) or virtual (in the pre-visit) reality, robotics, natural language processing, IoT sensor technology and Blockchain.

In this context of permanent renewal, the theoretical bases on the process of consumer behaviour are refreshed with new approaches, more ephemeral and perhaps less controllable from an organisational perspective. This paradigm shift leads to an increasing need for tools capable of capturing these sudden changes in conceptions/interests and, at the same time, able to monitor and anticipate long-term trends. Thus, the main objective is to accompany the markets and their movements, without transmitting confused or even antagonistic images in the communication chain of the company /organisation/cause.

Hence, the challenge of communication is permanent and growing, and it is increasingly important that good practices demonstrate the ability to anticipate changes and not merely react to external impulses. Currently, traditional communication strategies coexist side by side with less conventional marketing and communication practices, in an attempt to occupy their space in an increasingly competitive "attention economy" arena.

#### GOOD PRACTICES TO IMPLEMENT

Initiatives to disseminate nautical literacy among customers, whether the resident population and/or visitors, with a particular focus on the

<sup>&</sup>lt;sup>3</sup> Kotler, P., Kartajaya, H. & Setiawan, I. (2021). *Marketing 5.0: Technology for Humanity*. Hoboken, New Jersey: Wiley.

younger segments and in association with knowledge of the historical, environmental and cultural heritage of the region linked to the sea and the coastal areas being visited;

Whenever possible support communication through video marketing that seeks to involve the target audience/nautical customer, seeking to tell a story, storytelling, that attracts the customers' interest at all stages of the consumer journey;

In anticipation of the visit, and especially for younger audiences, the use of virtual reality is recommended to create an expectation of a richer and complementary experience to the physical experience, which can be complemented with augmented reality applications in awareness and nautical literacy initiatives;

Websites should offer, whenever possible, chatbots and natural language processing mechanisms to support research;

The company's communication policy should take into account an SEO (Search Engine Optimisation) strategy, optimising search engines, by providing content that maximises communication in an organic way;

The communication policy should be constantly monitored, through available platforms, such as Google Analytics among others specific to social networks;

The mobile website, mobile apps, push notifications, SMS and MMS, response codes: QR code, augmented reality and virtual reality as well as marketing actions through mobile devices, namely smartphones, tablets, smartwatches and wearables are important factors to consider in the communication strategy; Communication of the strategy, goals and sustainability practices of the nautical organisations and the destination<sup>4</sup>;

Include communication with an environmental dimension focusing both on the organisations promoting the activities and on tourists and residents, referring to measures to mitigate the environmental impacts of nautical infrastructures;

Actions to raise awareness and disseminate the sustainable practices of activities, on board and on land, on topics related to the challenges of decarbonisation, water and waste management, sustainability and globalisation (coastal erosion and protection measures), from new propulsion sources to boat share practices, as well as the results of monitoring these practices;

Awareness-raising, education and dissemination actions of environmental sustainability differentiated and less for experienced experienced nautical users<sup>5</sup> **S**0 that communication is more effective;

Use of new digital data integration services between the managing entities of marinas, harbours, docks, leisure clubs and nautical companies that facilitate personalised communication with customers in a single destination concept, in strict compliance with competition and personal data protection laws;

Integrated information on the availability of ship maintenance and repair services that encourage winter stays of boats (October to May/June), dry or swimming;

Communication with nautical users and companions, promoting sustainable stays on board and visits by water and land to different destinations in the region, gastronomic and

<sup>&</sup>lt;sup>4</sup> Research shows that "The existence of environmental objectives by organisations motivated the adoption of good environmental practices, in the contexts of costal and maritime areas" (Mascarenhas et al., 2021:10). Mascarenhas, M., Pereira, E., Rosado, A., & Martins, R. (2021). How has science highlighted sports tourism in recent investigation on sports' environmental sustainability? A systematic review. *Journal of Sport & Tourism, 25*(1), 42-65.

<sup>&</sup>lt;sup>5</sup> Research shows that "another important factor for valuing the conservation of the natural space is the sports experience, particularly verified in the context of costal and maritime areas" (Mascarenhas et al., 2021:8). Mascarenhas, M., Pereira, E., Rosado, A., & Martins, R. (2021). How has science highlighted sports tourism in recent investigation on sports' environmental sustainability? A systematic review. *Journal of Sport & Tourism, 25*(1), 42-65.

cultural experiences with valorisation of regional identity and products, territorially diversified beyond the coastal area;

Communication on more sustainable transport options, namely accessibility through sustainable mobility (bicycle lanes), carpooling, car parks, public transport;

Actions to support tourist entertainment companies and maritime-tourism operators in developing skills on new areas of support to manage and anticipate market shifts, namely environmental management, public relations, communication, marketing, languages of emerging markets, sports, safety related to active ageing, accessibility and materials and practices associated to the use on board of new energy sources and non-polluting motorisations;

Actions to enhance and promote protected marine areas as a qualifier for the image of the nautical destination as a territory committed to the sustainability of resources;

Promotion and exemplification of the environmentally focused quality certificates obtained, from those with a more pedagogical focus, such as the Blue Flag, to others with a more transversal business focus, such as ISO 14001, to the specificity of the certificates dedicated to Marinas and Recreational Harbours, such as the "Gold Anchors" awarded by The Yacht Harbour Association (TYHA);

Dissemination and development of sheltered water visitation routes, through boats with small passenger number capacity, reduced speed and without the use of a combustion engine, associated with the consumption of products and services provided by local communities; Communication and networking of tourism products linked to the sea and coastal areas in emerging market niches of high added value and potential for impact retention, in particular sport diving with visits to underwater heritage, pedestrian trails to enhance coastal heritage and inland waters, and their respective imagery such as lighthouse tourism, the observation of aquatic biodiversity, in particular that associated with birdlife, and transformative tourism experiences such as boarding in participative observation of fishing.

Creation of new technology-intensive (digital) products and services in the nautical value chain that will enhance and diversify the nautical user's experience, e.g. augmented reality projects that enhance natural and cultural heritage;

## / 9. LABELS AND CERTIFICATIONS FOR NAUTICAL TOURISM SUPPORT STRUCTURES



#### FRAMEWORK

The existing environmental labels and certifications are internationally recognised and represent a commitment to ongoing compliance with a set of sustainability criteria in the operation and management practices of nautical tourism support infrastructures.

The promotional communication of the nautical infrastructure should give public visibility to the labels and certifications, whenever they hold them, considering the value and expectations that they represent for many nautical users and potential users and the distinctive positioning that they grant in the global competitive market.

#### ISO 14001 Certification https://www.iso.org/

ISO 14001 is an international standard which defines the criteria for environmental management systems. Designed for any type of organisation, regardless of its activity or sector, it assures the organisation (board, employees and stakeholders) that environmental impact is being measured and improved. As such, it is a very powerful and universal management tool, in addition to its certification being recognised worldwide.

#### Blue Flag Award

https://bandeiraazul.abae.pt/portos-de-recreioe-marinas/

Promoted by the European Blue Flag Association (ABAE) for recreational harbours and marinas that meet a set of criteria related to Environmental Information and Education, Water Quality, Environmental Management, Safety and Services, Social Responsibility and Community Involvement. Anchor International General Scheme (based on self-assessment) and Gold Anchor International Rating Scheme (the latter entailing three levels of qualification, from 3 to 5 Gold Anchors, according to the marinas' facilities, infrastructure and service standards verified on site).

AQUA+ Building Water Efficiency Rating <a href="https://www.aquamais.pt/">https://www.aquamais.pt/</a>

The AQUA+ Building Water Efficiency Rating is a unique national methodology that enables the assessment, rating and improvement of buildings' water (and associated energy) use performance.

It is available for residential and tourist buildings (in partnership with APA and Turismo de Portugal), and is currently being developed for commercial and service buildings, including those of the Public Administration.

This benchmark can be used by nautical support infrastructures to identify best practices for water efficiency and the use of water from alternative sources applicable to the most efficient use of water and energy (applicable at any stage of the building's life: design, rehabilitation or in use).

MOVE+ energy performance of fleets https://www.movemais.pt/

Within the framework of efficient mobility, ADENE - Energy Agency created the MOVE+ concept through which it provides companies with instruments based on efficient mobility audit and rating models.

These instruments make it possible to rate the energy and environmental performance of the practices adopted to manage mobility, guiding public entities or companies in the search for ecoefficiency.

The MOVE+ certification is already available for light and heavy goods vehicle fleets, and will be extended to light heavy goods vehicle fleets and other mobility areas and solutions.

This instrument may be used by nautical tourism support services, owners of light or heavy fleets,

Gold Anchor Marina award https://www.marinas.net.au/documents/item/7

Promoted by The Yacht Harbour Association (TYHA) for marinas that wish to communicate their commitment to customer service and information, it comprises two types of certification: Gold

as a differentiating factor for the services provided.

#### CLASS + Energy Label https://www.classemais.pt/

With regard to the building envelope, such as walls, glazed openings, etc., there is already an initiative in Portugal which promotes an energy label through which it is possible to compare the different solutions on the market.

The CLASS+ energy label is operationalised by ADENE for windows, rating this product on a scale from F (least efficient) to A+ (most efficient), and will soon cover more building envelope products, such as solar control films and ETICS (exterior insulation).

In this sense, whenever there is a need to replace glazed openings for openings with better thermal performance, windows with a CLASS+ label should be chosen, with a minimum class of A.

#### **Circular Economy Rating**

ADENE is developing a circular economy rating system that can also be applied to the nautical support infrastructures. This rating will allow an assessment of the circularity performance of companies and other entities, by auditors, with the issuance of a certificate with the respective rating from A+ (the best) to F (the worst). This is a driving force for organisations to promote actions and obtain practical and evolutionary results in terms of environmental preservation. At the moment this rating system is in the pilot phase and it is foreseen to start operating in 2023.

Clean&Safe Seal https://portugalcleanandsafe.com/

The Clean&Safe Seal was created in 2020 by Turismo de Portugal with the aim of recognising establishments and activities that make a commitment to comply with the recommendations issued by the National Tourism Authority, in articulation with the guidelines of the Directorate-General for Health, to reduce risks of contamination by COVID-19. The 2022 version of the Clean&Safe Seal maintains the initial focus on the health component, but extends the scope to other possible public health situations and a transversal safety dimension of tourists associated to possible vulnerabilities and risks inherent to the various experiences they develop in the national territory, covering possible crises arising from extreme phenomena and collective risks (rural fires, floods, earthquakes and tsunamis) and international constraints (cybersecurity and refugees).

Within this context, the Clean&Safe Seal currently works as a support tool for companies in "crisis management", with the partners NOVA Medical School, AGIF - Rural Fire Management Agency and the National Authority for Emergency and Civil Protection.

Marinas can join the Clean&Safe Seal, as long as they are registered as Tourist Entertainment Companies. Those that are not registered, and if they wish, may do so in the <u>National Tourist</u> <u>Entertainment Agents Registry.</u>



Image 17 — Sterna, Nautical Station of Estarreja



Image 18 — Flags with the distinctions and awards of the Vilamoura Marina

## /10. SUPPORT TOOLS

## / 10.1 SUPPORT GUIDES

Turismo de Portugal provides, in digital format, a set of tools and guides to good practices in the field of Accessibility and Sustainability, with the aim of helping to enable tourism agents to adapt their practices and thus build an increasingly sustainable and inclusive tourist destination.

#### <u>\_Good Practices Guide for Circular and</u> <u>Sustainable Catering</u>

<u>\_Good Practices Guide for a Circular Economy in</u> <u>Tourist Accommodation</u>

\_Guide for Carbon Neutrality in Tourist Resorts

<u>\_Guide for Tourism Operators – Let's Reduce</u> <u>Single-Use Plastics</u>

<u>\_Guide for Tourist Accommodation – Let's Reduce</u> <u>Single-Use Plastics</u>

<u>\_Practical Guide: Accessibility in tourist</u> <u>accommodation</u>

<u>\_Practical Guide: Accessibility in tourist</u> <u>entertainment</u>

\_Practical Guide: Accessibility in Events

<u>Portfolio – Accessibility technical solutions</u>

#### GUIA PRÁTICO

### Acessibilidade em Eventos



#### GUIA DE BOAS PRÁTICAS PARA UMA RESTAURAÇÃO CIRCULAR E SUSTENTÁVEL





#### VAMOS REDUZIR OS PLÁSTICOS DE USO ÚNICO Guia para os Operadores Turísticos



Image 19, 20 and 21 - Covers of guides

### 10.2 SUPPLEMENTARY INFORMATION

#### RENEWABLE ENERGY GENERATION

The activity of decentralised electricity generation, through **self-consumption of renewable electricity** and **renewable energy communities**, should be an important instrument and contribute decisively to the national energy and climate policy in the coming years, towards a carbon-neutral future.

#### Collective Self-consumption and Renewable Energy Communities

With Decree-Law no. 15/2022 of 14 January, the active participation in the energy transition of companies and citizens interested in investing in renewable and distributed energy resources necessary to cover their consumption is facilitated. In short, the focus is placed on consumers and the role they may come to play within the SEN, acting individually, collectively or through energy communities, providing that they may move from mere passive consumers to active agents who produce electricity for selfconsumption or to sell surpluses, store and offer flexibility services and aggregate production. For this purpose, this Decree-Law imposes the installation of smart meters and smart grids and ensures, through the creation of the figure of the aggregator, the elimination of barriers to participation in the electricity markets.

In the scope of self-consumption, the intervention of the operator of the RESP is also waived in some situations and an objective concept of electrical proximity is consecrated, which grants greater breadth and legal certainty to the expansion of the activity of self-consumption. Dynamic sharing is also definitively consecrated, making it possible the efficient optimisation of electricity flows between self-consumers acting collectively, encouraging the emergence of new areas of innovative service provision.

## What is self-consumption of renewable electricity?

Self-consumption (AC) is understood as the consumption ensured by electricity produced by one or more UPAC (production unit for self-consumption) and carried out by one or more self-consumers of renewable energy. Decree-Law no. 15/2022, of 14 January, allows final consumers of electricity the right to become self-consumers, producing renewable energy for their own consumption, in their facilities, as well as the storage or sale of electricity with renewable origin from their own production, provided that for non-domestic self-consumers, these activities do not constitute their main commercial or professional activity.

The activity of self-consumption, through UPAC, regardless of the voltage level of the consumption facilities, can be exercised in:

a) **Individual self-consumption** (ACI), when it is only for consumption in a single electrical installation of use (IU); or,

b) **Collective Self-Consumption** (ACC), when consumption takes place in two or more electrical installations for use (IU). Normally, ACC can occur in condominiums of buildings in horizontal property regime or not, or in a group of selfconsumers located in the same building or area of flats or houses, in a close neighbourhood relationship, in industrial, commercial or agricultural units, and in other infrastructures located in a delimited area, which have UPACs.

In both cases (ACI and ACC), the UPACs are installed on or near the IU and connected to each other through the RESP and/or an internal network and/or by direct line, without prejudice to third party ownership of the UPAC. The proximity between the UPAC and the IU is a requirement for the exercise of the activity of production for selfconsumption and its verification obeys the fulfilment of one of the conditions described in article 83 of Decree-Law no. 15/2022, of 14 January. These conditions are the same applicable to CER.

Consumers who exercise self-consumption activity are ensured that:

a) The grid access tariffs are based on the respective costs;

b) The definition of the other applicable charges, fees and taxes contribute in an appropriate, fair and balanced manner to the sharing of the overall system costs, in line with a transparent costbenefit analysis of the distribution of energy sources developed by the competent national authorities;

(c) The integration in an ACC or CER should be accessible to all consumers, including low-income or vulnerable households;

d) The choice to leave a community is free and does not imply any charge due to the change.

Self-consumption, individual or collective, is subject to **prior control procedures**, in accordance with article 11 of Decree-Law no. 15/2022 of 14 January and which are the same as those to which CER are also subject. These procedures vary depending on the power of the UPACs to be installed, and may involve exemption, prior communication, prior registration and operating certificate or a production license and an operating license, all through a platform managed by the DGEG.



Figure 2 — Individual Self-Consumption (ACI) and Collective Self-Consumption (ACC)

Self-consumers who participate in an ACC are required to have internal regulations that must be communicated to the DGEG, which define, at least, the requirements for access of new members and withdrawal of existing participants, the required deliberative majorities, the method for sharing the electricity produced for self-consumption and the payment of the tariffs due, as well as the destination of surplus self-consumption and the commercial relationship policy to be adopted and, if applicable, the application of the respective revenue. An EGAC (collective self-consumption management entity) must also be designated in the ACC, which is responsible for the operational management of the current activity, including the management of the internal network, if any, the articulation with the electronic platform managed by the DGEG, the connection with the RESP and the articulation with the respective operators, namely in matters of production sharing and respective coefficients, when applicable, the commercial relationship to be adopted for the surplus, as well as others that may be assigned to it by selfconsumers.

It should be noted that UPACs may also be installed in common parts of a building and, in this situation, they must comply with the provisions of Article 85 of Decree-Law no. 15/2022 of 14 January.

Energy sharing modes may be based on fixed coefficients, variable coefficients or a combination of the first two types, pursuant to ERSE regulations. Energy sharing may also be based on specific dynamic management systems, which enable the dynamic monitoring, control and management of energy, in real time, with a view to optimising energy flows.

#### What is a Renewable Energy Community (CER)?

According to Decree-Law no. 15/2022, of 14 January, a Renewable Energy Community is a legal person, constituted through open and voluntary adhesion of its members, partners or shareholders, which can be natural or legal persons, of public or private nature, including, namely, small and medium-size enterprises or local authorities, controlled by them and that, cumulatively: a) The members or participants are located in the vicinity of the renewable energy projects or carry out activities related to the renewable energy projects of the respective energy community, including necessarily UPACs;

b) The said projects are owned and developed by the CER or by third parties, provided that they are for the benefit and service of the CER;

c) The CER's primary objective is to provide environmental, economic and social benefits to the members or localities where the community operates rather than financial gain.



Figure 3 - Example of incorporation of a CER

CERs have the faculty to:

 a) Produce, consume, store, purchase and sell renewable energy with their members or with third parties;

b) Share and trade among its members the renewable energy produced by UPACs at their service, in compliance with the other requirements foreseen, without prejudice to CER members maintaining their rights and obligations as consumers;

c) Access all energy markets, including system services, both directly and through aggregation.

The CER is fully responsible for deviations to the programming it causes in the SEN under the terms defined in the Network Operation Regulations, and may transfer this responsibility to an aggregator or its designated representative.

Consumer access to a CER cannot be subject to unjustified or discriminatory conditions or procedures that impede their participation. The CER must allow any of its participants to leave, subject to compliance with the obligations to which they are bound. The energy sharing arrangements provided for in the CER are the same as those referred to in relation to the ACC. To incorporate a CER in the form of a legal person, an entity of public law and public utility or private law (association, foundation, civil or commercial company or cooperative) must be created. According to the legislation in force, this incorporation will depend on the members to be incorporated and the purpose of the CER itself. Being an open and voluntary membership, it allows it to be constituted by different activity members (public and private), as long as they belong to the same neighbourhood. The incorporation of the CER also requires the creation of articles of associations that can be complemented with internal regulations and the designation of an EGAC, which roles can be carried out by the CER itself or by a third party entity.

To learn more about this topic, consult the Save Energy portal: <u>https://poupaenergia.pt/</u>

## / TECHNICAL DATASHEET

#### / TITLE

Sustainability Good Practices Guide for Nautical Tourism Support Infrastructures on the Coast, Rivers and Reservoirs

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// FEBRUARY 2023



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