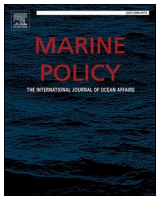
Marine Policy 160 (2024) 105984

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol



The ups and downs of maritime spatial planning in Portugal

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ARTICLE INFO

Keywords:
EU MSP Directive
Portuguese MSP
Strategic Environmental Assessment

ABSTRACT

Directive 2014/89/EU provided a common framework for MSP in Europe, aiming to promote the sustainable development of maritime activities. However, its implementation has been facing various challenges in different Member States. This paper presents the evolution of MSP in Portugal and analyses how the conditions set by the directive have been addressed, particularly in the environmental domain. The analyses are mainly achieved through existing literature and the positions taken by the National Council for Environment and Sustainable Development. Portuguese efforts around MSP started before the approval of the directive and allowed a valuable learning experience. The legal diplomas later adopted provided a framework for developing marine spatial plans with a more comprehensive architecture of the MSP system. While some issues remain in terms of meeting some of the requirements of the directive, operational procedures and assessment of MSP implementation, there are positive aspects highlighted with the entire presentation of the situation of MSP in Portugal so far.

1. Introduction

Early ocean management actions were based on measures unconnected to legal instruments, and action strategies were fragmented into isolated efforts, such as environmental conservation, economic boosting, and fishing or pollution activities [1,2]. Integrated marine governance started to gain a place in the first Earth Summits: the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (1992), the World Summit on Sustainable Development (WSSD) in Johannesburg (2002), and the United Nations Conference on Sustainable Development (Rio+20) [3]. Because of this process, maritime spatial planning (MSP) emerges as a holistic tool to build a "*more rational organisation of the use of marine space and the interactions between its uses, to balance demands for development with the need to protect marine ecosystem*" [4].

Over the last decade, the European Union (EU) has followed the international arena towards integrated ocean management and an MSP framework [2,5]. The key milestones of this trajectory encompass: Green Paper (2006), Blue Paper (2007), the Integrated Maritime Policy (IMP/2007), Marine Strategy Framework Directive (MSFD/2008), MSP Roadmap (2008), Europe 2020 Strategy (2010), and EC Communication on Blue Growth (2012) [2,5,6]. These culminated in the publication of Directive 2014/89/EU to create a common framework for MSP in Europe, with the promising objective of promoting the sustainable development of maritime activities [2]. The aim of the directive is not strictly "sustainable development of maritime activities" but to promote the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources. According to Merrie and Olssen (2014), the "momentum for MSP" seems to have been derived from the first international workshop on MSP organised by the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization's (UNESCO) in 2006 [44].

Portugal boasts the largest Exclusive Economic Zone (EEZ) in the EU and ranks as the 10th largest in the world, spanning over 1.7 million km^2 [41,42]. The country's three EEZ sub-areas — Azores, Madeira and continental Portugal — account for almost 50% of the EU area [42]. The Azores and Madeira archipelagos, which served as the transitional system from the north to the south of the Tropical Atlantic, are renowned for their rich biodiversity and are considered true hotspots [39,40]. In addition to its extensive EEZ, Portugal has jurisdiction over the seabed and the subsoil of the extended continental shelf beyond 200 nm with an

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https://doi.org/10.1016/j.marpol.2023.105984
Received 25 October 2022; Received in revised form 16 September 2023; Accepted 12 December 2023
Available online 22 December 2023

area of 2.15 million km^2, according to the proposal submitted to the United Nations [13]. Portugal has, therefore, the massive challenge of ensuring the sustainable management of this immense ocean area. This paper presents the evolution of MSP in the country and analyses the implementation of the European MSP Directive (Sections 2 and 3). The main objective is to critically assess how the conditions the Directive sets are addressed in the current Portuguese MSP, emphasising environmental concerns (Section 4). It concludes with several final considerations on the Portuguese MSP process, particularly in line with the new European Green Deal (Section 5).

2. First attempt of MSP in Portugal

MSP in Portugal arose in a close connection between a prospective national vision for ocean use [7] and the recognition of its importance at European and international levels [4,8]. In 2006, the first National Ocean Strategy (NOS), called 'Plano Mar Portugal', was approved for 2006–2016 and set the need for MSP to achieve integrated and adaptive coastal and marine management [6]. The first attempt at MSP was undertaken between 2008 and 2010, under the name 'Plano de Ordenamento do Espaço Marítimo' (POEM), aiming to analyse the current and future uses/activities for the mainland area of the Portuguese maritime jurisdiction [6]. However, the resulting plan was constrained by several factors, such as a lack of reliable, trustworthy information or a legal framework and poor efforts to engage stakeholders, but primarily for political reasons. As a result, it ended up being published only as a 'soft law' in 2012 [38] for informational purposes. Nevertheless, this first attempt proved to be an essential learning moment, prompting the development of the legal framework for MSP in the country.

3. Current legal framework for MSP in Portugal

In April 2014, before the publication of the European Union (EU) MSP Directive [9], the first Portuguese MSP framework law was promulgated – Law no. 17/2014 [10,11]. As a "framework law", the diploma had a very broad nature, laying the foundations for national ocean planning and management, establishing the general framework for legal licensing regimes, and identifying "preference criteria" for the use of maritime space. Yet, it did not specify operational details. Hence, in March 2015, a subsequent diploma was promulgated, ensuring the regulation of the MSP framework law – the MSP complementary legislation, Decree-Law no. 38/2015 [12]. The MSP complementary legislation applies to all marine waters under Portuguese jurisdiction, from territorial waters to the exclusive economic zone (EEZ) and extended continental shelf (including beyond the 200 nm limit as proposed to the United Nations). Very importantly, Decree-Law no. 38/2015 also transposes the EU MSP Directive into national law – thus placing Portugal among the first Member States to fulfil this obligation [13].

According to both MSP diplomas [11,12], two types of national MSP instruments (Fig. 1) are legally binding on public and private entities. The first corresponds to the situation plan, the marine spatial plan itself (*Plano de Situação do Ordenamento do Espaço Marítimo Nacional* – PSOEM; www.psoem.pt). The PSOEM identifies the spatial and temporal distribution of existing and potential ocean uses taking place in the Portuguese maritime space and related infrastructures (e.g., aquaculture, tourism, shipping, renewable energy; pipelines, ports, artificial reefs); relevant areas for nature conservation, biodiversity and ecosystem services; and sites of archaeological and historical interest.

The PSOEM encompasses the entire Portuguese maritime space and is split into four subdivisions: the continental EEZ, Madeira EEZ, Azores EEZ, and continental shelf beyond 200 nm (as submitted to the United Nations) (Fig. 2). In December 2019, the PSOEM subdivisions for the continental EEZ, Madeira EEZ, and continental shelf beyond 200 nm gained government approval – Council of Ministers Resolution no. 203A-2019 [14]. The plan for the Azores subdivision is still to be approved (September 2023).

The second type of national MSP instruments corresponds to the allocation plans. Allocation plans are meant to identify – and allocate areas to – specific "new" uses that are not yet included in the PSOEM (either as existing or potential uses) [12]. Allocation plans are a requirement for the licensing of these new uses (through private use titles) (Fig. 1). Upon approval, these plans become automatically integrated into the PSOEM, and they can be carried out either by the public (government) or private initiative (in the latter case, interested parties can submit proposals, but there must always be a public entity responsible for the plan).

As concerns environmental assessment procedures, while the PSOEM is subject to a strategic environmental assessment (SEA) [19], allocation plans "are considered as projects, therefore, being subject to the legal framework of environmental impact assessment (EIA)" only [12,13].

The MSP complementary legislation also establishes the legal regime

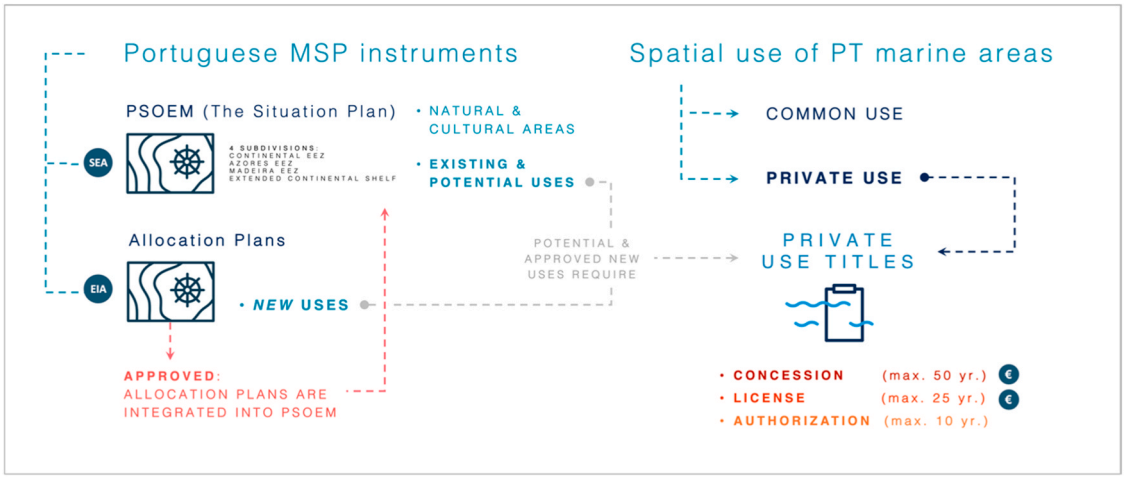

Fig. 1. Portuguese marine spatial planning (MSP) instruments and types of private use of the Portuguese maritime space. When allocation plans are approved, they are automatically integrated into the situation plan. Grey arrows establish the link between MSP instruments and private use titles: use titles can be issued either for potential uses already identified in the situation plan (at the request of interested parties) or for new uses upon approval of an allocation plan. All Portuguese MSP instruments are subject to environmental assessment: the PSOEM to strategic environmental assessment (SEA) and allocation plans to environmental impact assessment (EIA). Concessions and licenses are the two types of use titles subject to a "utilisation tax" (€).
Figure adapted from Frazão Santos et al. [13] based on information from Decree-Law no. 38/2015.

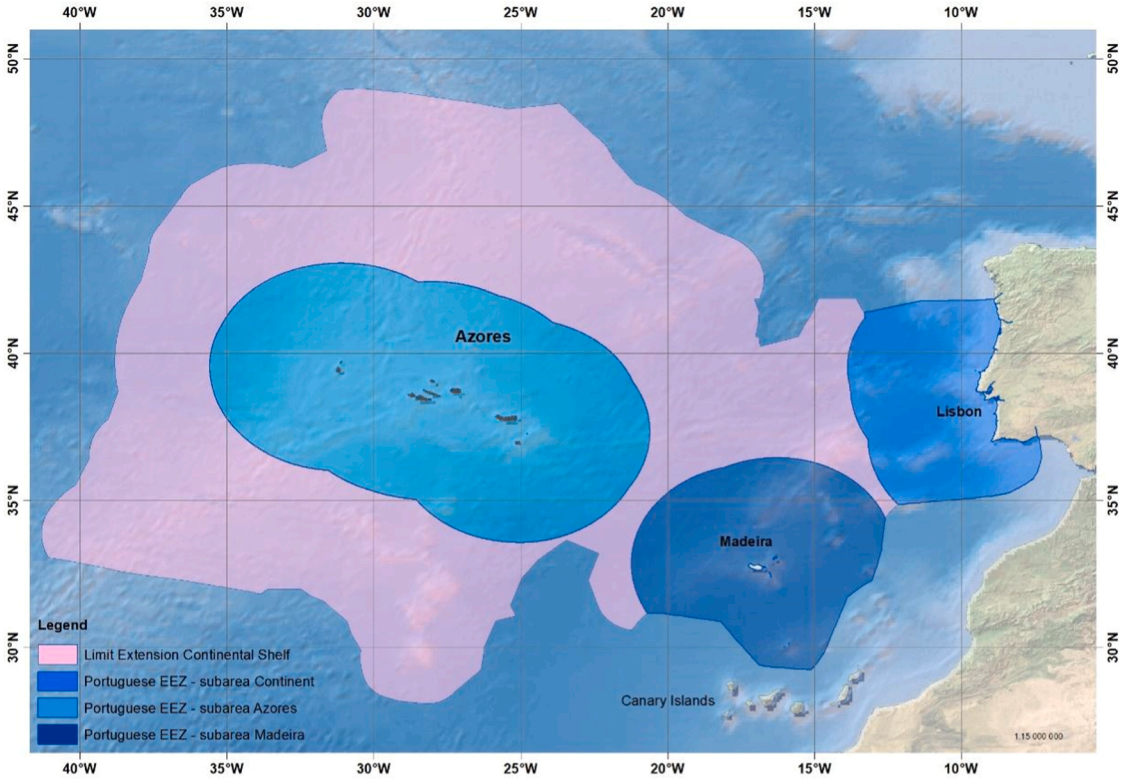

Fig. 2. Subareas of the Portuguese Situation Plan, the PSOEM (2022).

for the private use of the Portuguese maritime space (Fig. 1) – that is, "a use that requires the reservation of an area or volume [of the Portuguese maritime space] for a use of the marine environment, marine resources or ecosystem services greater than the one obtained by common utilization, and which results in a benefit to the public interest" [12]. Such private use must be assigned through a "private use title" (Title for Using the Portuguese Maritime Space – TUPEM), and there are three types of possible legal permits: *concessions* (which require a continuous use over the entire year, and can have a maximum duration of fifty years), *licenses* (corresponding to an intermittent use for periods of less than one year and up to a maximum of twenty-five years), and *authorizations* (for scientific research projects or pilot-projects related to new technologies/non-commercial uses, and with a maximum duration of ten years) [12]. TUPEMs give rights of private use of national maritime space to its holders, and a formal revenue ("utilisation tax") from using the maritime space is set for private actors, and it is published and updated online.

As for responsible entities, the Portuguese Directorate-General for Natural Resources, Safety and Maritime Services (DGRM) is globally accountable for developing MSP instruments and for several aspects regarding the private use of the national maritime space [13]. Simultaneously, the Portuguese Directorate General for Maritime Policy (DGPM) is responsible for promoting ongoing monitoring of both types of national MSP instruments and developing regular assessment reports. At the regional level, the Regional Directorate of Sea Affairs (DRAM) is responsible for coordinating MSP development in the Azores, and the Regional Directorate for Spatial Planning and Environment (DROTA) is responsible for coordinating MSP development in the Madeira archipelago.

3.1. Main challenges

Preliminary analyses of the Portuguese MSP diplomas (e.g. [6,15,16]) highlighted several challenges to implementing sustainable ocean planning and management. When asked about the main strengths and weaknesses of the Portuguese MSP initiative [17], several key informants involved in or knowledgeable about the process pointed to the fact that the MSP framework law enshrined a "planning-licensing duality", as the law presented a combined focus on spatial planning and on the private use of the maritime space (instead of solely focusing on the spatial planning dimension as would be expected).

Stemming from this is a second – and key – identified challenge: environmental concerns seemed to come second to economic goals [17]. Indeed, a preliminary analysis of the MSP framework law indicated that "soft sustainability" was its underlying principle, with an integrated-use approach to MSP being followed – although the law recognises that an ecosystem-based approach to MSP should be pursued, the primary focus is on supporting ocean-based economic exploitation rather than on ensuring environmental sustainability [6,18]. This challenge was also identified for the MSP complementary legislation. Here, the second stated objective for Portuguese MSP instruments is "to foster (.) the economic exploitation of marine resources and ecosystem services", and the third objective refers to the intention to spatially plan maritime uses to increase job creation [12]. At the same time, environmental references correspond to only about 2% of the diploma contents – against approximately 5% for the EU MSP Directive that the diploma transposes [13]. In effect, due to societal pressures (namely, the economic crisis) over the past decade, Portugal has been focusing more and more attention on the use of its vast maritime space. References to it, such as "the goose that lays the golden egg" or "the treasure chest", can be found [13].

An additional environmental concern pertains to the environmental assessment of national MSP instruments [17]. The MSP complementary legislation opened the possibility of not subjecting the PSOEM to an environmental assessment without truly specifying the criteria for such a decision, which raised great debate [13]. This concern was solved later in 2015 with the publication of Ruling no. 11494/2015, which specifically established that "the Situation Plan is to be subject to environmental assessment" [19]. At the same time, according to the environmental assessment framework established in the MSP

complementary legislation, allocation plans are to be treated as projects, being subject to EIA instead of SEA. This is an odd aspect, given that both European and Portuguese legislation on environmental assessment specifies that "plans and programmes" must be subject to SEA, and only "projects" must be subject to EIA [20,21]. Therefore they are Plans (as they change directly the PSOEM and are named as such) treated as Projects This decision in favour of EIA raised concerns about the absence of strategic thinking and a long-term vision (typical of SEA) in the environmental assessment of allocation plans. Also, the legal framework for EIA is neither specific for the marine realm nor does it cover all projects that may potentially be carried out in the maritime space (e.g., wave parks are not mentioned in the current Portuguese legal framework for EIA, thus not being legally obliged to it, neither is the exploitation of genetic resources and other marine biotechnology uses[1]). The National Council for Environment and Sustainable Development (CNADS) reinforced the importance of addressing this in a report on the topic, stating that "although Allocation Plans may encompass projects (.) [they] must be subject, first and foremost, to the regime of environmental assessment of plans and programs" [22].

A third environmental concern pertains to implementing principles of the MSP framework law [17]. According to the EU MSP Directive, MSP must fulfil a set of "minimum requirements", some of which are clearly related to environmental concerns —e.g., *land-sea interactions*, *trans-boundary cooperation*, *resilience to climate change impacts* [9]. While most such requirements are addressed in the Portuguese MSP complementary legislation, they are addressed in a very broad and vague way [13]. Similarly, implementating the framework Law's four principles related to environmental concerns — that is, the *EBM approach*, *adaptive management*, *integrated management*, and *trans-boundary cooperation* — is only vaguely addressed [13]. Therefore, national-level legislation must provide guidance on how the implementation of MSP requirements/principles is to occur – at the very least, identifying where such detailed information is to be available [13].

Another concern relates to land–sea interactions [23,24]. The complementary legislation states that national MSP instruments must ensure their coordination and compatibility with overlapping terrestrial plans and programmes [12] but without sufficiently explaining how to do it. The instruments applying to coastal management in Portugal (e.g. Coastal Spatial Management Plans, ranging from 500 m inland to 30 bathymetric) were integrated into PSOEM. Still, to be effective, they demand special regulation. The same applies to coastal protected areas [43]. Because integrating land and sea management processes is not only about defining priorities (e.g., defining that allocation plans may have priority over pre-existent terrestrial plans/programmes), mechanisms that allow for the synchronisation of land–sea processes need to be identified (e.g., integrated coastal zone management) [13]. Also, the complementary legislation determines that transboundary cooperation must be ensured in developing, changing, revising and suspending national MSP instruments and that transnational issues may be addressed through existing international bodies or regional institutional cooperation without specifying further details.

Moreover, while climate change is referred to in the MSP complementary legislation, it is never truly addressed – it is only stated that economic exploitation should be developed to prevent, and allow for adaptation to, climate change impacts [12]. Resilience to climate change impacts is clearly considered in the EU MSP Directive's objectives [9] and is a topic of increasing importance for MSP sustainability and effectiveness [25–28]. Furthermore, adaptive management, one of the MSP framework law principles – and also a fundamental approach to making ocean planning processes adaptive to changing conditions – is never directly referred to in the Portuguese MSP complementary legislation, which is a shortcoming – only two of its "phases" appear, namely monitoring and evaluation [13].

The need for more bottom-up participative processes [15,17,29], performance monitoring and evaluation [30–32], and concluding planning and policy cycles (e.g., fully implementing the different subdivisions of the PSOEM) are also among the top identified challenges for MSP in Portugal [17].

4. A quick look at the PSOEM

Framed in the previously described legal framework, the first draft of the PSOEM proposal was drawn up in 2017/2018 and, as with all plans, the document was subjected to a formal public consultation process. This first version of PSOEM received widespread criticism for the extremely short period of public consultation (despite an extension of the initial deadline with an additional 30 days) and the lack of involvement of civil society. In addition, several governmental and other public entities consulted, some of which play a crucial role in safeguarding the environment and biodiversity (such as APA (*Agência Portuguesa do Ambiente*) and ICNF (*Instituto da Conservação da Natureza e das Florestas*)), issued negative opinions, highlighting the lack of consensus around PSOEM which would hinder the plan's implementation. This also sent a disturbing signal to society regarding the link between public administration sectors and the common understanding of public policies. In fact one of the weaknesses pointed out in these consultations is the fact that Conservation is restricted to the inclusion of already classified areas (as Natura 2000 and current designated MPAs) with no further ambition.

The National Council for the Environment and Sustainable Development (CNADS) recommended the reformulation of the document followed by a new period of public consultation which happened by the end of 2018, beginning of 2019. According to CNADS (in its second opinion (23/1/19)), most of the substantive issues were resolved in the second draft of the PSOEM, although some problems remained. The PSOEM, based on the 2nd version, was approved by the Resolution of the Council of Ministers n.º 203-A/2019 on the 30th of December 2019 [14].

The main points of criticism regarding PSOEM, (according to CNADS) can be summarised as follows:

- Preparation of PSOEM, involvement of entities and public participation: Even though the preparation of the PSOEM was supposed to be carried out jointly by the Central Government (DGRM), the Autonomous Region of Madeira (DROTA) and the Autonomous Region of the Azores (DRAM), contents for each subarea are not actually integrated. In fact, the work done only attempts to standardise the way they are presented, with some room for adaptation to the context of the autonomous regions. Also, the absence of the Azores subarea (still in development), the one with the greatest territorial expression, does not allow for a truly integrated national plan. The lack of consultation/involvement of the existing research centres of excellence weakens the plan, that could have benefited from important data and knowledge from marine and oceanic scientists. The public participation process was not very effective, being mostly a formality and without a clear understanding of the mechanisms and criteria guiding the integration or rejection of contributions received.
- PSOEM contents and mechanisms: There is a lack of consideration of the impacts of climate change on the PSOEM options and insufficient analysis of visual landscape issues, failing to better align with the National Policy of Architecture and Landscape and ensure the compatibility between activities highly dependent on visual quality (tourism) and those that can have negative effects. Criteria and mechanisms for compatibilisation of activities and/or for prioritising some over others are unclear. For example, in the delimitation of

[1] According to Portuguese legislation, EIA is currently applicable to the following projects: external (commercial) ports; commercial extraction of oil and gas; marine oil and gas pipelines; marine aquacultures; land reclamation; oil extraction; mineral extraction by marine dredging; wind parks; coastal protection works, and marinas, recreational ports, and docks.

'areas of protection for common uses' (uses that don't require TUPEM) in the situation plan, it would be important to understand the dimensioning criteria and their objectives. Mechanisms/criteria of compatibilisation between the common uses should be known (for e.g. how are seabed activities, such as the sinking of ships for creating underwater artificial reef structures, compatible with other common uses). The compensation mechanism for the activities that must be relocated should also be more explicit, especially in the context of the situation plan (and not only allocation plan) and in terms of technical, physical and environmental considerations. Last but not least, nature conservation is virtually not mentioned in the common uses.

- PSOEM cartography: there is a lack of technical rigour in some cartographic information, which extends to the interpretation of some figures related with easements and public utility restrictions.

Some of the weaknesses discussed can also be viewed as a constrain to the compliance of PSOEM with the EU MSP directive (Table 1). One of the main issues that need to be improved is the participation process, so that existing and potential conflicts are clearly identified and mediated and the best options are reached through clear criteria and mechanisms.

Another aspect that needs to be further progressed is the effective delimitation methodology and implementation of 'areas of protection for common uses', as that emerged as a great innovation and appears a laudable solution in the search for the defence of subjective rights, public enjoyment, and the maintenance of some traditional activities. However, these areas are not translated into existing regimes (either in planning instruments or in public utility restrictions established) and it is not envisaged how it can be implemented. The operationalisation and management of a matter of (common) public interest cannot be subtracted from a transparent, and legally framed regime, legalising the state's additional action on the issues of national safeguard. The absence of an implementation programme and regulations accompanying the PSOEM undermine its future effectiveness, credibility and do not mean that new conflicts are avoided, but rather are exponential.

4.1. Strategic environmental assessment of PSOEM

The situation plan was subject to a strategic environmental assessment process, which aimed to assist environmental integration and assess the opportunities and risks arising from action strategies within the sustainable development framework, thus allowing alternative development options to be evaluated and compared while they are still under study.

In methodological terms, the SEA was based on the methodology adopted by the APA (although these are designed for municipal master plans with no specific maritime features) as well as on the analysis of current SEA practices within international maritime spatial planning processes but constrained by the legal framework in place. In this framework, the approach adopted was based on the development of a set of activities allocated to four key components of the SEA process:

- Determining the scope of the SEA and the critical decision factors (CDFs);
- Strategic analysis and assessment;
- Public and institutional consultation;
- Proposed environmental statement.

Thus, after defining the scope of the SEA, the evaluation criteria were developed through the definition of the CDFs, which supported the analysis and evaluation of the situation plan. For each of the CDFs, a diagnosis was made, considering the current situation and the evolution trend, as well as an assessment of the possible significant effects on the environment resulting from the implementation of the plan, particularly on the Natura 2000 Network. This assessment focused on the strategic approach of the situation plan, embodied in options of a general character, in the model of spatialisation of the situation plan and the

Table 1
Adequacy of the PSOEM to the minimum requirements of Directive 2014/89/Eu 11 (adapted from: [33]).

Directive	PSOEM
Take into account land-sea interactions.	Land-sea interactions are extremely relevant, especially in a country with Portugal's extent and coastal diversity. From the outset, the integration of management and planning of estuaries should have been considered, especially those that present greater pressure on the level of water use and activities, better and/or more fragile environmental quality, wealth and biodiversity, or strategic situations at the level of port activities. Except for the declaration that the territorial management instruments in force in intervention in the PSOEM area are integrated into it, without presentation of what such integration means, there are no more considerations in the PSOEM on the land-sea interactions. However, the need for further downscaled regulation is pointed out in PSOEM.
Consider environmental, economic, and social aspects, as well as safety aspects.	Environmental aspects are poorly considered, suffer from errors of representation and information, and are not supported by operational planning and management mechanisms but by mere declarative manifestations. In the face of the weaknesses pointed out, these are mere intentions without any future legal force and may lead not only to situations of legal uncertainty but to potentiating legal conflicts to the detriment of the state, particularly in the coastal area.
Aim to promote coherence between maritime spatial planning and the corresponding plan or plans and other processes such as integrated coastal management or equivalent formal or formal practices.	'The PSOEM generally ignores the territorial management instruments in force with an impact on the coastal area, which must be corrected'.
Ensure the participation of interested parties in accordance with Article 9.	The advisory committee's composition determined by Order No 11494/2015 sought to represent public entities with interest in the matter. It provided the committee with regulations with clear attributions. However, this composition does not cover all the public agencies indispensable to the planning, namely the representation of the Directorate General of the Territory, with whom the model of integration of the planning of national spaces (land and sea), the integration of the existing IGT and, also, the land-sea interaction, would have been agreed. Other missing entities result in the total absence of information about the sector as with National Defence, and thus the PSOEM does not fulfil an important objective of compatibilisation. The involvement of entities outside the advisory committee fell far short of what would be desirable, despite efforts with a part of the fisheries business sector.
Organise the use of the best available data in accordance with Article 10.	The reading of the Final Opinion of the Advisory Committee of 17 April 2018 states that not only the information used in some cases is not the most current, but that, in general, it contains serious errors about cartographic rigour, and that important information provided by the entities has been ignored, without realising what the criteria for such an option were. Furthermore, the absence of

(*continued on next page*)

Table 1 (*continued*)

Directive	PSOEM
	metadata does not make it possible to assess the origin, timeliness, or interoperability of geographic information in cartography intended as a 'shared responsibility'.
Ensure effective transnational cooperation with each other in accordance with Article 11.	There is no record of involvement or consultation with the Spanish state (or any other state) at any time.
Promote cooperation with third countries in accordance with Article 12.	There is no record of involvement or consultation with the Kingdom of Morocco (or any other state) at any time.
Member States shall review maritime spatial planning plans as they see fit, but at least every ten years.	Regarding the horizon of the PSOEM, there remains the doubt raised by contradictory statements that 'the Plan may be revised after five years' or that the EMMR does not need revision as it will undergo 'permanent updating through the allocation plans'. However, by not making real options for action and pushing the decision for the allocation plans, the door to the objectives of maritime spatial planning opens, namely: (i) the allocation plans are not subject to SEA but only to EIA; (ii) not all activities and projects are mandatorily subject to EIA; (iii) the EIA scheme and specifications for maritime activities are virtually non-existent and unadjusted; and, finally, iv) the areas now approved do not require an allocation plan.

measures of good practices and compatibility of uses proposed. The results of the SEA were revised according to the consultations carried out and the comments obtained, satisfying the legal requirements of the formal SEA process.

The CDFs are the structuring themes of the strategic environmental assessment. Their identification results from the integrated analysis of the elements of strategic basis (strategic reference framework, strategic issues, and environmental and sustainability issues) and of the objectives that guided the process of elaboration of the situation plan (Table 2).

Based on the detailed analysis of the situation plan, the potential effects of its implementation were assessed. This analysis focused on both the methodological approach, the project's intrinsic issues, and the development model adopted in each subdivision. This materialised in establishing potential areas for the development of uses/activities that require space reservation, in the identification of best practices, and in the compatibilisation of uses and activities. From the strategic analysis carried out, it is important to highlight the effort to comply with the principles established in the Basic Law for Planning Policy and Management of the National Maritime Space (LBOGEM), particularly the principles of cooperation and coordination, integrated management, adaptive management, precautionary approach, and ecosystem approach in the use of maritime space and the management of activities.

5. Strategic analysis and assessment highlights

Among the features deserving highlight is the flexible character of the plan, allowing for its modification through the approval of allocation plans or modification of the reference conditions. However, in the face of the current planning practice in Portugal that has favoured a rational approach trough command and control instruments, this flexibility has not yet been proven effective.

Another point to be highlighted pertains to the effort to safeguard areas with protection status, particularly those that are part of the Natura 2000 Network and marine protected areas, taking care of their management guidelines and adopting complementary measures to minimise possible negative impacts.

Table 2
Critical decision factors (CDF) (adapted from: [14]).

Critical decision factors (CDFs)	Comments
1. ENVIRONMENTAL STATUS	With this CDF, we intend to evaluate how the situation plan incorporates measures and/or actions that contribute to the good environmental status of the marine environment and the enhancement and conservation of the natural and cultural heritage.
2. BLUE DEVELOPMENT AND GROWTH	This CDF intends to evaluate how the situation plan incorporates measures and/or actions that contribute to the promotion of human well-being and the economy of the sea, as well as the compatibilisation of activities and multiple uses, making viable and diversifying economic activities and respecting the integrity of natural ecosystems.
3. RISKS AND CLIMATE CHANGES	This CDF intends to evaluate how the situation plan incorporates, in the spatialisation of uses and activities, measures and/or actions that contribute to the management and prevention of technological and natural risks, including adaptation to climate change.
4. DEFENCE AND SURVEILLANCE	This CDF addresses the issues of safeguarding national interest regarding defence and national sovereignty, security, and surveillance.
5. KNOWLEDGE, SCIENTIFIC AND TECHNOLOGICAL CAPACITY	This CDF aims to assess how the Situation Plan incorporates measures and/or actions that stimulate the production of knowledge; the production of useful information for the adaptive and sustainable management of maritime space and its monitoring; the technical training of agents involved in the use of maritime space, as well as dissemination and information to society.
6. COOPERATION	This CDF aims to assess how the situation plan incorporates measures and/or actions that promote institutional cooperation (national and cross-border), coherence and coordination of instruments and processes.

Promoting the co-existence/co-allocation or multiple uses of maritime space, which maximises the economic potential of the same space, reduces competition for physical space, and promotes greater efficiency in the economic valuation of resources, is also an extremely relevant point. Fostering partnerships between companies and research entities and cooperation networks is particularly relevant in regional and national cohesion, institutional cooperation, and economic development. However, the concentration of activities may give rise to the occurrence of negative cumulative effects, which will be duly assessed in the environmental impact assessment, where applicable.

In this regard, although it is provided for its assessment in the MSP Directive, the existing practice and knowledge are still incipient, with two exercises for the maritime space associated with the mainland conducted by Fernandes et al. [34] and Batista et al. [35].

Finally, concerns about safeguarding the common use and enjoyment of the maritime space deserve to be highlighted. This is particularly relevant in the coastal zone, where common use is more intense and communities, particularly fishing communities, depend on it directly and indirectly. The analysis also reveals that the situation plan for specific emerging activities/uses, namely in the case of marine biotechnology, metallic mineral resources, and geological carbon storage, only characterises the activities/uses without presenting potential areas nor guidelines for compatibility between activities and minimising impacts on the environment. This circumstance is due to the lack of knowledge about the activity itself and its effects on the marine environment, as well as the fact that these activities have not been developed, to date, in the national maritime space, nor are there requests for a Private Use

Title.

Thus, for these activities, in which no potential areas are defined, their installation depends on the approval of an allocation plan and environmental impact assessment, where applicable, in which these gaps and concerns must be addressed. Another major contribution of the situation plan is the availability of geo-referenced information on a geoportal dedicated to this purpose, with all the cartography available in digital format and free access. This facilitates consultation and decision-making for any interested party, including investors, since they can choose the area of maritime space and the scale most appropriate to their needs and view all the constraints on that area (Fig. 3). The online cartography is the shared responsibility of various institutions, with the advantage that the information always remains updated by the supplying sources.

This ensures transparency and information sharing and contributes strongly to the knowledge of issues related to maritime spatial planning. On the other hand, the situation plan recognises the existence of gaps in knowledge, particularly regarding the complexity and state of marine ecosystems and the impact of certain existing and potential activities in the marine environment, thus constituting a constraint and a challenge to sustainable development and the maintenance of good environmental status. This gap has led to adopting a precautionary approach to applying the plan to not compromise sustainable development. Regarding the CDF and respective assessment criteria under which the strategic analysis and evaluation were conducted, it appears that, in general, the situation plan presents opportunities for environmental and sustainability objectives embodied in the strategic reference framework. However, there are uncertainties in the attribution of responsibilities associated with good practices to be observed within the different uses/activities in the use and management of the national maritime space, as well as in the obligation to implement them. Gaps are also identified in relation to some CDFs, specifically defence and surveillance, risks and climate change.

The environmental statement was proposed at the end of the SEA process and justified how the environmental considerations and the results of the public consultation were integrated and considered in the situation plan, as well as the foreseen control measures. However, the effectiveness of these will only be possible to assess after a period of implementation.

Despite this effort to promote an effective SEA for the entire PSOEM area of intervention, two constraints prevail: the formulation of a SEA legal framework in Portugal is vague, leading to the subjective application; the PSOEM subarea of the Azores is still in its final stages and awaiting approval. Addressing the implications of SEA policy vague formulation and its outcomes, Calado et al. [36] proposed a further focus on SEA studies. In that methodology, Calado et al. [36] defined a set of indicators to address the missing link between different instruments (MSP, MSFD, SEA, EBM, etc.). The work attempts to strengthen the analysis of the potential policy impacts on the Azores subarea for MSP, which is still under approval. The authors pointed out some policy ambiguities that may have less constructive outcomes. That methodology aims to promote participatory analysis, the multiple uses of space, and to create consistency between the ecosystem approach and the EU communication in a new view for a sustainable blue economy in the EU.

6. Final considerations

The Portuguese MSP framework emerged before the EU *momentum* generated by discussion before the publication of the EU Directive and its approval in 2014 [37]. It was a learn-by-doing process, with the first plan approved as a framework study but still as an excellent supporting framework and experience. It functioned as an "MSP literacy" action. The following publication of the MSP legal framework generated further debate on the merit of the path through "weak" sustainability, among other options [13].

The approved PSOEM (for two subareas) is too recent to assess the merits (or not) of both the legal framework and the plan. However, positive aspects can already be highlighted: the online geodatabase and the exclusive digital management of the plan are innovative in Portugal; the transparency of the TUPEM mechanism, also with online

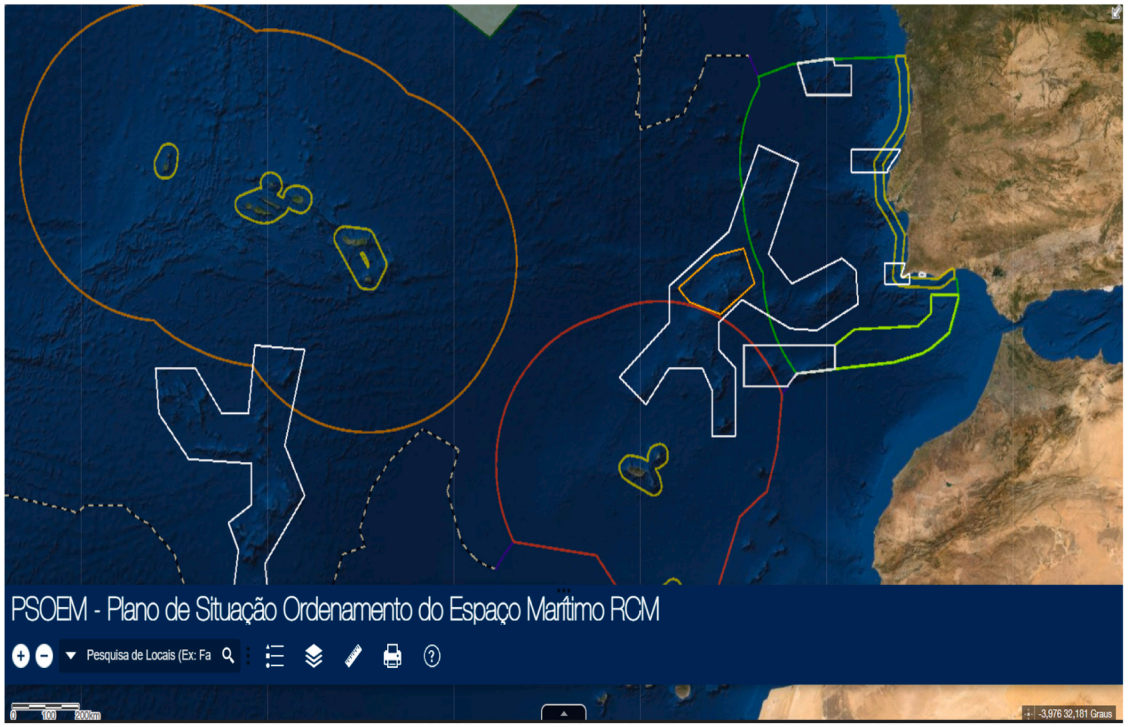

Fig. 3. PSOEM Geoportal with layers in different colours. (Yellow limits are interior waters; Green, red and orange are, respectively, ZEE borders from Continental, Madeira, and Azores; White are some of the marine protected areas; dashed lines are continental shelf extensions.)
Source: https://www.psoem.pt/.

publication; and the possibility of immediate updating of the plan with the allocation plans.

The same mechanism for updating allocation plans raises the doubt of whether, after a number of changes, the result will transform the PSOEM into a "patchwork" of allocation plans instead of a coherent plan under a holistic strategy. Another concern is the vague way in which PSOEM addresses the directive requirements, as discussed.

These two concerns will be forced to be even more stressed with the developing implementation of the European Green Deal. The European Green Deal endorses sustainable actions towards a modern, resource-efficient, and competitive economy, spearheading the action of making the EU climate neutral by 2050.[2] In practice, it promotes sustainable new emergent blue economies such as offshore renewable energy, supporting more connected and well-managed marine protected areas, and large investments in aquaculture. As a result, the maritime space will face a new occupation dynamic. Because the current PSOEM was not designed to accommodate such a dynamic, the Green Deal will further function as a proofing test for the sustainability and adequacy of the Portuguese MSP legal framework and its implementation tools.

Data Availability

The authors do not have permission to share data.

Acknowledgements

This work was supported by project OceanPlan (Marine Spatial Planning Under a Changing Climate) funded by the Portuguese Foundation for Science and Technology (FCT) under grant agreement no. PTDC/CTA-AMB/30226/2017.

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