



Marine Spatial Planning cross-border cooperation in the ‘European Macaronesia Ocean’: A participatory approach

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ARTICLE INFO

Keywords:

Marine Spatial Planning
Public participation
Cross-border cooperation
European Macaronesia
Outermost regions

ABSTRACT

Increasing interests in marine areas has led to conflicts, and planning of present and future uses is required to achieve sustainable management. Marine Spatial Planning (MSP) is dealt at a national level, but generally it includes ecological, physical processes and administrative jurisdictions of multiple countries. The transboundary cooperation on MSP is a complex challenge, that could be better addressed with a participatory process, to achieve coherent planning processes in shared marine socio-ecological systems. This paper focuses on the process followed to reach consensus on cross-border MSP in archipelagic remote regions with no visible and distant maritime borders. Among the results obtained is the design of a European Macaronesia (Canary Islands, Madeira & Azores) Ocean Pilot Program. This would allow to strengthen marine governance, create synergies between different MSP plans, and comply with EU regulations. A joint position of the European Macaronesia could also be an opportunity for maritime interests in national, European, and international forums. Both the participatory process and the results obtained can serve as a model for application in other transboundary marine areas of the world

1. Introduction

Increasing uses in marine areas has led to conflicts due to spatial and temporal overlapping [1]. These conflicts may increase with the boost of the blue economy. Planning of uses and activities would be required to achieve sustainable management [2]. In this context, Marine Spatial Planning (MSP), closely linked with participatory processes, would enable connections between diverse administrations and stakeholders [3–5].

1.1. Transboundary cooperation in MSP

MSP is dealt with at a national level and each state plans waters under its jurisdiction. Nevertheless, it generally includes ecological, physical processes and administrative jurisdictions of multiple countries. Nowadays, transboundary cooperation on MSP using an Ecosystem-Based Management (EBM) approach, is urgent [6–8]. However, jurisdictional, and ecological limits rarely coincide; pressures and

ecosystem services cross boundaries connecting marine regions [9]. Placed at the core of MSP, cross-border cooperation could improve marine resources management by incorporating the transboundary approach [10–14].

At the European Union (EU) level, Member States have to create coordinated national spatial plans for transboundary marine regions, according to Marine Strategy Framework (2008/56/EC) and MSP Directives (2014/89/EU) [15,16]. The document ‘*Cross-border cooperation on Maritime Spatial Planning*’ identifies good practices to facilitate the implementation of these directives, highlighting numerous research projects that have been carried out in recent years in relation to cross-border cooperation in MSP [17]. On a global scale, transboundary cooperation usually focuses on marine species/habitats conservation and resources management, by creating Marine Protected Areas (MPAs) or ecological corridors [18–20].

Due to MSP processes complexity, the Intergovernmental Oceanographic Commission of Unesco (IOC-UNESCO) and EU have signed a joint roadmap focused on cross-border cooperation called ‘*MSP Global*

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<https://doi.org/10.1016/j.marpol.2021.104671>

Received 1 July 2020; Received in revised form 12 May 2021; Accepted 25 June 2021

Available online 20 July 2021

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Project' [21]. In many cases, the starting point was the design of pilot projects. Such proposals were applied to promote transboundary cooperation on a small scale. For instance, the development of pilot projects facilitated the MSP process in the Baltic Sea, currently at a very advanced stage [22,23].

1.2. Public participation in MSP

Stakeholder participation is required to achieve ecological and socio-economic objectives of MSP processes, as social actors help to identify critical processes in a shared Socio-Ecological System (SES) [6]. Public participation processes enable them to influence and share impacts on initiatives, decisions and resources [10]. On an international level, the United Nations Economic Commission for Europe (UNECE) considers five levels of citizen participation: public information; consultation; public involvement; collaboration in decision-making, and public empowerment to make the final decision [24].

Balanced participation, adapted to socio-political characteristics, generates knowledge and promotes trust, while it also consolidates communication, favoring implementation through the process [25,26]. This means that early public participation helps to reduce the complexity of the MSP process. It might be expected also to help to reduce difficulties on cross-border cooperation.

The degree and manner of participation may be shaped by the

cultural context, which also applies to MSP. This is extraordinarily complex in bordering regions, where the states involved present different cultural contexts. It is, then, vital to plan a well-structured process in bordering regions with cultural differences, that is understood and accepted by all parties. It also must be flexible and efficient in terms of time and resources availability. Hence, the participatory process logistics need to be consistent with the case scenario [27,28].

2. Objective & methodology

The research hypothesizes is that the transboundary cooperation challenge on MSP should be addressed with a participatory process, to achieve coherent planning processes in shared marine socio-ecological systems. The current study analyses the participatory process for cross-border, along with the implementation of marine spatial plans, in the Azores, Madeira, and Canary Islands archipelagos.

2.1. Study case, context, and scope: the European Macaronesia and MarSP project

This work was part of the results of the EU project 'Macaronesia Maritime Spatial Planning (MarSP)'. Such initiative assisted the authorities of Portugal and Spain through the development of marine spatial planning required by the MSPD [16]. The European Macaronesia,

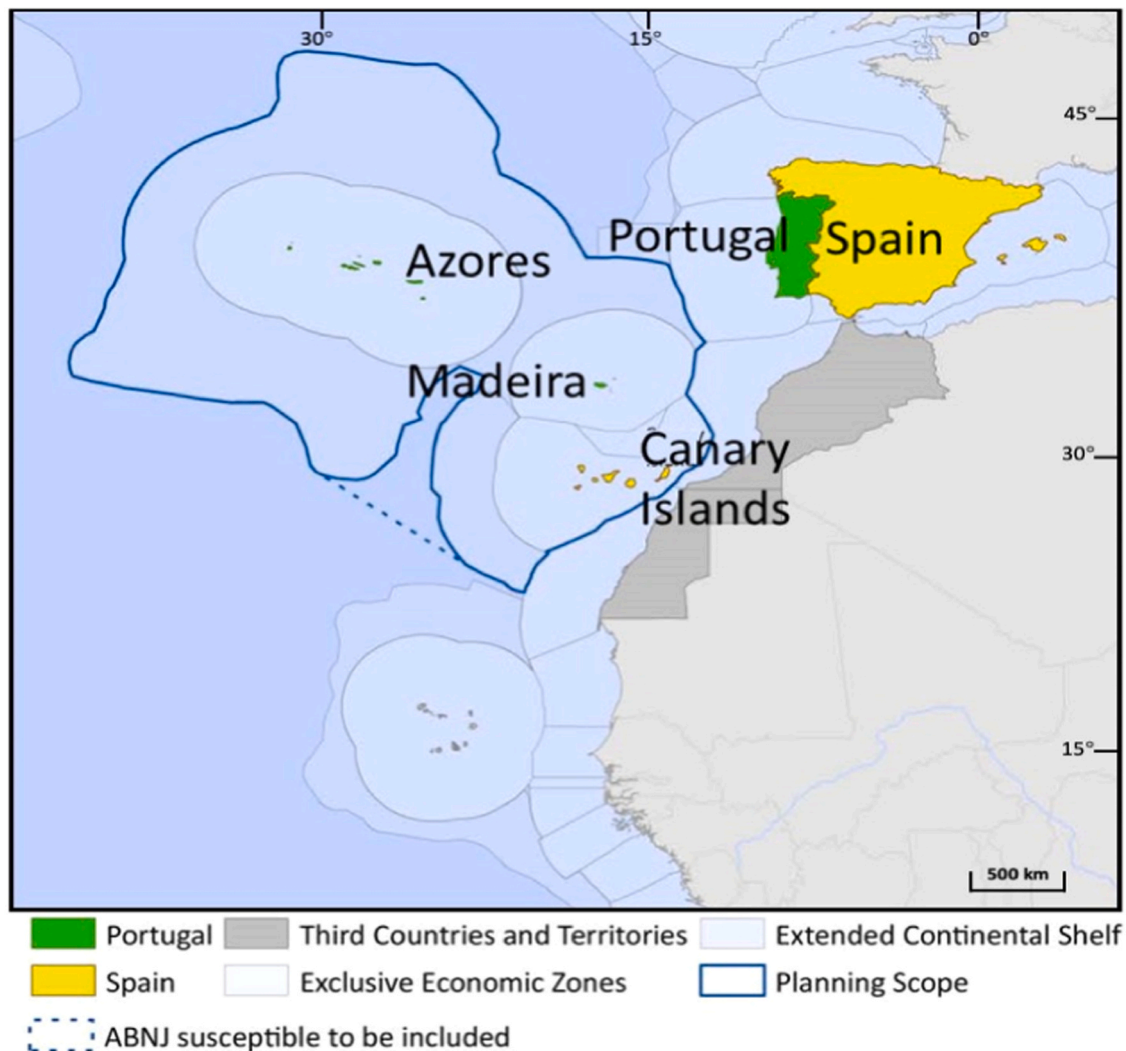


Fig. 1. Scope of the study area within the European Macaronesia. (Source: adapted from MarinePlan).

composed of two Portuguese archipelagos (the Azores and Madeira) and a Spanish one (Canary Islands), was chosen as the study area (Fig. 1).

The three Atlantic archipelagos, located off the coast of Europe and Africa, share a common volcanic origin and gentle climate which create the perfect conditions for a rich array of both marine and terrestrial species and habitats [29]. These islands encompass a significant maritime region of approximately 4.5 million square kilometers. A mere 3.3% of Portuguese territory, in the Azores and Madeira, is responsible for 82% of the Exclusive Economic Zone (EEZ) of the country. In comparison, the Canary Islands (1.4% of Spanish territory) project 46.6% of the national EEZ [30].

The Macaronesia marine ecosystem is a vast biogeographical region, including Cabo Verde Islands and a marine area in front of the African coast. Within it, the European Macaronesia share ecological, political-administrative, and socio-cultural features. Also, shared problems and common interests connect this marine region [10]. Some of those are derived from their joint conditions of insularity, oceanic isolation and outermost European context [10,31]. In light of this, the European Macaronesia Ocean can be understood as a socio-ecological system, and was considered to set the scope of this research. The connection to third countries was also attended.

2.2. Methodology

The participatory process was part of the MarSP project methodology (Fig. 2), and its results also take advantage of previous efforts developed by all project partners. Differences were made between the participatory processes carried out at the local level, supporting MSP in each archipelago, and the one at the regional level, described in this paper. The latter, where the whole socio-ecological system of the European Macaronesia was covered, focused on cross-border cooperation.

Divided in three stages, two lines of work were developed in parallel, with a technical-scientific process of gathering information supported in (and to support) a participatory process with a regional perspective (Fig. 3).

2.3. Stage 1: identification of main issues of interest

Initially, an analysis of the European Macaronesia Ocean (name given to the SES) enabled to characterize current state of socio-ecological processes [10]. Such diagnostic was performed according to the Drivers-Pressures-State-Impacts-Welfare-Response (DPSIWR) model, based on ecosystem services and human well-being [32,33].

Information collected was represented in a Macaronesia Atlas [30], and included in a survey filled out by the attendees to a first participatory workshop on each archipelago (Appendix A). Participants were also asked if they were willing to be part of a Macaronesia working group (WG) to be involved on MSP cross-border participative process.

2.4. Stage 2: pilot projects' proposals for MSP

Seven pilot projects' proposals were designed based on the first workshop results and previous technical reports (Appendix B). Such proposals were evaluated by local stakeholders on a second participatory workshop for each archipelago. Simultaneously, a series of 'Recommendations to promote cross-border MSP in the European Macaronesia' were reviewed to compile good practices from similar case studies [28]. Lastly, a final discussion of pilot projects was made combining technical criteria and stakeholders' input.

2.5. Stage 3: proposing a cross-border MSP pilot program for the European Macaronesia

The research team elaborated a proposal for a cross-border MSP program in the European Macaronesia, evaluated during a third participatory workshop. Unlike previous meetings, in this one the Macaronesia Working Group (WG), composed of experts and representatives from the three archipelagos, gathered for the first time. The pilot program was reviewed, and suggestions were incorporated, some of them coming from the Action Plan elaborated by the Macaronesia WG and MarSP partners.

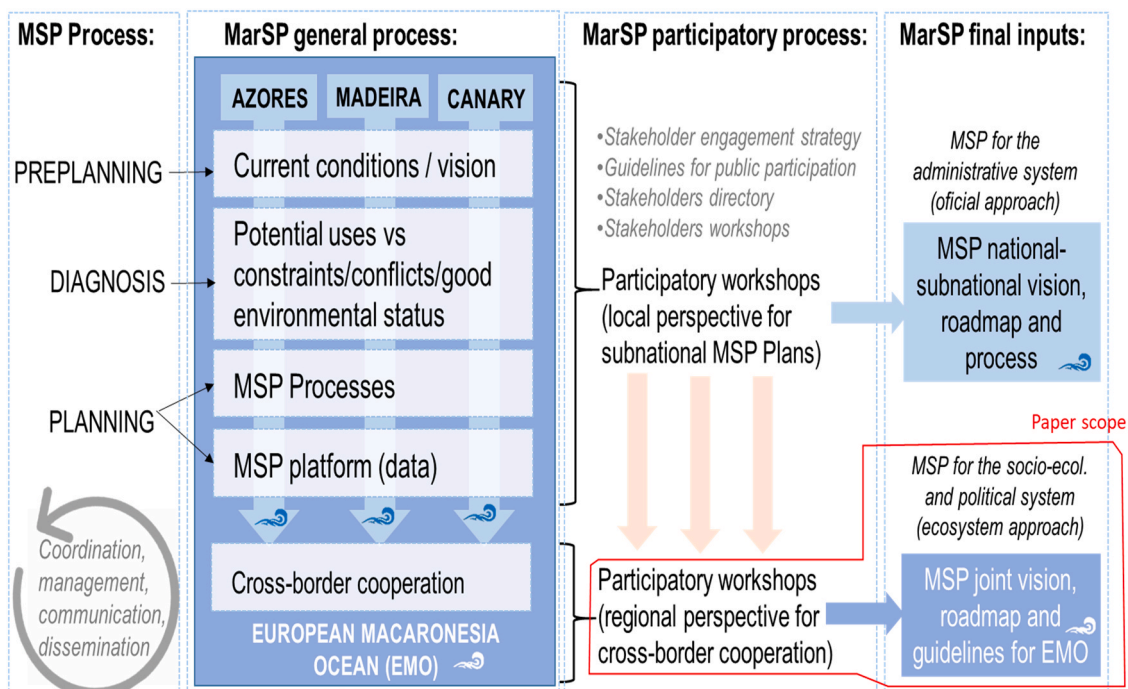


Fig. 2. MarSP project methodological scheme to contextualize the paper' scope.

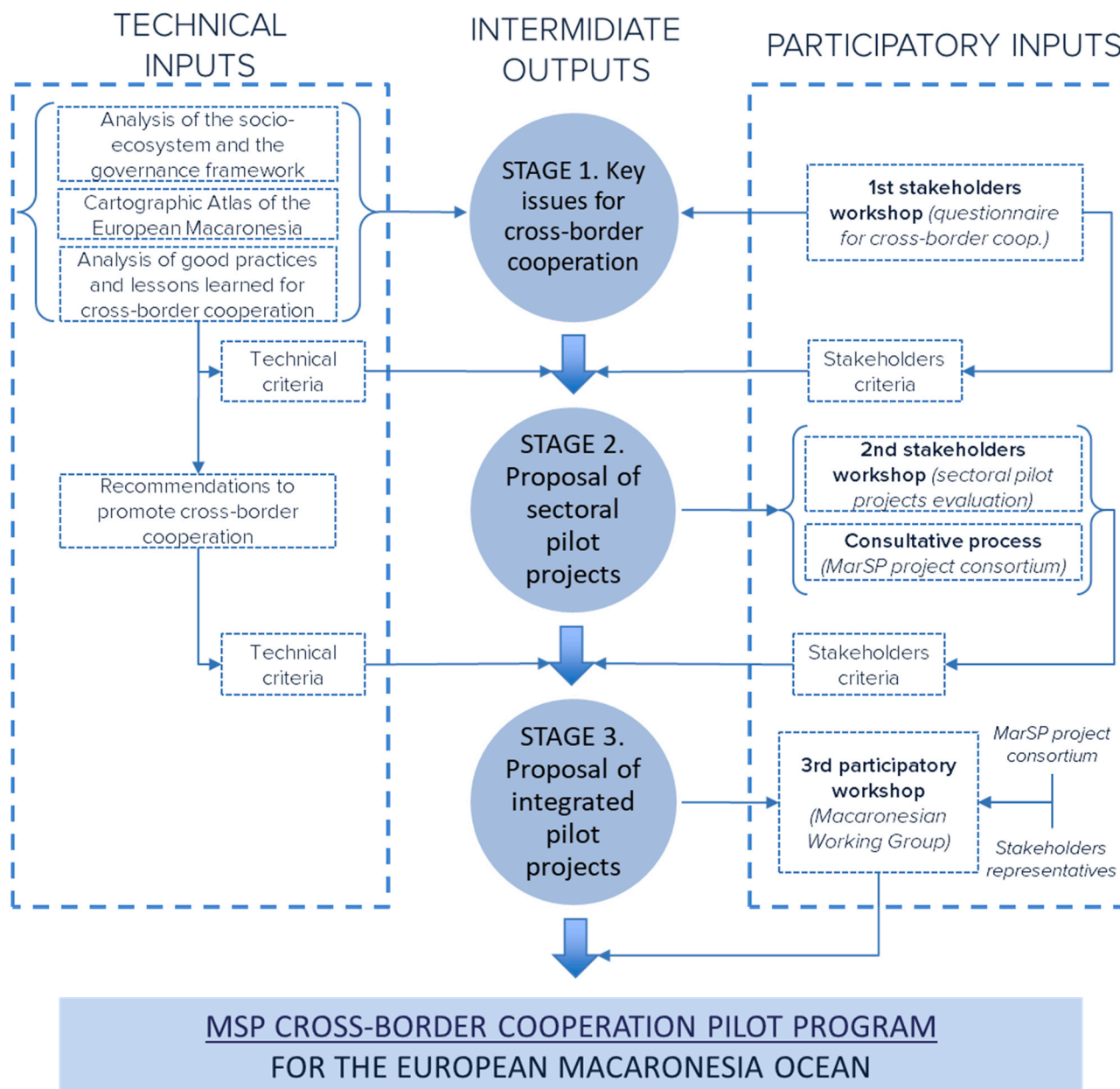


Fig. 3. Methodological scheme for the cross-border participatory process in the Macaronesia Ocean.

3. Results

3.1. Stage 1: identification of main issues of interest

A total of 196 surveys were filled out by stakeholders; divided by archipelagos, 25.5% of the questionnaires were collected in the Azores, 47% in Madeira, and 27.6% in the Canary Islands. The difference observed in Madeira was related with the use of an online survey that was not used in the other archipelagos. After the first workshop in this island, it was decided to make an extra effort due to the misrepresentation of certain stakeholders. At the end, this situation explained the final over-representation of Madeira. The analysis of these surveys allowed to identify the most relevant issues for cross-border MSP (Appendix A). Attendees were classified by typologies of actors (i.e., business, civil society, public administration, and science) or coastal/marine sectors (i.e., conservation, culture, energy, fisheries, ports and transport, research, safety and surveillance, and tourism and leisure). The first classification showed a relatively homogeneous distribution of

representatives (Fig. 4a). Nevertheless, the previous four types of actor (public administration, science, business, civil society) can be divided in the different sectors these actors belong to. Then, it is possible to observe in this second classification of stakeholders that the process was dominated by participants from the conservation, fisheries, research, tourism, and leisure against those from culture, energy, and safety and surveillance (Fig. 4b).

Participants evaluated marine uses and activities following a high, medium, and low scale. The issues related to conservation, fisheries, maritime transport, and research were recognized as the most critical (average of 2.5 or higher) for transboundary cooperation (Fig. 5). Defense/Military was considered as the least relevant issue for stakeholders. Generally, each maritime sector evaluated their sector as a crucial matter for cross-border cooperation.

3.2. Stage 2: pilot projects' proposals for MSP

The results of the first workshop were incorporated into previous

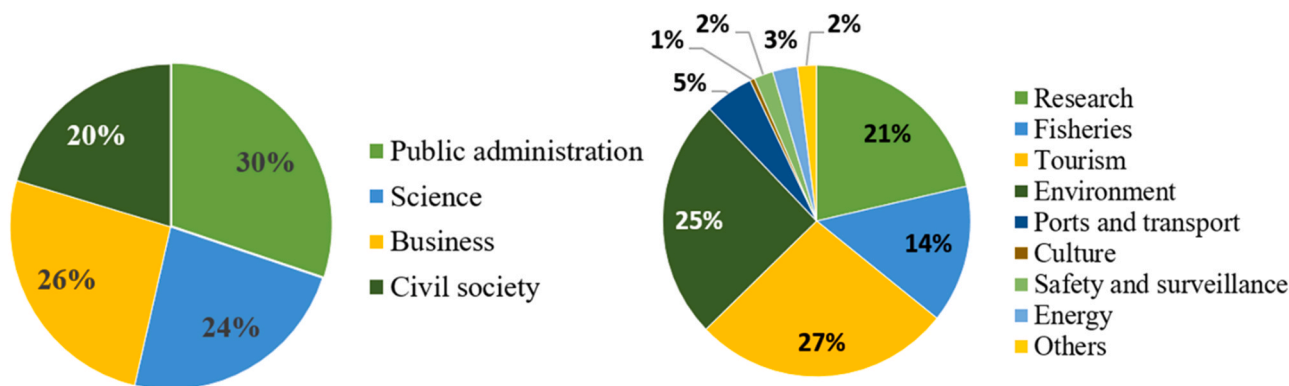


Fig. 4. First workshop participation (%) according to a) types of actors and b) coastal and marine sectors.

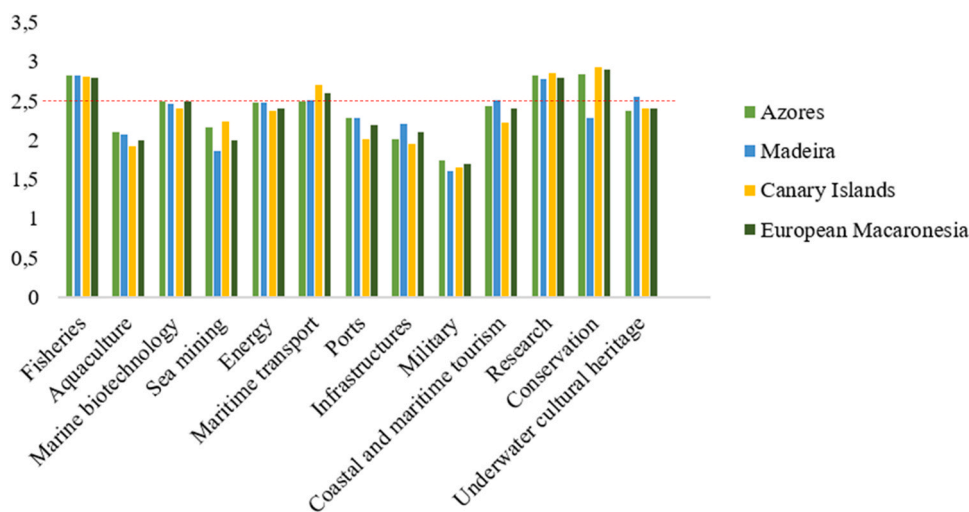


Fig. 5. Evaluation of the importance of relevant issues for cross-border MSP.

research (i.e., socio-economic and governance diagnostic, European Macaronesia atlas, and lessons on cross-border cooperation). All this information fed into the development of seven pilot projects' proposals (Table 1, available in detail in Appendix B), designed to promote cross-border MSP and with significant support in consolidated projects and

Table 1
Cross-border pilot projects' proposals.

N°	Main Topic	Name and key concepts
I	Conservation	Marine protected areas' network within the Macaronesia region (biological corridor, marine ecotourism)
II	Coastal/marine tourism	Cross-border coop. on blue tourism (ecotourism, good practices exchange)
III	Safety, surveillance, and marine pollution	Cooperative, integrated actions for maritime security, surveillance, and marine pollution (security, pollution, shared resources)
IV	Fisheries	Cross-border cooperation on fisheries (surveillance, shared information)
V	Ports and maritime transport	Cross-border cooperation on ports and shipping (connectivity, cruising, routes, accumulated pressures)
VI	Governance	Management tools for regional coordination and cooperation in cross-border and international affairs (MSP cross-border coord./coop. body between Spain and Portugal)
VII	Research and training	Cooperation network for MSP research and training (technical training, higher education, applied research, technological innovation)

previous experiences in the region.

3.2.1. Second workshop: pilot projects' proposals evaluation

59 representatives participated in the second workshops (29 from the Canary Islands, 17 from the Azores, and 13 from Madeira). The difference of participants between the first and second workshop is important. The explanation can be related, on one hand, with the fact that the first workshop was related with a general participation event of MarSP project, and the second was specifically focused on cross-border cooperation. On the other hand, the observed difference can be also explained by the enormous dimension of the "Macaronesia Ocean" and the limited capability of maritime industries based on these archipelagos that are capable of carrying out their activities in cross-border areas. Then, although the same stakeholders were called to participate to the second workshop, some of them could understand that cross-border MSP was too far from their interests. The same reason can explain that stakeholders from public administration and science were better represented in the second workshop (Fig. 6).

The workshops dynamic consisted on the evaluation of the seven pilot projects' proposals by voting individually, by groups and collectively (Appendices C, D, E). Between these moments, debate was promoted to enable information and knowledge exchange (Table 2).

The participatory process was mostly dominated by public administration (43%) and science (38%) representatives, with a minor attendance of participants from business and civil society (Fig. 6a). Although the second workshop had more participation of stakeholders from administration and science, the identification of the issues to be faced in

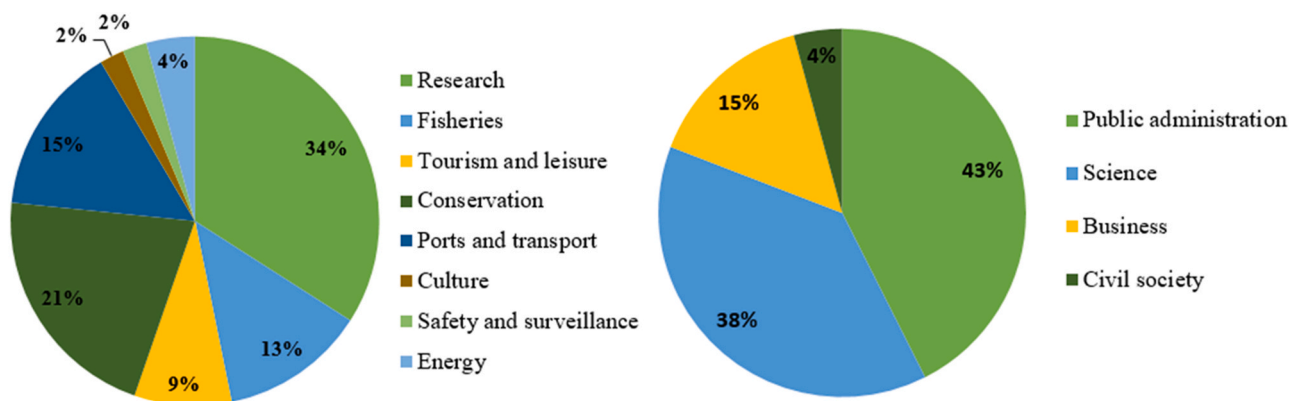


Fig. 6. Second workshop participation (%) according to a) types of actors and b) coastal/marine sectors.

Table 2
Stages, objectives and techniques used during the second workshop.

Stages	Technique used	Objective / result
Individual work (<i>acquiring knowledge</i>)	Brief questionnaire to be filled out by participants	Participants acquired knowledge about pilot projects' proposals to evaluate them.
Groups work (<i>collective learning, exchange of ideas</i>)	Groups debate, two moderators per group	Participants, divided into tables of 8–10 people, debated pilot projects' proposals suitability for cross-border cooperation. Such debate was designed to share and exchange information and personal experiences. Collective learning was promoted to offer various points of view (different from initial approaches).
	Groups voting, led by moderators to guide and record agreements	Participants tried to reach consensus with other group members. Each group was organized to ensure a fair representation of stakeholders from different sectors. Double result: groups agreements were achieved, and linkages between stakeholders were strengthened.
Collective discussion and voting (<i>promoting collective learning leading to a result</i>)	Collective debate and voting, last individual voting on a shared panel	Collective results were achieved by all participants, which was the final objective. This information was used as a basis for a transboundary MSP program. Each participant had green stickers to vote the three most suitable pilot projects' proposals. They also had red stickers to point out those proposals which should not be developed. The result was a point cloud indicating collective stakeholders' priorities.

(Source: Authors).

the proposed projects was made during the first workshop surveys. In this sense, there is a good representation of all interests in the initial set of proposals.

Following the same scheme, research (34%) and conservation (21%) representatives comprised over half of the participants, against a low representation of other coastal and marine sectors (Fig. 6b). Percentages

variation regarding science and research were linked to the difference in the number of categories within each classification (type of actor vs coastal/marine sectors).

Individual votes were analyzed according to the two classifications above-mentioned, showing the same results independently of the types of actors or coastal/marine sectors involved. Those attending the Azores workshop selected conservation (I), while both participants from the Canary Islands and Madeira preferred research and training (VII) (Fig. 7).

Next, groups votes revealed differences amongst the three archipelagos to choose the most suitable cross-border cooperation proposal. Participants from the Canary Islands voted for security, surveillance, and marine pollution (III). In Madeira, attendees preferred research and training (VII); while those in the Azores selected governance (VI). Apart from these proposals, some suggestions were also added by participants. A multidisciplinary approach for coastal and marine issues was declared paramount. Also, an up-to-date integrated marine database would play a critical role in promoting a coherent legal framework.

The suggestions were related to the stakeholders' background with each group developing a particular agenda (e.g., conservation, cultural, fisheries, and offshore energy, amongst others). Another vital step of the participatory process was the group's debate, which was not possible in the Canary Islands workshop due to time constraints. During the debate, the strengths and weaknesses of pilot projects' proposals were summarized (Table 3).

Compared to the individual voting, the collective one showed much more aggregated results (Fig. 8). Differences between both confirmed information exchanges during the debate stage. Pilot projects' proposals more valued were governance (VI); research and training (VII); conservation (I); and security, surveillance, and marine pollution (III).

Moreover, importance, urgency and necessity criteria were applied to the seven proposals, aligned with previous results of the most valued initiatives (Fig. 9). A detailed analysis per archipelagos revealed variations between the most voted proposals and those chosen at the end of the participatory process. For instance, the participants of the Azores initially chose pilot project proposal conservation (I), but governance (VI) was selected as the most necessary. Such difference could be linked to the cross-sectoral character of the latter vs sectoral approaches.

3.3. Stage 3: proposing a cross-border MSP pilot program for the European Macaronesia

3.3.1. Working group for cross-border cooperation

The chosen proposals should be combined and reviewed by a cross-border cooperation Working Group (WG) from the three archipelagos. To choose who should join this WG is not an easy task. Indeed, in one way or another, almost anyone can be influenced by changes in the marine areas [34] especially in small island archipelagos. For this

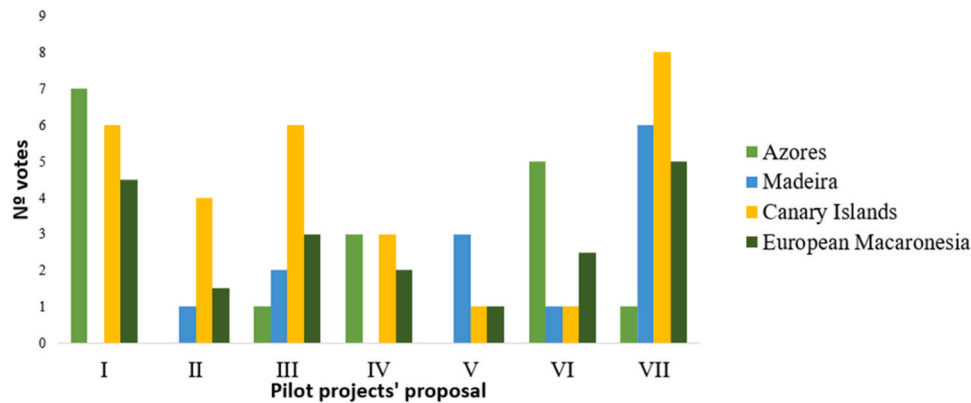


Fig. 7. Pilot projects' proposals individual voting per archipelago and the European Macaronesia.

reason, in a first stage, all relevant stakeholders were identified, in order to develop a complete (as much as possible) set of representatives of all marine interests in each region. As a result of applying the Public participation guidelines and the Engagement strategy for MarSP Project [35,36], it was possible to obtain a first large directory of key stakeholders. Those were actively involved in the first workshops and in the survey previously described. Then, the WG member's selection was based, firstly, on the guidelines already used for the stakeholders' directory, methodology form participatory process' workshops, and information from surveys filled out during those workshops by the stakeholders. In those surveys the participants were asked about their interest in being part of a working group for cross-border cooperation in the Macaronesia.

However, the process of discussing specific pilot projects for cooperation, as well as the construction of a cooperation program in MSP was a very specific task and a subject of certain complexity. To these, it was added the complexity, in time and resources, of coordinating a participatory process at the scale of three archipelagos that belong to two different countries. That is why a second filter was applied to the initial directory based on 10 criteria shown in Fig. 10. The objective was to identify the participants that would allow a process based on prior knowledge of the MSP and cross-border cooperation, that have the willing and interest in participating, and to select those with the greatest possible impact on its future implementation.

For the first, more objective criteria, the project partners in the archipelagos applied the classification criteria initially defined in the development of the stakeholder directory (35, 36). Regarding the subjective criteria (criterion nine and ten), there has been considered aspects such as the constructive nature and willingness to collaborate of stakeholders. For this end, from the above pre-selection list a recommendation of three people per archipelago (two main and one alternate) has been requested from the project partners of each archipelago, as they know better their local stakeholders.

As an exclusion criterion, there would be non-availability to travel and being a member of the MarSP project consortium. The latter applies because the consortium partners may participate in the work of the WG by default, if they are interested in it, provided by the budget of their WP.

At the end, two stakeholders from each archipelago participated in a final workshop together with MarSP Project experts and advisers. Thus, the Macaronesia WG included stakeholders from productive sectors, public administrations, research centers, and social organizations from the Azores, Madeira, and the Canary Islands. Representatives from national organizations with MSP competences and international organizations (i.e., IOC-UNESCO, DG MARE-EU) were also part of the WG.

3.3.2. European Macaronesia Ocean Pilot Program: Macaronesia Working Group final discussion (third workshop)

The third workshop was preceded by an analysis and consultative process, carried out by MarSP experts. The Macaronesia characteristics (i.e., insularity, oceanic isolation, and outermost character) made difficult to find cross-border pilot projects based on spatial competition. Despite this, numerous antecedents of cooperation between the archipelagos were found, but considering its lack of continuity, it was suggested to structure MSP transboundary issues in a stable and transversal program.

With that in mind, a draft of a *Cross-Border MSP Pilot Program for the European Macaronesia Ocean* was presented in the third workshop. Such a program consisted of the most voted pilot projects in the previous participatory process, including the contributions received by stakeholders. The WG worked during the third workshop held in the Azores, to improve this joint proposal for transboundary cooperation. Finally, this process allowed to construct *The Cross-Border MSP Pilot Program for the European Macaronesia Ocean* (Table 4).

Representatives from the three archipelagos, members of the Advisory Board, and project partners assisted this workshop, with a total of 31 attendees. The workflow was divided into three stages:

- *Analysis and improvement of the Cross-Border Cooperation Pilot Program.* A dynamic was created to debate the different proposals and agree on new ideas for the Strategic Action. In total, 45 proposals for the improvement of the program were agreed.
- *Cross-border Cooperation Pilot Program Action Plan.* To prioritize the actions to be planned, participants marked three specific objectives that met the following criteria: most important, urgent, and with more leverage capacity (Fig. 11). The most **important** objective noted was "To obtain continuous scientific information, from a socio-ecological and management perspective, oriented towards decision-making". The most **urgent** objective marked was "To obtaining consistency between MSP plans in cross-border areas or issues (...), establishing mechanisms to coordinate MSP plans". Finally, the objective identified with maximum **leverage capacity** was "To establish political will and social support for cross-border cooperation".
- *Possible ideas to mainstream cross-border cooperation.* Participants discussed the options to make cross-border cooperation official, aiming to put the program into practice. Ten ideas were proposed as a result of the debate.

Results allowed the consolidation of the program (the final version shown in Table 4) and facilitated its development in a proposal report [37].

Table 3
Pilot projects' proposals groups debate by the Azores and Madeira participants.

	Pilot projects'	Strengths	Weaknesses
AZORES	Conservation (I)	<ul style="list-style-type: none"> - Proposed by two groups. - High amount of biodiversity projects. - Strong Macaronesia institutional basis. 	<ul style="list-style-type: none"> - Fragmented public administration and competencies related to marine issues management. - Lack of adequate surveillance system for endangered species.
	Fisheries (IV)	<ul style="list-style-type: none"> - Proposed by one group. - Strong historical alliances between Portugal and Spain in the Macaronesia. 	<ul style="list-style-type: none"> - Lack of control and complexity of fisheries management mechanisms.
	Governance (VI)	<ul style="list-style-type: none"> - Proposed by two groups. - Necessity of proactive approach to systematize problem analysis. - Search and implementation of solutions. 	<ul style="list-style-type: none"> - Creation of unofficial structures which could influence negatively at the international level. - Local population had "turned their backs to the sea".
	Research and training (VII)	<ul style="list-style-type: none"> - Proposed by one group. - Possibility of co-management thanks to similarities between Portugal and Spain. 	<ul style="list-style-type: none"> - Lack of compliance of SMART objectives which precludes adequate, efficient monitoring.
MADEIRA	Security, surveillance, and marine pollution (III)	<ul style="list-style-type: none"> - Proposed by one group. - Cross-sectoral characteristic transboundary cooperation. 	<ul style="list-style-type: none"> - High amount of resources and materials needed to tackle IUU fishing.
	Ports and transport (V)	<ul style="list-style-type: none"> - Proposed by one group. - High socio-economic impact sector. 	<ul style="list-style-type: none"> - No information was provided by stakeholders.
	Governance (VI)	<ul style="list-style-type: none"> - Possibility to develop different sectors such as fisheries, tourism, and trade. - Proposed by two groups. - Existing political linkages between the European Macaronesia archipelagos and Cabo Verde. - Possibility of establishing a marine environment legal framework. 	<ul style="list-style-type: none"> - Marine competences are shared unevenly within autonomous regions of Portugal and Spain. - Difficulty in reaching political agreements.
	Research and training (VII)	<ul style="list-style-type: none"> - Proposed by two groups. - Huge potential for Macaronesia blue economy, particularly for marine research. 	<ul style="list-style-type: none"> - Lack of political will, human and financial resources, together with high costs derived from marine research.

4. Discussion

4.1. Public participation as a tool for cross-border MSP

A shared vision can lay the foundations to guide cross-border MSP processes. Maritime sectors should be involved to identify priority issues for transboundary cooperation. Besides, as previous studies state, the

involvement of all stakeholders had to be considered [38]. Therefore, incorporating a wide range of stakeholders will help a better understanding of MSP processes [39]. By doing so, empowerment and support of future cross-border MSP initiatives will be improved, responding to the primary needs of the region. This does not preclude the existence of mismatches between national governments. Thus, the participation of island communities is fundamental to avoid conflicts between policies at different levels [40].

The participatory process for cross-border MSP in the European Macaronesia succeeded. It enabled stakeholders to learn about the MSPD and opportunities for cross-border cooperation in this marine region. Existing knowledge gaps precluded high participation during the early stages of the process. Additional efforts were made to include them, e.g., contacts by phone, email, and personal networks. Thus, priority issues identification is vital to generate transparency and trust in the whole process [38]. Possible constraints during a public participation process may be overcome thanks to the stakeholder engagement strategy and guidelines for public participation [35,36].

Early stakeholders' involvement offers multiple benefits such as avoiding potential conflicts; identifying priorities, challenges and opportunities for transboundary cooperation [41]. Cross-border MSP is influenced by the degree of motivation; available information, and stakeholders' capacity to participate effectively. Nevertheless, these limitations, along with cultural and methodologies differences, might enrich the process with new solutions [42].

Public participation enabled the collection of information on cross-border challenges in the European Macaronesia. Throughout the process, the following issues were raised: different legal frameworks, institutions, and national interests; lack of resources, control, audit, and information exchange. Conversely, the opportunities are numerous and diverse: joint projects (e.g., border area control, rescue, and audits; conservation and MPAs; regulating, planning uses and activities); sharing knowledge to find solutions, and standardization of collected information to compare results. Previous research shows the importance of participatory processes in MSP, not only in the proposal phase but also during the evaluation of the proposals made [43].

Within the European Macaronesia, stakeholders with similar cultural characteristics shaped by their conditions of insularity and isolation, coincide in pointing out fishing, research, and conservation as the three main issues for cross-border MSP. Cooperation in these fields may take place without defining its spatial dimensions and are fundamental to start the stakeholder engagement MSP process [41]. In the case of fisheries highlights other participative processes implemented to reach agreements between different sectors related to the fishing activity [44].

It must be understood that the "Macaronesia Ocean" comprehending the Portuguese and Spanish Atlantic archipelagos is of enormous dimensions. Also, the maritime industries that are capable of development on small outermost islands are not very diverse and are of limited size. Thus, there are not many maritime activities capable of carrying out their activities in cross-border areas. This does not mean that there is no need for cross-border cooperation. On the contrary, an area of such dimensions requires close cooperation to understand what is happening. For example, there are migrations of tunas or cetaceans that migrate across archipelagos [45,46]; there is also a great deal of interest in sharing data and information on the effects of climate change on these islands, which are so exposed to changes in weather patterns; or in the distribution of species and currents.

Finally, the usefulness of public participation in transboundary MSP processes is also essential to involve stakeholders in the enforcement of the measures adopted. It should not be forgotten that monitoring or access to information in a large marine environment is extremely difficult without the collaboration of users [41].

4.2. The European Macaronesia Ocean as a joint initiative

Beyond the obligations established by the European normative

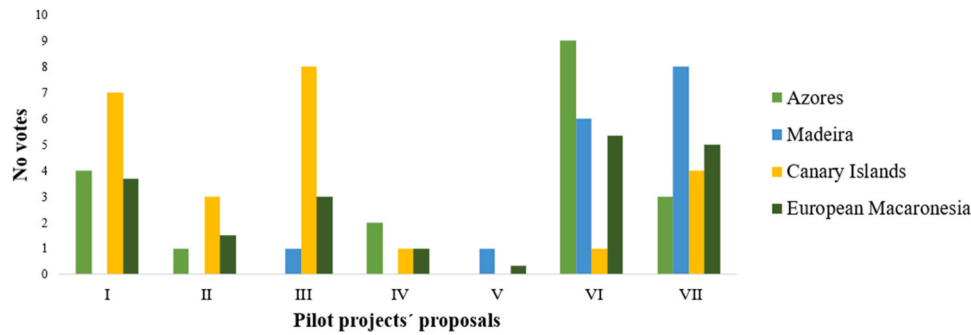


Fig. 8. Pilot projects' proposals collective voting per archipelago and the European Macaronesia.

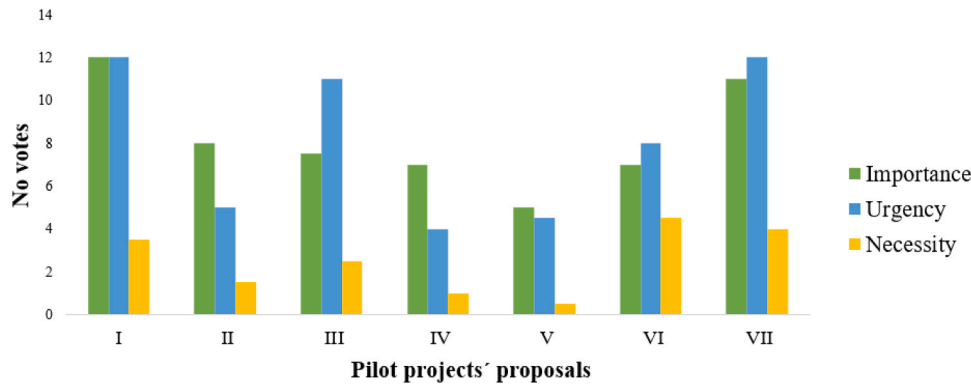


Fig. 9. Importance, urgency, and necessity criteria applied to pilot projects' proposals.

(MSFD and MSPD) [15,16], cooperation is broadly justified in the fundamental structural principles and values of the common European space. The EU philosophy itself is based on the assurance of a “space of freedom, security and justice without internal borders” for its citizens (Treaty of Lisbon) [47]. Both the Treaty of Lisbon and the Charter of Fundamental Rights of the EU [47,48] serve to remind us that the European project implies “balanced and sustainable development” with “[the well-being of] people at the center of their activity”. Moreover, key within the whole EU project lies the spirit of “integration”, which aims to go beyond cooperation between sovereign states, to facilitate work in a space that is already common. This therefore implies a broader and more comprehensive concept of territory management, which is further reinforced by the continuous and dynamic nature of marine space. Without undermining the sovereignty of the States, the spirit, the philosophy of integration of the EU is transferable to the marine region of the European Macaronesia and it is therefore essential that collaborative efforts are driven forward.

The European Macaronesia Ocean introduces a space, with shared common elements in the ecosystem, socio-cultural and political-administrative aspects. Cross-border cooperation proposes a dialog between European institutions consider borders as union spaces. From this perspective, Spain, and Portugal, through their institutions, are responsible for ensuring the welfare and future of European citizens who reside there. With their respective plans and instruments, they establish a particular vision that is specific and adapted to the uniqueness and identity of each archipelago, but with the added vision of joint and broader collaboration. This common approach also aims to strengthen the role of both states in an outermost space, separated from other European borders [10].

Nevertheless, an official basis for defining transboundary cooperation areas remains to be approved. The Transboundary Planning in the European Atlantic (TPEA)¹ project recommends a series of guidelines: adaptive rules not necessarily focused on jurisdictional limits; areas to be covered; relevant issues; stakeholders opinions; transboundary patterns for activities, governance aspects, and geographic characteristics [42].

A shared position of the European Macaronesia can be also an opportunity to defend the maritime interests of these archipelagos in national, European, and international forums. Indeed, given its geo-strategic position, Macaronesia could play an important role at global forums regarding international governance of the oceans. Also, working in association with regional and international organizations with technical knowledge and experience, will promote opportunities for development of emerging sectors, and will facilitate the realization of joint actions in areas of common interest.

Cross-border cooperation is a challenging task even for those countries with advanced MSP processes. Such is the case of the Baltic Sea, with the BalticSCOPE project stating that adaptation is required for each context since there is no single method for cross-border MSP processes [49,50]. States have to accommodate diverse points of view, capacity and mandates, as well as managing uncertainties [51]. In line with this approach, a new program promotes pilot projects for cross-border MSP in the European Macaronesia. The initiatives are designed as a basis from which lessons could be drawn and further replicated. The main objective is to highlight transboundary cooperation benefits in the marine environment and, above all, identify areas of friction and opportunities.

Traditionally, pilot projects are assumed to be isolated operational

¹ The TPEA pilot project was part-funded by DG MARE with the objective of investigating the delivery of a commonly-agreed approach to cross-border MSP in the European Atlantic region from 2012 to 2014.

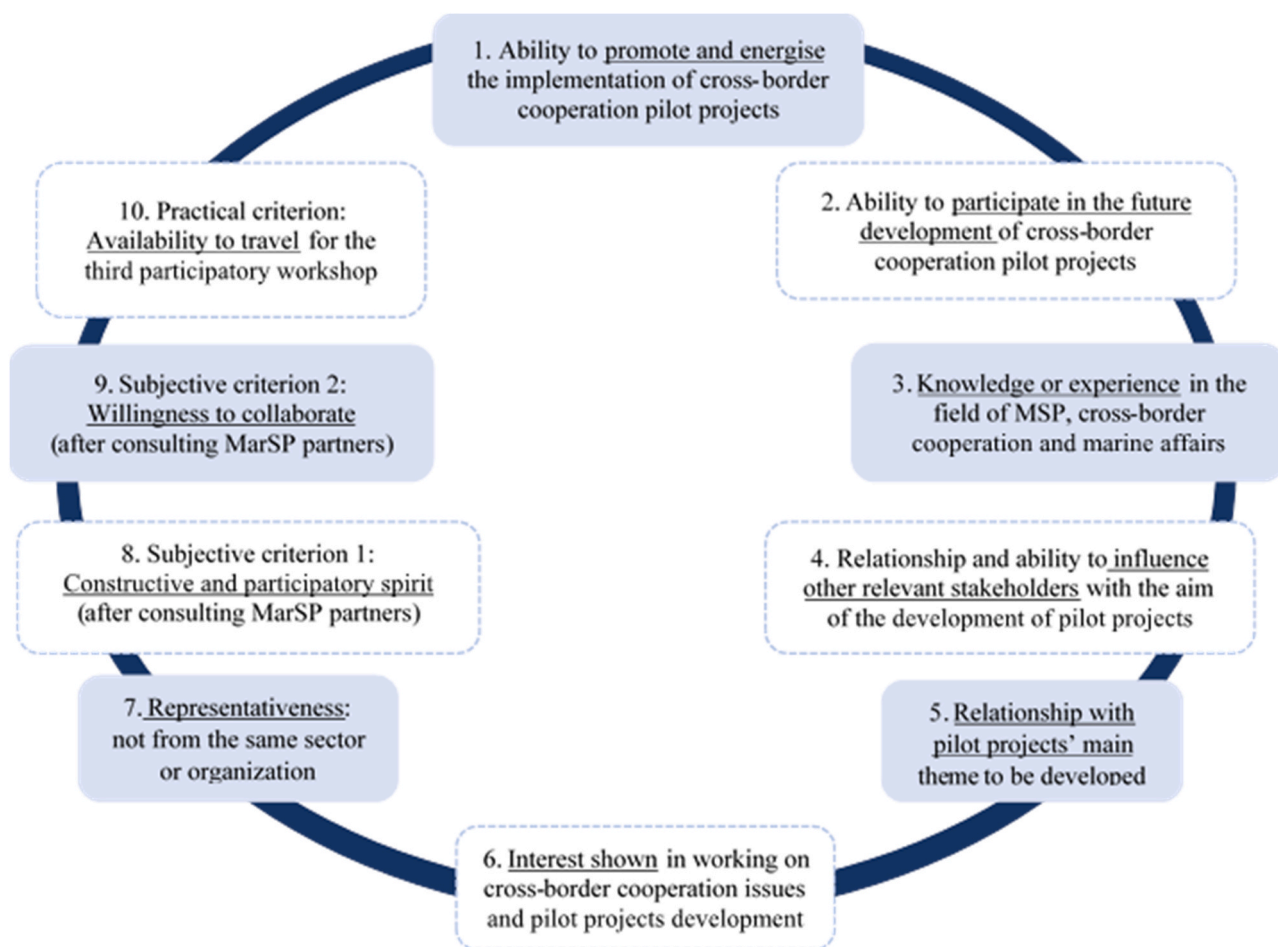


Fig. 10. Ten criteria used for final selection of Macaronesia WG members.

Table 4
Cross-border MSP pilot program for the European Macaronesia Ocean.

General Objective	Strategic Objectives	Specific Actions	Specific Objectives	Lines of Action
Building the European Ocean of the Macaronesia	Establish willingness to cooperate	SA ₁ Macaronesia Working Group	SO _{1,1} Promote participation for the creation of agreements between agents involved in the European Ocean of the Macaronesia	LA _{1,1} Creation of the Blue Macaronesia Forum
			SO _{1,2} Establish political will and social support for cross-border cooperation	LA _{1,2} Make proposals to influence, from citizen participation, the political will of cross-border MSP LA _{1,3} Establish mechanisms to coordinate MSP plans
	Provide instruments for cross-border cooperation	SA ₂ MSP Observatory for cross-border cooperation	SO _{1,3} Obtain consistency between MSP plans in cross-border areas or issues	LA _{2,1} Macaronesia Physical-Natural Observatory to monitor oceanic changes LA _{2,2} Macaronesia Policy Observatory to monitor planning and management LA _{2,3} Organization and dissemination of information about the European Ocean of the Macaronesia
			SO _{2,1} Obtain continuous scientific information about the ocean in the European Ocean of the Macaronesia, from a socio-ecological and management perspective, oriented towards decision-making	LA _{3,1} Control of marine pollution in MPAs and especially sensitive areas LA _{3,2} Control of surveillance and maritime rescue LA _{3,3} Control of activities related to the exploitation of marine living resources
Provide resources for cross-border cooperation	AE ₄ Macaronesia marine governance training system	SA ₃ Collaborative maritime safety & rescue system	SO _{2,2} Organize and disseminate the information to make it accessible to those interested in the European Ocean of the Macaronesia	LA _{4,1} Training program for managers on marine governance LA _{4,2} Training meetings for managers on MSP
			SO _{3,1} Promote continuous monitoring and control of marine pollution and safety in the European Macaronesia. SO _{3,2} Promote coordination and cooperation for fisheries surveillance in the marine environment of the region	
			SO _{4,1} Ensure the training and education of technicians and managers on cross-border MSP SO _{4,2} Promote the exchange of experiences between managers and technicians on MSP	

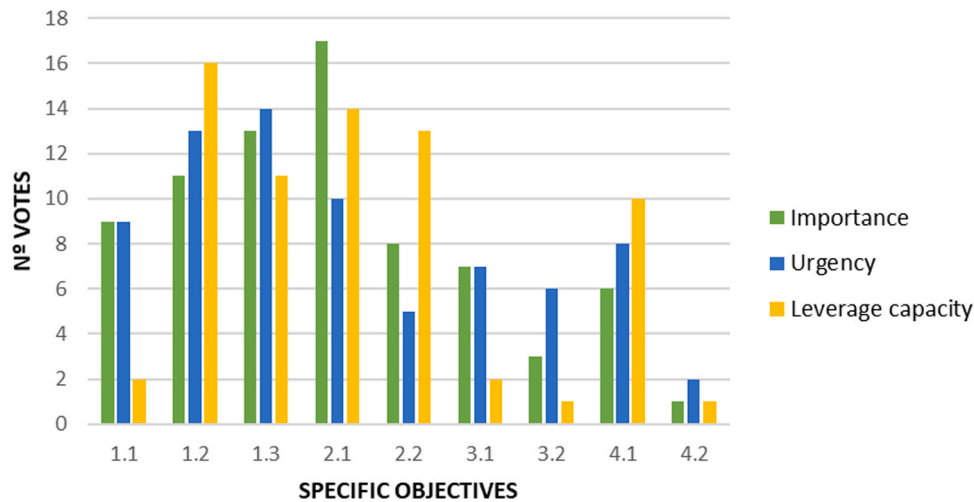


Fig. 11. Result of the second stage for the evaluation of the cooperation program (criteria for prioritizing actions).

initiatives, aimed at small-scale areas joint management [52,53]. In the Adriatic Sea, where regional pilot projects were carried out, the cumulative effects of different marine activities were studied [52]. However, management structures, organizational and collaborative systems based on strengthening cooperation are rarely tested. Moreover, it would be more useful to integrate them into the plans of border States, improving its applicability and later implementation. Such a step would be crucial to face management systems deficiencies, recorded as one of the leading causes of plans failure by the EU [54].

In the case of the European Macaronesia Ocean, the archipelagos do not share land borders and that are so far apart from each other that conflicts of space are less obvious. One of the general recommendations for cross-border cooperation in MSP is that it is not the best start to begin with insurmountable cases from the field of planning (border delimitations, for example) or those of more complex resolution [31]. Although there are arguments that justify the development of a spatial pilot project (conflicts between uses and economic interests), they cannot be addressed without prior political willingness. These cases could threaten the entire process and, in any case, could be addressed once cooperation has been generated. In any case, beyond thinking about cooperation "zones", there is no lack of transnational "issues" of shared interest that justify incorporating cross-border cooperation initiatives into the regional MSP plans (which do not exist now).

The *MSP Cross-border Cooperation Pilot Program for the European Macaronesia Ocean* structures a series of measures to develop cross-border MSP mechanisms (Table 4). The whole program focuses on strengthening marine governance in this marine region. Their proposals aim to complement the existing need of MSP plans to create alliances and collaboration tools amongst archipelagos. Thus, the pilot program has the purpose of creating synergies between different MSP plans in the marine basin, as well as complying with MSPD on cross-border cooperation.

5. Conclusions

The participatory process carried out to promote cross-border MSP initiatives can be seen as a success. Firstly, it has shown the high degree of agreement about priority issues amongst stakeholders from the Azores, Madeira, and the Canary Islands archipelagos. Local stakeholders selected conservation, fisheries, and research as the three top issues for transboundary cooperation on MSP. These matters were, therefore, considered as strategic pillars on which targeted actions could be built. Based on them, the cross-border MSP pilot program structured a

series of initiatives to strengthen marine governance in the European Macaronesia Ocean. Instead of proposing isolated sectoral projects, the program created actions as general logical efforts, linking them to a shared strategy and objectives.

A joint position of the European Macaronesia could also be an opportunity for its maritime interests in national, European, and international forums. Indeed, given its geostrategic position, this marine region could play an essential role in international ocean governance. Besides, working in association with regional and international organizations (rich in technical knowledge and experience) would promote opportunities for emerging sectors and facilitate joint actions in areas of common interest.

The three archipelagos have been given the chance of building the European Macaronesia Ocean by developing a cross-border cooperation program. Such a strategy has been elaborated following a participatory process with different stakeholders. In Sum: rather than create new structures, the pilot program incorporates existing ones into MSP plans to make them more stable. The final goal is to go beyond temporary projects by adding transboundary cooperation into the institutional schedule itself.

Some lessons learned from the cross-border MSP initiative developed in the Macaronesia archipelagos are highlighted:

- It is possible to start cross-border MSP without defining spatial dimensions. Sharing information, coordination in surveillance, researching, etc., allows collaboration without defining spatial limits.
- The maritime territory in the case of archipelagos is of enormous dimensions. This situation makes difficult to local stakeholders to see the opportunity of starting a MSP cross-border initiative. And so, to incorporate them to a participative process requires an extra effort.
- Although the maritime territory of the archipelagos is large, it does not mean that there is no need for cross-border cooperation. On the contrary, it requires close cooperation to understand what is happening.
- The different archipelagos present similar cultural characteristics given by their similar conditions of insularity and isolation. This can make them coincide in pointing out shared needs for collaboration in a cross-border MSP initiative.

CRedit authorship contribution statement

Javier García Sanabria: Conceptualization, Methodology,

Investigation, Resources, Writing - original draft, Writing - review & editing, Supervision, Project administration, Funding acquisition. **Javier García Onetti**: Conceptualization, Methodology, Investigation, Resources, Writing - original draft, Supervision, Project administration. **Victor Cordero Penín**: Formal analysis, Investigation, Writing - original draft, Visualization. **María De Andrés**: Formal analysis, Investigation, Writing - original draft, Visualization. **Claudia Millán Caravaca**: Formal analysis, Writing - original draft. **Eleonora Verón**: Formal analysis, Writing - original draft. **Cristina Pallero Flores**: Investigation, Formal analysis.

Disclaimer

The conclusions, opinions and discussions contained in this paper are the sole responsibility of the authors and do not necessarily have to coincide with the opinion of the partners of the MarSP project.

Acknowledgements

This research was supported by MarSP Project (<http://marsp.eu/>) led by Regional Fund for Science and Technology (*Fundo Regional para a Ciência e Tecnologia* or FRCT) from the Government of the Azores, Portugal. It received funding from the European Union Maritime and Fisheries Fund (EMFF) by the GA EASME/EMFF/2016/1.2.1.6/03SI2.763106. It was also partially granted by Social Sustainable Development Research Institute (*Instituto para el Desarrollo Social Sostenible* or INDESS), University of Cádiz, Spain. Specially thanks go to MarSP project partners who organized the seven participatory events in the archipelagos. We want to express our gratitude to the Azores team from FRCT and University of the Azores, the Canary Islands team of ECOAQUA, Madeira administration, and Spanish Institute of Oceanography (*Instituto Español de Oceanografía* or IEO).

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.marpol.2021.104671](https://doi.org/10.1016/j.marpol.2021.104671).

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