Top-level institutional policies and their implementation at regional level – A difficult equation. The example of the social acceptability of aquaculture development in Malaga, Spain

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Aquaculture Reports 25 (2022) 101227

Contents lists available at ScienceDirect

Aquaculture Reports

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

Top-level institutional policies and their implementation at regional level – A difficult equation. The example of the social acceptability of aquaculture development in Malaga, Spain

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ARTICLE INFO

Keywords:
Social acceptability
Aquaculture
Governance
Participatory approach
Local aquaculture planning

ABSTRACT

Social acceptability has become an important issue, influencing public and private decision making in many different areas of society, including the management of uses of common marine resources and space. As these uses intensify and social interactions become more complex, effective governance is a prerequisite for sustainable decision making. Participatory approaches are broadly recognised as a tool for involving stakeholders in the decision-making process to increase the acceptability of collective choices. However, despite the recommendations of new governance frameworks which promote inclusive and democratic bottom-up approaches, there is an increased complexity to apply such approach at local level. This paper aims to capture this complexity through the analysis of the local agency-led participative process and ad-hoc interviews with coastal users to understand whether and how perception and attitudes towards aquaculture evolve throughout the process. Here we present the result of a 3-year collaborative action science-policy with the agency responsible to manage aquaculture in Andalucía region (South of Spain). Even though the effectiveness of this participatory process in aquaculture planning should be assessed over the long-term, here we have identified a number of social, environmental and economic elements that can generate local opposition, especially by traditional fishers. The paper highlights the fact that the inclusion of stakeholders in the decision-making processes is not sufficient ensure the acceptance of aquaculture development. The effectiveness of the participatory processes is limited by the lack of institutional frameworks to accompany these processes, by the insufficient skills and expertise in engineering participation of the Administration staff and the poor integrated vision in policy making. As a result, the lack of coherence between political objectives constructed on a national or European scale and the complex social reality of the territory scale can lead to social opposition as experimented by the aquaculture sector.

1. Introduction

Aquaculture development is one of the pillars of the European Union's "Blue Growth Strategy", forming part of its Integrated Maritime Policy (COM, 2007, 575). It is underpinned by maritime spatial planning and broken down into several marine regional strategies which focus on a wide range of objectives. One of the primary goals is to contribute to achieving Member States food security and to reduce dependence on imports. Europe is the second largest importer of seafood in the world accounting for 78% of the total in terms of value and for 71% of the total volumes (EUMOFA, 2021). Another goal of aquaculture development is to stimulate economic growth of maritime sectors, in line with the European Council's Europe 2020 strategy for smart, sustainable, and inclusive growth COM(2010) 2020 final).

In spite of strong political support for development, and after a rapid expansion from the mid 80 s to the end of the 90 s, the EU aquaculture sector has since stagnated and faces increasing difficulties despite measures taken by public institutions at different levels. Aquaculture production in Europe plateaued at around 1.2 million tonnes between 2000 and 2018, whereas global aquaculture production over the same

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https://doi.org/10.1016/j.aqrep.2022.101227
Received 11 November 2021; Received in revised form 23 March 2022; Accepted 15 June 2022
Available online 28 June 2022

period increased from approximately 35,6 million tonnes to 114,5 million tonnes (FAO, 2002, 2020). Fig. 1.

Slower growth in the EU's aquaculture sector can be explained in part by economic, regulatory, and bureaucratic constraints (Guillen et al., 2019). However, given the intensifying of anthropogenic pressures on coastal regions and the consequent rise of conflicts among users (EATIP, 2012) gaining acceptance by locals has become imperative. Unlike fisheries, aquaculture is not an exclusive EU competence, and its sustainable development is supported by non-binding strategic guidelines which are regularly updated. The first guidelines were agreed in 2002 to address the many weaknesses of the sector that prevent its further development. While it aimed at promoting a sustainable aquaculture, the social aspects, including benefits and impacts on existing activities, were barely mentioned. After almost twenty years, the recently published guidelines suggests Member States to address and "foster social acceptance and improved consumer information on EU aquaculture activities and products" (COM, 2021 236 final). Following the indications provided in these guidelines and to comply the European regulation, each Member State has to publish its Multiannual Strategic Aquaculture Plan every 5–6 years.

A similar stagnation can be observed in Spanish aquaculture which mostly operates in marine waters and is specialized in mussel production. Mussels accounted for around 80% of the country's 289,000 tonnes of marine aquaculture produced in 2020.[1] Farmed fish, primarily European seabass and gilt-headed bream, accounted for most of the remaining tonnage. In the case of Andalusia region, according to the latest statistics published by the regional administration (AGAPA, 2021), almost 6700 tonnes were produced in 2020, mostly finfish (seabass, bluefin tuna, seabream and, more recently, sole). This region is the fourth largest producer in Spain after Galicia, Valencia, and Murcia. More specifically, the production of aquaculture in the province of Malaga amounts to 640 t and has experienced a reduction of 22% in tonnage due to the exit from the sector of a big fish farming company. At present, only mussel production companies are still active.

The Andalusian coastline, especially the "Costa del Sol", is one of the most popular tourism destinations in the entire Mediterranean area, hosting a wide range of activities reliant on good environmental quality. Traditional fisheries are considered the most relevant traditional and cultural coastal activity contributing to the local food provision (Cavallo et al., 2020). Spain takes a federal-like approach to traditional fisheries and aquaculture management which are under the exclusive competence of the regional authorities. For this reason, Spain published a national Multiannual Strategic Aquaculture Plan (PEP, 2015) and a specific plan for each region. These plans address several matters including organisation of the industry, the environment, technical development, matching production to market needs, and financial measures to support the industry. Improving the sector's image and promoting its products are also key aspects of the strategy because there is thought to be a strong link between social opposition of aquaculture and the negative perception of this activity and its products (Cavallo et al., 2021). Selecting aquaculture sites as part of an overall spatial planning approach is also considered essential to the sector's sustainability. The regional competent authority in charge of fisheries and aquaculture, hereafter the AGAPA (Andalusian Agricultural and Fisheries Management Agency) estimated three scenarios of aquaculture production for the period 2012–2020: (1) a stable pessimistic scenario, (2) an optimistic scenario targeting + 82% of tonnage and (3) the best-case scenario targeting + 160% of tonnage (AGAPA, 2012). Nonetheless, according to the last data previously mentioned, the volume of production in 2020 was even lower than in 2012 (7687 t) reflecting the worst-case scenario.

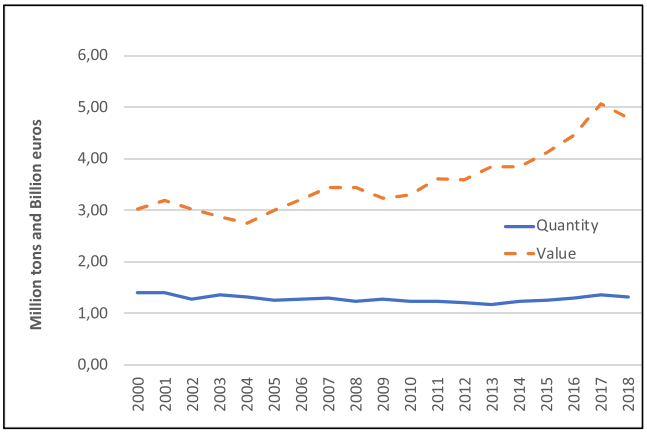

Fig. 1. Aquaculture production trends in the European Union. (Source: EUMOFA).

This paper addresses the social dimensions of this stagnation in aquaculture development using the social acceptability framework. The analyses conducted are based on a case study of regional aquaculture development planning of Andalusia in the framework of the H2020 MedAID project (http://www.medaid-h2020.eu). This paper has two major objectives. First, it will reframe the issues attached to aquaculture development in order to place social acceptability at the core. This abstract and multi-dimensional notion covers various matters, including the acceptability of aquaculture products, and the introduction of new technology and production methods. Here however, the focus will be on the often-ignored topic of governance and specifically, of involving stakeholders in the decision-making process in order to improve the social acceptability. Second, based on a survey implemented in Malaga, South-west of Andalusia, this paper analyses the operational way of addressing social issues in aquaculture planning through a consultation process conducted by the regional public authority in charge of drawing up regional aquaculture plans. This analysis is the basis for a diagnosis of institutional gaps, particularly in relation to governance, which are likely to strengthen, or at the very least fail to adequately address, emerging social opposition to aquaculture development.

2. Theoretical aspects of the social acceptability of aquaculture development

2.1. Social acceptability as a general concept

Social acceptability is a complex, vague and contradictory notion (Fortin and Fournis, 2013), often used to cover several synonyms with distinct legal and conceptual bases such as social acceptance, social licence, and informed consent (Batellier, 2015). It is used, often incorrectly, in many research fields and topics, in both the social and natural sciences. The growing success of the concept of social acceptability is linked to the apparent simplicity of the dichotomic nature of the term "acceptability"– which reduces it to acceptance or rejection. Responses to problems concerning social acceptability often focus on understanding the factors behind social opposition so as find ways of countering opposition. On the other hand, the term "social" is extremely flexible and encompasses many factors which are more difficult to address, particularly in a governance context.

Others works address social acceptability from the viewpoint of the social and institutional aspects of governance and the dynamics involved in the processes of social interaction (Shindler et al., 2004). Such interactions may take the form of social negotiations that lead to social acceptance or rejection (Fortin and Fournis, 2011) in the spheres of public and private decision-making. The importance of taking social concerns into consideration and involving stakeholders in governance is

[1] Data from the web portal of the Spanish Government https://www.mapa.gob.es/app/jacumar/datos_produccion/lista_datos_produccion.aspx?Id=es

nothing new. It has gained traction with the emergence of the concept of sustainability (Brundtland, 1987). Subsequently, Integrated Coastal Zone Management (ICZM) (Cicin-Sain et al., 1998; Billé, 2004) and the Ecosystem Approach (Anon, 2008) have deepened the ways in which questions of sustainability are addressed, by incorporating environmental, economic, and social considerations into the decision-making process. However, the concepts of integrated management and ecosystem-based management are often too abstract and complex and therefore rarely successfully implemented from an operational point of view (Yaffee, 1996; Arkema et al., 2006; Young et al., 2007). Given the intellectual ambiguity between concepts, processes tools and methodologies, Marine Spatial Planning (MSP) has emerged as a practical and tangible tool for the successful implementation of ecosystem-based management approaches in marine environments (Douvere, 2008). All the same, despite high hopes for MSP initiatives, recent studies have challenged their effectiveness and ability to adequately consider the issues and involve stakeholders in the decision-making process. Furthermore, and contrary to what it recommends, in practice, the approach encourages top-down processes and prioritises geopolitical objectives (e.g., Flannery and Cinnéide, 2012; Kyriazi et al., 2013; Jones et al., 2016). Doubt has also arisen about whether MSP initiatives can address questions concerning increasingly complex socio-ecological systems (Brugère et al., 2019). In other words, spatial planning processes for aquaculture, often based on producing spatialised technical data to inform decisions, have turned out to be inadequate and cannot replace the need for holistic, integrated, management processes.

Despite the changes brought about by recent governance frameworks, consideration of social issues and stakeholder involvement in decision-making processes are still key matters which have not yet been resolved. Today, social acceptability is coming to the fore as a framework, approach, or tool for addressing the social aspects of public policy, particularly when decisions are contested. Intuitively, this involves taking action to encourage the actors concerned to accept policy decisions. Social acceptability offers public and private developers a new framework that can help prevent the social rejection of projects.

The concept of social acceptability can also be understood as a way of strengthening participatory democracy (Gendron et al., 2016), in contrast to top-down policies based on imposing public and private decisions. Such social processes have supported the emergence of non-institutional political practices (Offe, 1985) that have forced public institutions to adapt social participation in institutional decision-making frameworks. Thus, social democracy strives to instil governance processes based on debate and the inclusion of stakeholders, making it possible to identify conditions which may lead to either the implementation or rejection of a project or policy decision (Saucier et al., 2009). According to Yates and Caron (2012), social acceptability enables stakeholders to take some ownership of the project and to contribute to it so that they are more in favour of it. Additionally, participation fosters trust among different actors and leaves stakeholders feeling more respected and that they have been consulted (Moffat and Zhang, 2014). The top-down rationale is thus replaced with a more horizontal approach (Fortin and Fournis, 2013).

Participatory processes can take various forms to suit different levels of stakeholder involvement. These include information, consultation, dialogue, and co-decision making (Ehler and Douvere, 2009). Dialogue and co-decision making are most conducive to social acceptability but co-decision making appears to be difficult to apply to large scale projects. To be successful, dialogue must adhere to several conditions, and reactions to it observed on the ground are important (Dionnet et al., 2017). Input from participants must have an impact on the decision-making process (Urvoas, 2015), objectives must be defined upstream so that participants are aware of the issues and can respond to them. All categories of stakeholder must be represented, and delegates must be sufficiently representative (Yates and Caron, 2012). To strengthen trust among participants, the process must be transparent (Moffat and Zhang, 2014), it must also be tailored to each territory and each specific case. Additionally, given that conditions can change over time, it must be possible to update the process.

2.2. Social acceptability and aquaculture

Social acceptability is a subject of increasing significance to natural resource management. However, it has barely been analysed in the field of aquaculture, an activity which interacts considerably with many other stakeholders. Concerning this sector, social acceptability is usually understood or expressed in terms of the acceptability of aquaculture products and the acceptability of production systems. The first topic mainly concerns production methods and the use of chemicals which may be potentially dangerous for consumers (Kuznesof and Ritson, 1996). Other issues concern food quality and consumer attitudes towards aquaculture compared to fisheries products (Kaimakoudi et al., 2013). In this sense, improving product acceptability requires proactive marketing and communication measures.

The second topic concerns the level of support or opposition to coastal aquaculture development. This is studied primarily by analysing perceptions, based on opinion polls designed to identify social acceptability factors for the sector. The literature points to two main factors observed across different case studies, namely the environmental impact and the economic impact on local communities (e.g., Mazur and Curtis, 2008, Whitmarsh and Palmieri, 2009; Freeman et al., 2012). The technological development of new production methods, particularly integrated multi-trophic aquaculture, offers a promising avenue for mitigating environmental impacts, increasing the industry's competitiveness and sustainability, and ultimately improving the sector's social acceptability in the eyes of local communities (Barrington et al., 2010; Alexander et al., 2016). This new paradigm requires a new organisational approach in terms of recognising the added value these production systems bring and the commercial exploitation needed to support transition to these new forms of production (Chopin, 2010). However, even if technological innovation is crucial to aquaculture development, it will not be able to respond to social issues and anticipate development biases by itself. Innovation provided by new production systems such as integrated multi-trophic aquaculture may improve the image of the aquaculture activity and products in a similar way than communication campaigns focusing on misperceptions. This technological innovation can also contribute to better acceptability through more integration and potential lower environmental impacts too.

The level of information about and familiarity the general public has with aquaculture is a key factor which influences individual attitudes to the sector (Robertson et al., 2002; Thomas et al., 2017). Communication and education about the positive effects of aquaculture can therefore facilitate its development. Nevertheless, the social debate inherent to aquaculture development is often led by key players who are in a position to capitalise on information that carries weight in the decision-making process. Because of this, the influence local communities may have on the debate can be limited (Billing, 2018). Moreover, social perceptions can be diverse and must be considered from every angle (Bacher et al., 2014).

Although information and social interactions are important mechanisms for reducing the social tension generated by aquaculture development, they can be viewed from two different perspectives. Firstly, there is the private sector and the proactive steps taken by businesses to improve their social integration in a territory. This is the field of corporate social, environmental and economic responsibility (Huemer, 2010). While the level of interaction between promoters and other stakeholders has become a key factor in increasing social acceptability (Katranidis et al., 2003; Sinner et al., 2020), simple information campaigns and consultations cannot be considered as definitive tools for influencing the public's attitude to more sustainable forms of aquaculture (Hynes et al., 2018).

Secondly, there is the sphere of public policy, insofar as the development of marine aquaculture uses collective spaces and resources

which have an impact on socio-ecological systems and on territories. Some studies highlight the positive effects of implementing site selection procedures that align with the opinions of local communities (Katranidis et al., 2003). AZAs (Allocated zones for Aquaculture) are therefore a useful instrument for developing aquaculture (Macias et al., 2019). However, the level of uncertainty that exists about the various aspects of aquaculture development also determines its acceptance or rejection to an extent (Kaiser and Stead, 2002). As a result, it is essential to establish participatory forums to discuss aquaculture development (Bacher et al., 2014) as part of the integrated management procedure. Such forums help reduce existing doubts in all strata, including industry, consumers, institutions, and citizens.

From a governance perspective, one of the main challenges is the regulation of access to common spaces and resources where aquaculture is in competition with other activities. The complexity of this issue is exacerbated by intensifying use and the diversity of other issues at play in coastal regions. This often leads to social conflict, ranging from disagreements between users to challenges to policy decisions. As Agenda 21 highlights, widespread involvement of the public in decision-making is a prerequisite for implementation of sustainable development policies (United Nations (UN), 1993).

3. Materials and methods

This paper considers the social aspects of aquaculture development based on a practical consultation process implemented by AGAPA. A research-action partnership was formed with this agency in order to test a method designed to explore ways of building a participatory approach into future aquaculture development plans in the Andalusia region. As the coastline in this region covers around one thousand kilometres, the study was restricted to the territory of Malaga province (cf. Fig. 2). It involved a highly structured institutional process in which the role of scientist was limited to supporting this process by providing methods, tools and analytical approaches, but without actively participating.

The work conducted was based on a three-step approach to evaluate the social acceptability of aquaculture relying on the diagnosis of the territory, building scenarios of aquaculture development and a deliberation process with stakeholders (Raux et al., 2020). The participatory process designed (Fig. 3) aimed to define suitable areas for aquaculture to be included in the regional plan of aquaculture development.

The diagnosis of the territory (context and stakeholder analysis) was conducted in order to address the main issues that hinder the development of aquaculture due to environmental, economic and social drivers. To do this, a first set of interviews was conducted with stakeholders between 2017 and 2019. All categories of stakeholder were questioned

Fig. 2. Geographical location of the study site (
Source: own representation).

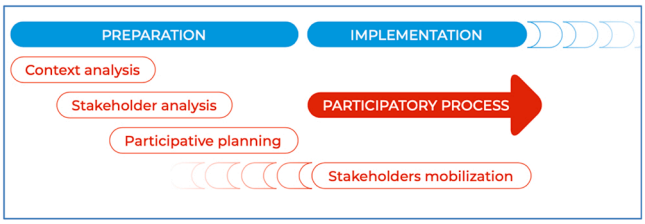

Fig. 3. Main steps to plan a participatory process (Lisode, 2019).

through a series of interviews including four representative of different government authorities and public institutions at local, regional, and national level, three agents from private and public research bodies, three user representatives from other economic sectors, tourism and restauration and one environmental NGO. The questionnaire was designed based on the weaknesses and threats identified by the multi-annual national strategic plans for the promotion of sustainable aquaculture with development targets until 2020 (AGAPA, 2012). Questions focused on causes which may have led to the rejection of aquaculture projects, and the sector's ability to respond to social mobilisation from local community groups. The main themes addressed rely on (1) the historical context of aquaculture and the problems and opportunities of the sector in the area, (2) management issues concerning aquaculture and particularly how is the sector managed in the area and which are the organisation involved, (3) the relationships between aquaculture and other activities considering conflict between users, (4) the level of integration of aquaculture in the area based of global perceptions and (5) the future of aquaculture and the conditions for its development.

A second set of interviews targeted the fishing sector more specifically, as this is the main group which can potentially oppose aquaculture development, being some of them potentially in competition for the use of the same maritime and coastal spaces, public subsidies, employment and access to market. These issues were discussed in the face-to-face interviews conducted. The interviews with 20 fishermen working from ports in Malaga Province who represent the variety of the local fishery sector in place. According to the data published by the regional Administration portal,[2] this sample represents approximately 7.3% of the population of fishermen, whose composition in the province of Malaga is structured by 2019 in number of boats around 15% trawlers, 23% seiners and 62% small scale including dredges. According to Baro et al. (2015), trawlers fish throughout the area at depths greater than 50 m, the seine fleet is concentrated mainly fishing areas between 30 and 90 m depth and the small scale fishery is concentrated, for shellfish fishing between the isobath 1–20 m and for octopus fishing and net fishing in depths less than 50 m.

The interviews were programmed under an equally distributed sample taking in account different ages of entrepreneurs and targeted fishing areas (small scale and industrial fisheries). The selection of fishermen interviewed was determined primarily by their availability and interest in participating in an open discussion. The questionnaire was designed to increase understanding of the issues the fishing sector faces, the industry's economic dynamics, relations with different levels of government authority, and relations with other users and activities, including aquaculture. The information gathered was used to make a diagnostic assessment of stakeholders' general perceptions of aquaculture, and of the problems that hinder development of this sector.

In addition, a total of four workshops were organised in the context of the MedAID project by AGAPA with representatives of the fishery sector as part of a participatory process to test and adapt a stakeholder engagement framework. The authors of this paper mainly accompanied

[2] https://www.juntadeandalucia.es/organismos/agriculturaganaderiapescaydesarrollosostenible/servicios/estadistica-cartografia/estadisticas-pesqueras/paginas/produccion-pesquera-2019.html

the administration in the implementation of this process, and then analyzed the results. These meetings aimed several purposes: firstly, to share with fishermen the strategy of the Administration relying on aquaculture planning, enabled the agreement on the agenda and issues to be discussed on the participatory process and finally to identify areas of coexistence with fisheries and aquaculture along Malaga coastline.

This participatory process, which finally turned into a consultation process for the reasons explained in the results and discussion chapters, aimed at identifying marine areas that might be of interest for new aquaculture operations. The workshops, organised the debates in several stages. First, the public agency AGAPA wished to share with fishermen its strategy for regional planning of aquaculture development. This was put into perspective with respect to the fishing activity, a sector that occupies spaces of common interest for fishing and aquaculture. Other meetings allowed to discuss the issues and to agree with the fishermen on an agenda of workshops that would have for finality the validation of a cartography of the areas devoted to for aquaculture that could be integrated in the regional plan of development of aquaculture. The information collected was essentially qualitative and heterogeneous because not all respondents answered all the questions. The processing of the information does not seek to have representative statistics, but to propose the diversity of opinions of the actors concerned.

4. Results

4.1. Diagnosis of constraints and social opposition associated with aquaculture development

Diagnosis of the territory, based on analysis of the literature and interviews with stakeholders, highlighted the constraints associated with aquaculture development in Andalusia. The first set of results concerns interviews with stakeholders on their vision of aquaculture in the past and future. Regarding the historical context of this sector, its development in Malaga is recent after some experiments with fish cages conducted in the sea, aiming to develop an intensive productive and profitable aquaculture. If these investments were opportunistic at the beginning, benefiting from installation aids, today, this behaviour seems to have disappeared. The main production at sea focused on seabass and seabream, but most of companies disappeared and were replaced by mussel farmers in this province. These companies face environmental issues such as harmful algal blooms and the presence of heavy metals in the water. Representatives of the administration link the occurrence of these events to the degradation of coastal ecosystems due to urban, industrial and agricultural discharges from nearby coastal areas.

Other problems facing the aquaculture sector relate to administrative issues. National or foreign investors are forced to comply to complex and lengthy administrative procedures to get a license. This hampers the current development of the sector, even if the conditions are currently more favourable to obtain public support. While some stakeholders interviewed mentioned the potential of the sector in the region, almost all respondents mentioned the strong economic and technical constraints that aquaculture faces. A representative of the main regional association of aquaculture companies mentioned the lack of competitiveness of local businesses facing Greek and Turkish companies that benefit from higher natural productivity and lower production costs.[3] In addition, aquaculture companies need high capital, and the sector is perceived by banks as being high-risk, which makes it more difficult to access capital. Moreover, a new company requires at least two years of operation to begin generating revenue, which further challenges the profitability of new businesses in the short term.

With regard to the perception and the social acceptability of aquaculture by the stakeholders interviewed, the opinions are heterogeneous. Some of them are contrary to the development of the sector due to their negative impacts to other users, in particular as there is a competition for the use of marine space and land infrastructures. A representative of the Administration considered that aquaculture is a recent activity in the region that is mainly focused on tourism, and hence most of the companies and workers come from Galicia region which is one of the more important European regions specialized on fishery and aquaculture. As a result, the activity is not enough integrated into the social context of the region and often generates conflicts of use with other stakeholders. An interviewee from a scientific and technical centre mentioned the protests that have taken place in the past in connection with aquaculture projects associated with offshore wind turbine installations. Strong social opposition led the project developers to renounce.

The representative of the gastronomic sector questioned seem to be in favour of aquaculture development but this support remains little active by his sector. Aquaculture represents an opportunity to maintain constant product prices, quality control, homogeneous quality and assurance and planning of supplies. According to him, the perception of local consumers is favourable to aquaculture because it is perceived as being less predatory than fishing. However, offer in terms of diversity of species is very limited and is restricted locally to seabass, seabream and mussels, which considerably limits the interest of the restaurant owners. As a result, they turn more to distribution, which has access to a diversity of products of all origins.

The perception of aquaculture is more positive for the Administration's representatives. According to them, there is no strict social opposition to aquaculture development. However, a bad perception of this sector is due to the lack of knowledge of the sector, the quality of the products and the sanitary issues. This negative image of aquaculture products rather that the sector itself is not specific of Andalusia. Moreover, there is a general higher level of acceptability of wild fish for European consumers (López-Mas et al., 2021).

In terms of perspectives of future development, all stakeholders consulted remains precautionary. According to government officials interviewed, aquaculture development in offshore areas also remains limited by the complex environmental conditions characterised by strong currents and exposure to storms. Areas closer to the coast would be more suitable for aquaculture development, but these areas are already heavily used by other economic and recreational uses, leading to potential conflicts.

Despite these difficulties facing the sector in the province of Malaga, the adoption of regional aquaculture plans, which are very committed to the development of the sector, aim to explore new opportunities for the sector. The development of aquaculture is therefore not only constrained by social but also economic and environmental considerations. These are summarised in Table 1 based on the literature and face-to-face interviews conducted.

The interviews conducted with fishermen made it possible to identify the existing issues that generate tension between aquaculture and fishermen in this territory. In the past, fishermen have had negative experiences due to the poor management of aquaculture on the former areas allocated to aquaculture. They have lost trust in public institutions due to the low support and respect of engagements from the Administration that they perceive. These previous and remaining tensions have resulted in some fishermen refusing to participate in discussions with the Administration on aquaculture planning. Other fishermen participated but lower interest in the process. Nevertheless, aquaculture development is not the only issue that creates this tension. In recent years, fishermen also consider that they have lost their legitimacy and rights vis-à-vis the Administration and perceive their activity as being more widely threatened. Moreover, the specific characteristics of the

[3] According to figures from the European Market Observatory for Fisheries and Aquaculture Products (EUMOFA online data), the average sale price for bass farmed by Spanish businesses (leaving aside transport costs) was €5.67 per kg in 2016 while the price of imports (including freight and insurance) from Turkey and Greece were €5.23 per kg and €4.58 per kg, respectively. This differential was even greater in previous years.

Table 1
Main constraints on aquaculture development in Andalusia.

Item addressed	Limitations	Factors
Administrative and legal context	- Numerous, slow and complex procedures - - Numerous laws and standards impeding the development	- A high number of public bodies involved in granting the licenses required to pursue aquaculture - Over restrictive sanitary regulations for companies - Long and complex administrative procedures - Over long timescales for granting aquaculture concessions
Perception of aquaculture	Economic weight of the aquaculture sector	- Aquaculture is less important than other economic activities
Space uses and conflicts	- Conflict of uses - Low availability of adequate sites and access restrictions	- No formal plan of zones with aquaculture sites - No integrated planning of maritime spaces (sector by sector approach) - Important tourist activity, including boats and water-based activities - Fishing areas with traditional access rights
Natural surroundings	- Damage to the coastal environment	- A large number of urban developments and tourist facilities could be affected by the degradation of the environment.
Use of Infrastructure	- Ports with limited capacity to accommodate aquaculture development - Inadequate water treatment facilities for shellfish production	- Ports have limited space, which is developed and adapted to needs on an ad hoc basis. Developing aquaculture would threaten the current supply of physical space and port facilities.
Water Quality	- Potentially farming species vulnerable to biotoxins - Closure of farming production area due to biotoxins - Heavy metals pollution (Cadmium)	- Overflowing sewage from waste water treatment plants that don't fit to needs during the vacation season due to the increase in tourism. - Inadequate discharge of untreated water from residential developments. - Run-off of agricultural pesticides (Vélez-Málaga zone) (Chica and Barragán, 2011).
Economic Cultural	- High production costs for fish farming (bass and bream) - Limited number of species cultivated - Competitiveness and poor growth forecasts	- Fierce competition from lower-priced imports from countries such as Greece and Turkey - Businesses' profitability is heavily influenced by their ability to operate in the most productive areas (Llorente García, 2013). Lower physical productivity compared to other Spanish regions

Mediterranean Sea offer a limited space for fishing because its continental shelf is narrow.

These tensions are also exacerbated by the economic difficulties that the fishery sector face. More than half of the interviewees mention profitability problems, also associated with the degradation of the resource. One third of the respondents mentioned market issues related to low values of the fishing products, the increase in the price of fuel and taxes and the lack of subsidies to the sector. Environmental problems are also reported by about half of the respondents due to chemical contamination of the waters (chemical contamination sewages) or by plastics. 20% of the fishermen mentioned problems of predation by dolphins associated with the attraction effect that aquaculture can have and which induces negative effects for the fishery.

In terms of interactions with institutions, a large majority interacted with professional organisations (cofradias). 60% of respondents said they interact often with the regional administration and more marginally with other institutions. Regarding interactions with other activities such as the loss of space in the ports due to the growth of recreational tourism, fishermen are divided between those who consider that they have few interactions and those who mention the opposite. The sector also is losing workforce turned to the tourism. The opinions about interactions with the aquaculture sector are also diverse. 30% of respondents consider that there is competition for the use of space at sea or port infrastructures, mainly the coastal fishery that works in areas closer to the coast. Other more minority opinions consider that aquaculture induces harmful environmental impacts for the fishery. Moreover, aquaculture companies do not sell their products in the auction market and they do not contribute enough to the creation of employment for the local communities.

Regarding the vision of the fishermen on the future development of aquaculture, there are few individuals who express an opinion. Around 20% consider that this development is not possible since this sector is in competition with the fishery sector for the use of marine space and land infrastructures. They also consider that aquaculture development is too limited due to their lack of profitability in this region. Another 20% consider, on the contrary, that aquaculture can be a source of diversification for the employees of the fishing sector in a context of its economic difficulties.

If a diversity of opinions were noticed for the majority of the questions asked, the most discriminating issue concerns the interactions with aquaculture. The small-scale fishermen, which is the most representative branch of the sector in Andalusia, have a more negative opinion on the development of aquaculture and consider that they could be impacted negatively. The competition is not only linked to the access to marine spaces and port infrastructures, but also to State aids.

4.2. Inefficiency of consultancy processes aiming the acceptance of other stakeholders

The Administration opened a consultation process with fishermen which are the main potential stakeholders competing for marine and land spaces. This process focused on identifying maritime aquaculture sites compatible with fisheries. Discussion was based on an updated mapping of the marine areas relevant for fisheries discussed in advance over the course of several meetings. Zones indicated as incompatible for fishing and aquaculture featured extensively on the proposed maps. Fishermen were however open to reallocating spaces formerly occupied by fish farms and which were located outside the areas initially proposed by the regional authorities. This overture from the fishing side was subject to several demands which can be considered to be key social acceptability factors for this group of stakeholders. These are

Table 2
Aquaculture acceptability factors for fishermen.

Conditions for location
- On already existing ranges which have been abandoned
- Next to established facilities which could possibly be expanded
- Facilities to be placed on anti-trawling reefs to block access from seiners and trawlers.
- Consolidated, not separated zones
Economic and environmental conditions
- Acceptance only of mussel farming and seaweed aquaculture systems and systems that do not require feeding, to prevent any environmental impact
- Financial compensation for fishermen
- Workers must come from the fisheries sector and be local to the territory
- Aquaculture production to be sold via the local fish auction

summarised in the table below: Table 2.

The impossibility of achieving consensus with fishermen on new sites for aquaculture development revealed social acceptability factors associated with the possible impacts of aquaculture on the environment and fisheries as well as other factors, such as the economic benefits for the territory. Social objections to aquaculture development on the part of fishermen are not categorical but linked to the type of development proposed. In this particular case, fishermen are favourable to development that has a low environmental impact, does not reduce their habitual fishing grounds and is economically beneficial to the territory and the fishing sector. On the other hand, the fishermen's position leaves little scope for intensive aquaculture development. This sector may have demonstrated a degree of openness to aquaculture development, but this is still extremely constrained and could clash with the regional authorities' strategic vision. A perception that they were being consulted as part of process with little transparency and in which the decisions had already been made reinforces their lack of trust. Transparency and trust are important factors which influence social acceptability (e.g. Shindler et al., 2004; Kelly et al., 2017).

The reticence among fishermen to abandon fishing grounds in favour of aquaculture is not unconnected to the difficulties facing the sector (increasing scarcity of fish stocks, competition from imports, stricter regulation, increased production costs). Historically, fishermen occupy maritime spaces that are now increasingly coveted by other activities and they believe that aquaculture could push fishing activities out and that the substitution is "agriculture at sea". What is more, they perceive aquaculture development to mean a loss of independence, forcing them to leave the fishing industry and become aquaculture employees. They also believe that they experience significant injustice from public authorities in terms of both access to fishing zones, their only source of income, and recognition and support for their cultural, patrimonial and economic role as food providers. Although the sea is perceived to be a common asset, they assert the acquisition of historic rights dating back to Roman times. There is also the requirement to secure investments and costly fishing permits. These contextual factors strongly influence their willingness to accept coexisting activities at sea, which often leads to disputes. For these reasons, the term "social equity of access and use of the sea" arose during interviews. It is the view of fishermen that they own the longest-standing rights. Access rights for traditional and new activities are not always treated in the same way (Burbridge et al., 2001). More traditional activities may thus benefit from greater legal protections and attention from public authorities, to the detriment of the inclusion of newer sectors such as aquaculture. Consequently, when broaching the subject of aquaculture development, it is also essential to broach the sustainability of local fishing activities, as part of an integrated management process designed to find mutually agreed solutions that benefit all stakeholders. However, as the Spanish government itself acknowledged within the European MSP Platform, various MSP-related, sectorial planning initiatives are in progress, but the country has not yet adopted a genuinely integrated overall approach (EC, 2018).

In the end, the situation that has not significantly changed. The reluctance of fishermen to share new areas with aquaculture remains. While this opposition is heterogeneous among the fishermen interviewed, it is stronger among the representatives of the sector who are those directly involved in negotiations with the Administration. The integration of the stakeholders in a social dialogue desired by the Administration has resulted in practice in a status quo which postpones discussions with the sector on aquaculture planning to a future that is not yet specified.

5. Discussion

While social acceptability of aquaculture is an important issue to address in many different places and in Andalusia in particular, other factors are important to consider in explaining the difficulties of the aquaculture sector to develop. Economically, fish farming companies face strong competition from lower cost production countries, mainly from Greece and Turkey (Cidad et al., 2018). In a context of opening up the market to third country exports to secure European market supplies of seafood products, the conditions for developing the aquaculture sector are very limited. The interviews conducted mentioned several times the difficulties experienced by companies that tried to set up but had to abandon the sector following storms that destroyed certain infrastructures. Moreover, aquaculture activities in Andalusia have a strong potential, but requires good water quality conditions. Heavy metal pollution of coastal waters and limited purification capabilities for shellfish present a barrier to the sector's growth prospects. Furthermore, the ecological impacts associated with intensive fish farming strengthen social opposition to aquaculture development. Additionally, the long and complex administrative procedures associated with highly restrictive regulation, are often cited as a major barrier to new investment in the sector. In a development scenario, aquaculture therefore faces several technical, political, social, and environmental limitations.

To address the social challenges associated to aquaculture development, the analytical framework mobilised relying on the concept of social acceptability could offer a new opportunity to incorporate these social considerations into public policy making. Ultimately however, the restrictive and utilitarian view of social acceptability translates to top-down, pro-development processes which are more centred on communication and do not adequately address the question of governance.

The participatory process in general, which is widely considered in the literature as a key issue to improve social acceptability, has not, however, produced the expected results in this case study analysed. First of all, the process has been incomplete for several reasons. The very complex political conditions in Spain during the period in which this work was being carried out, including recent political changes at national and regional level, led the institutions of Andalusia to interrupt public policy actions that could engage other political actors, including this consultation on aquaculture development. This shows a low degree of independence of a process that is a priori more administrative than political. This low degree of independence of the participatory process is reinforced by the fact that it is steered by the region's central Administration, which leaves little room for manoeuvre in terms of the implementation methods used by its decentralised services at local level, and also in terms of the objectives to be achieved.

Moreover, the transformation of a participatory process into a simple consultation of stakeholders was perceived by fishermen as a forcing interpreted as a prioritisation by the Administration of aquaculture to the detriment of support for fishing, a sector that was already economically weakened. While this type of forum could have been an opportunity for fishermen to discuss their problems with the Administration, the simple focus of the consultation on the elaboration of a mapping of potential areas for aquaculture development raised the disapproval of fishermen and the lack of commitment of many of them to continue the discussion. Therefore, the participation of stakeholders, being a necessary condition to improve social acceptability, is not sufficient to lead to a positive outcome. The quality of the process undertaken, combined with the ability to address the socio-economic issues of the territory within the framework of integrated management, remains a key issue. These conditions were not met in this case study, with the result that management was carried out sector by sector and in a less than integrated manner. In the end, all the constraints described above that limit the implementation of a true participatory approach did not improve the acceptability of the fishermen. If the approach was stopped, notably because of the political constraints described above and especially because of the COVID-19 sanitary crisis, the engagement of a dialogue between the fishermen and the administration is no longer on the agenda and should be questioned again in the future.

From the planning perspective, poor stakeholder's involvement in management and the lack of efficiency of integrated MSP processes addressing multisectoral issues are key issues. Aquaculture planning in Spain comes under the competence of regional institutions. In

Andalusia, this situation is delicate due to the ambiguous position of the regional government, which provides technical support to both fishing and aquaculture – two activities in competition with each other for access to maritime spaces and markets. Marine aquaculture established more than 20 years ago, must adapt to environmental constraints, the market, and standards, in a territory with many sites which are suitable for development, but which are not always accessible. Current technology and the expertise available have been used to develop production and market sales of mussels. Nevertheless, diversification of aquaculture products remains limited because it depends not only on internal factors (production factors) but also on external factors, such as the constraints associated to the environmental quality.

This inefficiency of MSP is in line with many criticisms coming from the literature. Despite the recent emergence of the MSP, several works have been carried out to analyse its effectiveness, particularly in terms of its capacity to address the societal issues addressed under the principles it promotes (Brugère et al., 2019). Criticisms include analysis of case studies at different scales, at the level of coastal territories or in some cases at the level of the policy applied in a country (de Vivero and Mateos, 2012) or in an ecoregion (Pipitone et al., 2014). In the realm, this new management framework does not bring any great novelty compared to previous practices as far as there are still winners - losers and gaps between how policy making is conceptualised and how it is practiced persist in a sort of "Illusion of progressive change" (Clarke and Flannery, 2020). Recent works also questions its effectiveness and capacity to sufficiently integrate stakeholders into decision-making processes (e.g. Flannery and Cinnéide, 2012; Jones et al., 2016).

Difficulties establishing a dialogue process may be linked also to problems with adapting management structures, the regulatory and institutional situation, or even a lack of political will. A previous study based on a survey of project developers and authorities active in the field of wind farm development (Dütschke and Wesche, 2015), an issue similar to aquaculture, illustrates this shortcoming. Thus, only one third of managers and project developers use participatory methods. And when these are deployed, it is in a limited way and with the notable absence of stakeholders playing an important role locally. The reasons given for not using these methods include a lack of resources, that the participatory approach is not helpful, or that existing guides do not correspond to the reality on the ground and are difficult to apply to individual cases. Nonetheless, this study shows that project developers are aware of the potential benefits of participatory approaches. Difficulties encountered are often linked to restrictive institutional frameworks, unsuitable tools for the specific needs of each case, and a lack of resources or expertise in using these methods.

Even if this paper focused on a specific case study, the work conducted in other locations characterised by different socio-cultural and institutional contexts in the framework of the MedAID project, demonstrate that public authorities or aquaculture project leaders must often face similar social acceptability issues relying on common drivers which are at the base of the social rejection of aquaculture and social conflicts (Pérez Agúndez et al., 2021). As a result, these social processes contribute to the status quo and thus to the absence of development of the aquaculture sector.

6. Conclusion

The recognition that social acceptability is a key issue for aquaculture development draws attention to how difficult it is to align supranational-level policies with territory-level social needs. The many regulatory and financial instruments for economic development and environmental protection, introduced to support implementation of the Blue Growth Strategy (which includes aquaculture development) illustrate the discrepancies. On the other hand, tools and resources for addressing the social aspects of policy are often relegated to second place and are not implemented adequately at territory level (Krause et al., 2015). To analyse this problem, this study has focused on the social tensions associated to potential development of aquaculture. The social interactions analysed though the consultation process conducted by the Administration reveals the bias of participatory approach when it is mobilised under simplification and forced by institutional constraints. Despite the fact that this is expressed in many directives and communications from EU, it is still absent in practice from an operational point of view and in the way of implementing policies. There's then a gap between official statements and implementation, mainly due to gaps in skills, knowledge and frameworks (and the misunderstandings between tools and processes) at the implementation scale (local or territories). Planning approaches to aquaculture development primarily take a technical and economic perspective and do not give enough consideration to the social realities of coastal territories. Although the significance of considering the social aspects of sustainable development policies is broadly accepted, in practical terms, the way in which these aspects are considered is still a hurdle to clear.

To this end, the concept of social acceptability goes beyond the straightforward social aspect of sustainable development and takes on an inclusive dimension. Asking questions about the role of aquaculture also means asking questions about the link between a project and its territory, as much from a social perspective as from an ecological and economic one. The holistic aspect of the evaluation framework for social acceptability set out in this study turns social acceptability into an inclusive process for sustainability. Designing aquaculture projects purely in terms of technical matters, production volume, physical carrying capacity and spatial occupation, without any attempt to work jointly with territories, often lays the foundations for social unacceptability. Within the EU to date, there are no examples of aquaculture projects having been implemented once they had been blocked.

As the example of Andalusia demonstrates, territory-level consultation is complex, requires long timescales, and dialogue based on transparency and trust. However, a simplified approach that is also subject to administrative constraints (the need to develop a plan within a short timescale and with predefined objectives) forces authorities to accelerate the process to the detriment of sound and long-term dialogue built on trust. Moreover, the lack of an institutional framework for this consultation process was a major hurdle. Representatives for the Andalusian authorities had few material resources and lacked the necessary skills. They also had little room for manoeuvre given a context of close control from a hierarchy, itself highly dependent on political leaders. This is similar to the experience of wind farm development in France, where decisions about sites were often left to government planners and based on technical and technological matters, leaving little room for social debate (Nadaï, 2007).

Author statement

All the co-authors participated in fieldwork to collect information that enabled the analyses that were conducted in this paper. All authors also contributed to the writing of the paper.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

This study forms part of the MedAID project which received funding from the European Union's Horizon 2020 programme for research and innovation under grant agreement No. 727315 (http://www.medaid-h2020.eu/). The authors would also like to thank the AGAPA (Agencia de Gestión Agraria y Pesquera de Andalucia) and LISODE (LIen SOcial et Decision) for their close collaboration on this study.

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