Publications électroniques AMURE

Série Rapports

Principles and tools to foster social acceptability in Mediterranean aquaculture

medAID deliverable n°7.2

N° R-45-2020

Pascal Raux (UBO-UMR AMURE),
José A. Pérez Agúndez (Ifremer-UMR AMURE),
Jean-Emmanuel Rougier (Lisode),
Loeiza Lancelot (UBO-UMR AMURE),
Audrey Barbe (Lisode)

amure
CENTRE DE DROIT ET D'ÉCONOMIE DE LA MER

www.umr-amure.fr

UBO — Université de Bretagne Occidentale

Ifremer

cnrs
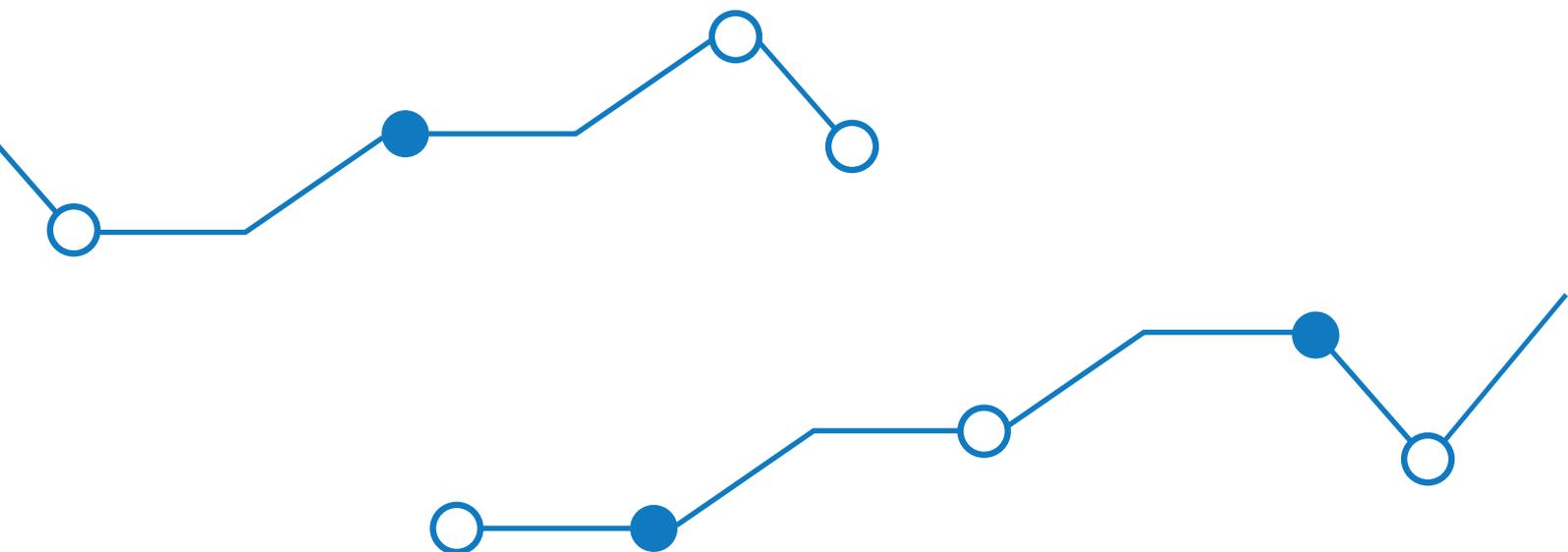
Pour citer ce document
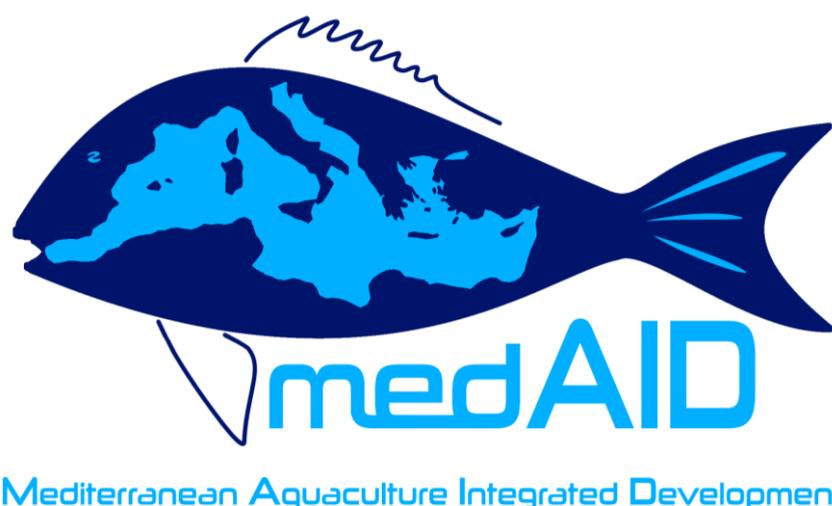
Deliverable No.7.2 – Vol. 2

Principles and tools to foster social acceptability in Mediterranean aquaculture – Volume 2

Authors: Pascal Raux (UBO-UMR AMURE), José A. Pérez Agúndez (Ifremer-UMR AMURE), Jean-Emmanuel Rougier (Lisode), Loeiza Lancelot (UBO-UMR AMURE), Audrey Barbe (Lisode)

Executive summary

Within the Blue Growth Strategy, aquaculture is perceived and quoted as a sector that has a high potential for sustainable jobs and growth and that has to be developed. Despite a strong initial growth at the beginning of the Blue Revolution, European aquaculture, and in particular marine fish farming, began to stall and stagnate. The new drivers initiated by the Blue Growth seem to have great difficulty in reversing that trend and progressing towards the stated objectives in terms of production volumes, in the light of the production statistics over the last decade. Marine socio-ecosystems are complex systems, they demonstrate non-matching scales, surprises (non-linearities), interconnection with other systems, memory effects, choke points and so on. This complexity calls for more integrated assessment through integration of existing knowledge: integration of sciences (among disciplines), integration of sciences and society, integration of sciences and policy and integration of uses. If some integrated assessment framework were developed such as the Ecosystem Approach to Fisheries, and its counterpart for aquaculture the Ecosystem Approach to Aquaculture, in practice they never really reach the required level of integration. In particular, by focusing on the ecological carrying capacity and leaving aside the social and institutional dimensions and especially the governance issues of these socio-ecosystems.

While much effort has been put into technological innovations and the measure of their impact on farms, relatively little has been put into institutional innovations. But beyond of technical and profitability issues, social acceptability is now considered as one of the main bottlenecks to aquaculture development. As already underlined, existing assessment frameworks are not able to catch that key dimension of aquaculture development. There is then a need to propose and develop such an assessment framework of Social Acceptability (SA) of aquaculture development. In addition to the reviewing of existing frameworks and experiences in other industries, taking into account the complexity of marine socio-ecosystems, main drivers and bottlenecks to aquaculture development were identified to better understand the factors contributing to SA. Main bottlenecks are attached to the way aquaculture development was thought and implemented: forgetting the way of production to solely focus on the volume to produce; basing aquaculture development on scientific and technical expertise and imposing top-down projects developed "ex nihilo" without insights on local integration; implementing such projects based on communication approach by solely providing information without participatory processes and stakehoders engagement; misperceiving SA through the solely acceptability of the product and not the acceptability of the activity. All this leads to a series of adverse effects such as markets disconnection, vicious circle of unprofitability, lack of trust and confidence in aquaculture, fuzzy developments, contributing to aggravating factors of social unacceptability.

The MedAID project is an attempt to integrate all these dimensions to support sustainable marine aquaculture development in the Mediterranean. It proposes an integrated framework to rethink the development of marine aquaculture in Europe and beyond, through the SA dimension as an integrating dimension. An assessment framework for SA of aquaculture development was developed and implemented over several case studies in the Mediterranean through the proposal of a 3 steps approach experimentation. Participatory approaches are at the core of the assessment framework and introduction and recommendations to these approaches are produced too, with references to existing tools.

The implementation of the 3 steps approach to assess SA of aquaculture development underlined four main recommendations: 1) Support concertation, 2) Give importance to the adequacy between the territory and the project, 3) Value the benefits of the project and promote transparency and 4) Establish a framework that support aquaculture development and compliance to the development process. These recommendations

finally appear as an essential prerequisite for a more peaceful, more virtuous and acceptable development that will drive back marine aquaculture to sustainability. A maybe not sufficient condition to sustainable aquaculture development but a necessary one.

Table of contents

Introduction

Unlocking the potential of aquaculture development is an important challenge for the Blue Growth Strategy and for food security in Europe. However, despite the political emphasis on encouraging the expansion of this sector through financial support and administrative simplification, aquaculture, and in particular marine fish farming, follows stagnation (Guillen et al, 2019). The majority of the plans of aquaculture development built by the EU countries in the framework of the new Common Fisheries Policy are far from the initial objectives programmed. Beyond the inefficiencies in production systems and in the value chain explaining this trend, social acceptability is now considered as one of the main bottlenecks to aquaculture development (see for instance EATIP, 2012; Hishamunda et al; 2014, FAO, 2016; Ruiz-Chico et al, 2020).

Social acceptability is a key issue included in the political agenda in many areas, including aquaculture development. This social opposition relies on the complexity of social-ecological systems in a context of the intensification of uses in coastal and marine areas with a stronger expectation from stakeholders for a better involvement in decision-making processes. This complexity is characterized by the existence of high stakes at the individual and collective level that lead to conflicts of interest between stakeholders. These systems are subject to rapid change and their governance requires adaptive processes to deal with their multi-level complexity within a framework of uncertainty and adaptation to unforeseen future changes. To cope with this complexity, the construction of a policy decision has often been based on scientific and technical expertise (carrying capacity analysis, GIS, etc.) in order to define and assess scenarios and projections on the basis of which aquaculture development planning will be implemented. The mobilization of this expertise supported by significant financial means has been the modus operandi of aquaculture planning. However, in such a context characterized by high complexity and uncertainty, it is necessary to mobilize processes of adaptive management, collaborative learning networks, and knowledge co-production (Funtowicz, 1991; Ravetz, 2006). The participatory approach is an efficient way of producing collective knowledge in order to facilitate more acceptable decision-making.

The first Volume of D7.2 introduced and presented the main drivers and bottlenecks to aquaculture development that contribute to the social acceptability or unacceptability of aquaculture development. In Volume 2 the basic principles underlying the social acceptability of aquaculture from a conceptual point of view are introduced and analysed (Chapter 1) and the way it is approached by institutions involved in the development of aquaculture in the Mediterranean is presented. Chapters 2 and 3 detail the principles of the participatory approach as a key way of addressing social acceptability and how it is implemented in practice. Chapter 4 describes the methodology for implementing the participatory approach in the experiments carried out within the MedAID project. Chapter 5 compiles a set of recommendations, including lessons learned from the analyses of social acceptability in the MedAID project case studies and other examples from the literature or previous work carried out. Finally, Chapters 6 and 7 provide some general recommendations, lists of tools and good practices rules when implementing participatory tools.

1 Complexity of social ecological systems governance and social acceptability. Principles and main issues.

1.1 The Social acceptability concept

Social acceptability is a complex, unclear and conflicting notion (Fournis and Fortin, 2015), often used as a "catch-all" in the form of different synonyms that have distinct legal and conceptual bases such as social acceptance, social license, free consent, among others (Batellier, 2015). Its use is sometimes abusive and with shortcuts, in a large number of research fields and themes, in the social sciences but also in the natural sciences. The literature addresses social acceptability issues from different perspectives. A large number of works have focused on analyses of public opinion to identify the main factors of social acceptability (Campos et al., 2010). This work analyses social acceptability from the perspective of the institutional dimensions of governance and the dynamics associated with social interaction processes (Shindler et al., 2004). These interactions may take the form of social negotiations that lead to social acceptance or rejection in private or public decision-making spheres (Fortin and Fournis, 2011).

The growing success of the concept of social acceptability is linked to its apparent simplicity due to the dichotomous nature of the term "acceptability", which translates into acceptance or rejection, yes or no. The response to problems of social acceptability often focuses on understanding the factors underlying social opposition in order to find mechanisms to reduce this social constraint. On the other hand, the term "social" is highly plastic and encompasses many components that are more difficult to deal with, particularly in the context of governance.

Social acceptability is also a subject of growing importance in the context of marine resource management. For aquaculture, an example mobilized in this work to address this issue, the main question is how to regulate complex social relations in the case of the use of common resources and spaces. From the governance point of view, this relies on the co-construction of collective choices to support the sustainable development of coastal and marine social-ecological systems. The complexity of dealing with this issue is further reinforced by the intensification of uses and the existence of many stakes and issues within these spaces. This leads to social conflicts that can range from disputes between users to contestation of political decisions of different intensity. The importance of taking social considerations into account and integrating stakeholders into governance is not new. It is reinforced with the emergence of the sustainability concept (Brundtland, 1987). Afterwards, Integrated Coastal Zone Management (ICZM) (Cicin-Sain and Knecht, 1998) and the Ecosystem Approach (Soto et al, 2008) deepen the way of dealing with sustainability issues by integrating environmental, economic and social dimensions in decision making.

However, the concepts of integrated management and ecosystem-based management are often too abstract and complex and therefore not operational (Young, 2010; Arkema, 2006; Yaffee, 1996). In this context of intellectual vagueness between concepts and methods, Marine Spatial Planning (MSP) has emerged as a practical and tangible tool to achieve effective implementation of ecosystem-based management in the marine environment (Douvere, 2008). However, despite the expectations that MSP has generated, recent work questions its effectiveness and capacity to sufficiently integrate stakeholders into decision-making processes and contrary to what should be done, MSP favors "top-down" processes (e.g. Flannery et al., 2012; Kyriazi et al., 2013; Jones et al., 2016). Moreover, within this management framework, geopolitical objectives related to the Blue Growth strategy (EC, 2014) often dominate, in which social dimensions are either secondary or neglected. Finally, MSP is also questioned as to its capacity to deal with issues relying on increasingly complex social-ecological systems (Brugère et al, 2018). Finally, spatial planning in the case of
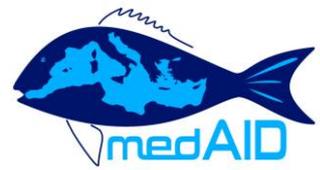
aquaculture, often based on the production of spatialized information for decision-making, is insufficient and cannot replace the implementation of holistic integrated management processes (Yucel et al, 2010).

Despite the important contributions provided by these various recent governance frameworks, the consideration of social dimensions and the integration of stakeholders in decision-making processes remains a key issue that has not yet been solved. Today, social acceptability is emerging as a framework, approach or tool that can help to address these social dimensions in public policies, particularly in cases where decision-making is contested by groups of social actors or simply by citizens. Intuitively, the objective is mobilizing means to foster the acceptance of policy decisions by the stakeholders concerned. Social acceptability becomes a "new grail" for promoters of private or public projects. Avoiding social rejection is a mean of ensuring that the implementation of the decision is initiated.

This work is based on the case of aquaculture development in the European context analyzed in the framework of the European research project H2020-MedAID which deals with the integrated development of Mediterranean aquaculture. Considering that the identification of social acceptability as a key issue for unlocking aquaculture development, this work highlights the gaps between policy-making at the supranational level and their implementation at the territorial scale. These gaps are illustrated on the one hand by the large focus on economic and environmental issues of regulatory and financial tools in support of the implementation of the European Commission's "Blue Growth Strategy", which includes aquaculture development. On the other hand, the social dimensions of this policies remain insufficiently addressed in their implementation at the territorial level (Krause et al, 2015). To analyze this issue, this work focuses on the example of aquaculture development in the region of Andalusia in Spain, which is subject to processes of social stress similar to other European territories. The global context relies on aquaculture pro-development policies built though supra-national frameworks, at EU or Mediterranean level, which aims at coping with the stagnation or insufficient development of aquaculture development.

1.2   Social acceptability under the institutional point of view

Aquaculture development is a relatively recent phenomenon. It was made possible in the second half of the last century thanks in particular to the technical progress of production systems. This growth is now being compared with the decline in production in the fisheries sector. Aquaculture is often seen as a response to food security. Moreover, aquaculture contributes to the economic development of coastal territories, particularly in developing countries, and hence to reduce poverty in the world (FAO, 2018). This global dynamic contrasts the European situation. After a strong expansion of the sector during the last quarter of the past century, aquaculture faces stagnation despite the support from public institutions (Figure 1). Aquaculture production in Europe has stabilized at around 1.2 million tones over the period 1995-2012, while over the same period world production has risen from around 120 million tones to almost 160 million tones (FAO, 2018).
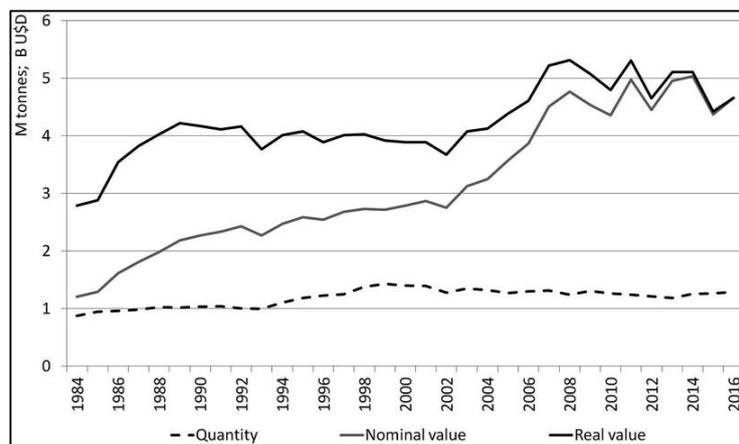
Figure 1 : Evolution of aquaculture production in the EU (Source: Guillen et al. 2019)

This general lack of growth of aquaculture in the EU can be explained by various economic, regulatory and bureaucratic constraints (Guillen et al. 2019). Social acceptability is also a key bottleneck in the context of increasing anthropogenic uses in coastal areas leading to conflicts of use (EATIP, 2012).

Despite the growing awareness of the importance of the social dimensions of aquaculture, the concept of social acceptability is often mobilized as a technical issue that must be taken into account in a project (or a decision), but while the project is one aspect, its acceptance is another one. Quite often, social acceptability is considered as a mechanism for informing citizens about what aquaculture is and what positive effects it has on society to foster its acceptance. According to the scientific literature, information and communication are factors that may positively influence the public's response to a project (Batellier, 2015; Gendron, 2014; Fortin and Fournis, 2013). However, these tools do not allow for the resolution of all claims, such as those related to conflicts of use (Hoagland et al., 2003). Some studies highlight the importance of governance mechanisms to support project implementation (Rey Valette, 2017). According to the principles of participatory engineering, the procedure implemented to develop a project is a subject of acceptance or rejection. The frequent disconnection between the objectives of a development project constructed by high-level institutions (national, supranational) with the reality and needs of the territory at local scale are often at the root of emergences of social contestation. The inadequacy of institutional frameworks to manage the social complexity that derives from the gaps between these two local and supra-local rationalities is reflected in the existence of social bottlenecks and inefficiency of policy action.

1.2.1 European framework

To cope with the stagnation of the aquaculture development in Europe, the EU launched a strategy for the development of this sector in 2002 (COM(2002)0511). The objectives were mainly economic and food safety basis, while trying to minimize the environmental impact of this development. However, the strategy has not achieved its objectives, particularly as regards increasing production and employment. For this reason, seven years later, the EU updated this strategy. All the measures taken were based on technical and economic considerations. The social dimensions focused mainly on improving the image of the sector. This general strategy was completed by guides which put forward concrete actions to accompany the development of the sector. From a governance point of view, two main pillars supported this policy: the construction by each Member State of a multi-annual national strategic plan for the promotion of sustainable aquaculture (Article

34 of the Common Fisheries Policy), which also serves as a basis for the mobilization of European Funds (FEAMP), and the implementation of these plans within the MSP framework Directive.

With regard to the aquaculture development plans, all the objectives that have been set have proved to be too optimistic. As an example, the global objective at the UE aggregated level was an increase in European marine fish farming production close to 500,000 tons (EC, 2016), which represented a growth of around 60% between 2014 and 2020 (target of +25% for shellfish farming). The specific plan for France expected an increase in total aquaculture production of around 20% and a multiplication between 2 and 4 of marine fish production. Despite this voluntarism, no new marine fish farming licenses has been granted in this country since 1996.

The European Court of Auditors (ECA, 2014) concluded that this failure of policy action is the result of poor design and implementation of measures to support the sustainable development of aquaculture by Member States (Guillen et al, 2019). In response to these difficulties, The Aquaculture Advisory Council published in January 2020 a set of recommendations to build a new strategy for aquaculture development in Europe (AAC, 2020). Among all these recommendations based on economic and administrative measures, improving the social acceptability of aquaculture and its products appears as a key issue that needs to be addressed. However, a very restrictive vision of the concept of social acceptability is reflected in a proposal for actions to be taken at State level which is reduced to (1) promoting public awareness of European aquaculture, (2) using public procurement of seafood products to improve the welfare and sustainability of fish, and (3) promoting gender equality in aquaculture. Today, raising public awareness appears to be the lever for action to better explain to citizens the benefits of aquaculture, to correct the misperceptions often associated with a lack of knowledge of the improvement of production systems and the positive economic and social effects that the sector can have at local and regional level.

1.2.2   Mediterranean framework

The General Fisheries Commission for the Mediterranean (GFCM) also promotes and provides institutional support for the development of aquaculture in the international framework of the Mediterranean and the Black Sea. This institution has the competence to adopt binding recommendations for the conservation and management of fisheries and for the development of aquaculture. In this context, a work program has been built for many years to build a strategy in support to the sustainable development of aquaculture in this ecoregion. A particular consideration is being given to social acceptability as a key issue for unlocking aquaculture development.

However, the term social acceptability in this policy framework only appears explicitly in a more recent period in which this notion takes force following the different diagnoses developed in different frameworks and contexts. Initially, the aquaculture development strategy addressed the social dimensions through three main objectives.

The first objective concerns the construction of a regulatory and administrative management framework to facilitate and accelerate the allocation of licenses. The stagnation of aquaculture is often attributed to administrative and regulatory complexity that discourage potential investors. The administrative simplifications are being carried out by the institutions in charge of aquaculture to facilitate the establishment of new companies. This approach is also being carried out by the European Commission in its geographical area of competence.

The second objective concerns the improvement of governance through the implementation of participatory approaches which foster the integration of stakeholders in decision-making processes, with in particular (1) the promotion of the ecosystem approach (Soto el al, 2007) as "a strategy for the integration of aquaculture into the wider ecosystem in a way that promotes sustainable development, equity and resilience of interconnected social and ecological systems" and (2) the mobilization of site selection approaches for aquaculture development though Allocated Zones for Aquaculture (AZA) processes. The participatory approach is an important part of this selection process. Implementation guides have been developed to accompany such approaches as principles of good governance essential for social acceptability (Macias et al, 2019).

The third objective refers to the construction of proactive approaches to promote the development of aquaculture by improving the image of the sector and its products among the general public. This pillar of GFCM policy action also aims to change a vision of aquaculture that has traditionally focused on production strategies according to its productive capacity, taking into account existing technology and controlled species. Though this new perspective, it is important to adapt production systems to the needs of the markets ("market-oriented aquaculture") to improve consumer acceptance of the product. This proactive vision for improving the sector's image is initially set out in the Conduct for Responsible Fisheries in the Mediterranean Region, and was discussed in greater detail in a consultation session on the application of Article 9 of the Conduct for Responsible Fisheries in the Mediterranean Region to aquaculture development. The improvement of the image of aquaculture and the promotion of the sector are put forward as a key point to accompany the development of the sector. Consequently, producer organizations play a key role in coordinating and applying this code of responsibility.

The refocusing of political action on improving the sector image though "public awareness" will then be used and extrapolated to other dimensions of public policy on aquaculture development. Thus, in the framework of the social dimensions, the increase in social rejection of the sector is associated with the misperception that the general public may have of the sector and its products. In this way, the perception of a poor quality from aquaculture products, the lack of information on the positive effects of aquaculture in terms of supplying healthy products, in terms of providing employment opportunities and income for coastal territories, etc., are assets that must be highlighted in the public debate in order to better consider the place of the sector in its social-ecological systems (Bacher et al, 2015, FAO 2016).

1.3   Stakeholders, citizens, and social acceptability

The key to improving social acceptability lies in the integration of stakeholders in decision-making processes. But first, it is necessary to clarify the concept of stakeholders and their roles within the territories where they have particular influence. Understanding how social networks operate in the realm is a crucial information to better address social acceptability in a practical way.

1.3.1   Clarification of the concept of stakeholders

The stakeholder concept of has been historically (Mercier, 2010) mobilized in opposition to the concept of "shareholder" in a private company (Freeman, 1984), to stress out that the management of the externalities of a firm could be done not only with shareholders (the owners of the firm) but also with other agents (NGO, consumer associations, etc.). The stakeholder concept mainly questions how to address stakeholders inclusive management rather than their merely identification. Consequently, people arguing specific stakes

associated to a project or a political decision can be "managed" accordingly to this project and this stake. As a result, stakeholders management is mainly related to dialogic arenas accordingly to a stake rather than understanding what are the stakes in question.

In the case of aquaculture development, everyone can be a consumer, a citizen concerned by environmental or heath issues, member of an association, etc. Stakeholder management would be also about inviting people, not as interested people, but as people connected to a specific stake. Upstream this concept, the notion of stakeholding is, very often, connected to membership of an organisation holding this staked (NGO, consumer association, professional organisation, etc.). Therefore, there is a common misconception of the concept of stakeholder management which consist in dealing a project management with stakeholder organisations only, which put aside all stakeholders which are not represented by these organisations (for instance, small scale fishermen how are not represented by Cofradias in southern Spain). But the main criticism which can be mentioned to stakeholder management if the fact that having a recognised stake is the condition to be part of the project. One can participate if, and only if, he is a fisherman, a consumer, a member of an environmental NGO. And even worse, he will be restricted to this identity. This excludes, ipso facto, people to participate just because they are interested, and legitimate to do so, as living in a democracy.

Finally, whereas stakeholders management is widely spread at least in Europe, (as illustrated by the Water Framework Directive, see below), it would be adventurous to argue that public participation (of citizens) is so common. At least, there is still a rich debate between experts about how to strengthen and enforce public participation in decision making process.

1.3.2   Social acceptation and blocking stakeholders

Another concept that should be clarified is who is social acceptance for. It is necessary to distinguish a situation of conflict with a specific group of actors, and a situation of lack of social acceptance. "Social acceptance" refers to society as a whole, not suggesting that it is conditional on everyone's approval, but insisting that something is wrong with the usual approval process by society as a whole. This clarification makes it possible to distinguish the causes and consequences of social acceptability: opposition to a project by certain actors is not necessarily translated into a lack of social acceptability. Even if a project is supported by "usual" stakeholders, the project does not necessarily benefit from social acceptability, which means that stakeholder management is not sufficient to ensure social acceptability.

1.3.3   The Sea as a territory

It would be trivial mistake to consider the sea as a non-territory, meaning, as an empty space, weakly populated or characterised by low issues. The following table (Figure 2) summarizes the quantity and diversity of the issues associated with the use of coastal spaces and resources by a multitude of stakeholders in the Territory.

Uses and issues (stakes)	Type of stakeholders	Ashore representation	Fixed territory
Borders management and defence issues	National public institutions	Yes	Yes
Shipping roads	International and national public institutions, big size businesses	Only the national public institutions	Yes
Offshore wind farm	Public institutions and big size businesses, professional organisations	Yes	Not completely (most of the time, some fixed areas are defined to be used, but not with an exclusive usage)
Offshore aquaculture	Public institutions and private sector, small to big size businesses, professional organisations	Public institutions, professional organisation and existing farms businesses representatives (the "potential" business developers are missing most of the time)	Various scenarios (in Europe, the chosen scenario tends to define an exclusive area)
Small scale fisheries	Small size businesses, professional organisations	Small scale fishermen are not always represented	Near the shore: no, but not present at large
Deep sea fishing	Medium to big size businesses, professional organisations	Yes	Delimited navigation areas close to the shore, but no delimited areas at large
Recreational fisheries	People (tourists) and small size businesses, professional organisations	Only professional organisations, most of the time	Some know spot, but significant illegal fishing
Recreational diving	People (tourists) and small size businesses, professional organisations	Only professional organisations, most of the time	Some know spot, but significant illegal fishing
Archaeological sites	Public institutions	Yes	Yes for the known site, no for the sites yet to discover!
Protected natural areas	Public institutions and environmental NGOs	Yes	Yes
Various ecosystems	Public institutions and environmental NGOs	Some knowledge, but if not included in a protected area, not so well represented	Depends to the interest from authorities to make strict zoning
Nautical sports	People (tourists) and small size businesses, professional organisations	Only professional organisations, most of the time	Along the shore
Coastal tourism	People (tourists), small size businesses, professional organisations, municipalities	Only professional organisations, and municipalities	Yes, but with the matter if "landscape interest" which is not geographically bounded
Landscape issues	Inhabitants, tourists, private sector, municipalities	Not really	Yes, but with the matter if "landscape interest" which is not geographically bounded
Coastal residents	Inhabitants	As holders of many stakes and electors, yes	Yes, for the primary inhabitants, no for the tourists
Harbours	Public institutions, private operators	Yes	Yes

Figure 2 : Diversity of issues associated to uses of coastal areas and resources

This overview of issues highlights that, excepting for public institutions with high and specific issues (defence, shipping roads, harbour infrastructures, etc.), all issues are overlapping, with, for some of them, lack of representativeness, and fuzzy, or disputed territories; and covering all these issues, additional connected issues characterise this social complexity, including political representativeness, climate change management and sociotechnics controversies (as it occurs in the context of offshore wind farm or aquaculture development).

1.3.4 The case of aquaculture planning in Europe

The implementation of marine spatial planning by local institutions usually deals with a small scope of intermediary actors, without questioning their representativeness, and with two constraints: make it fast, and make it simple. That's the "business as usual" way of proceeding into which public institutions deal with civil society by questioning usual intermediary actors, with no other participatory strategy, and having little (if any) skills, budgetary means, and time.

On the other hand, opposed stakeholders, either because the dialogic process with the intermediary actors was not satisfying to them, or because they were not even represented in this process, can directly mobilize the civil society, by their political or personal networks, or by any other potential mean, but they can also call for external players with a stronger power of mobilization. Therefore, social unacceptability is raising, and put pressure on the decision makers, who are in charge of tradeoffs associated to the project (as they probably manage various issues of the territory) by stopping the process to maintain the social peace. We can also mention the fact that some external players can come into the game without local expectations, which make the situation even more difficult to handle. This was, for example, the case of the construction of the Sivains river dam in France, which generated very strong social mobilization with, in particular, the convergence of local and foreign protest movements. In such a case, when a project gets out of control, and relies on other civil society organizations, it can be very hard to step back. Strategically speaking, it means that the process of stakeholders integration have to be thought wisely, and implemented carefully, to keep the various stakeholders (and not only their intermediary actors) in a dialogic process. This implies a maximum flexibility of institution in charge of implementing decision-making. Furthermore, it also pleads for dealing directly with "civil society", meaning citizens not necessarily polarized on a specific stake, for preventing stakeholders to manipulate them.
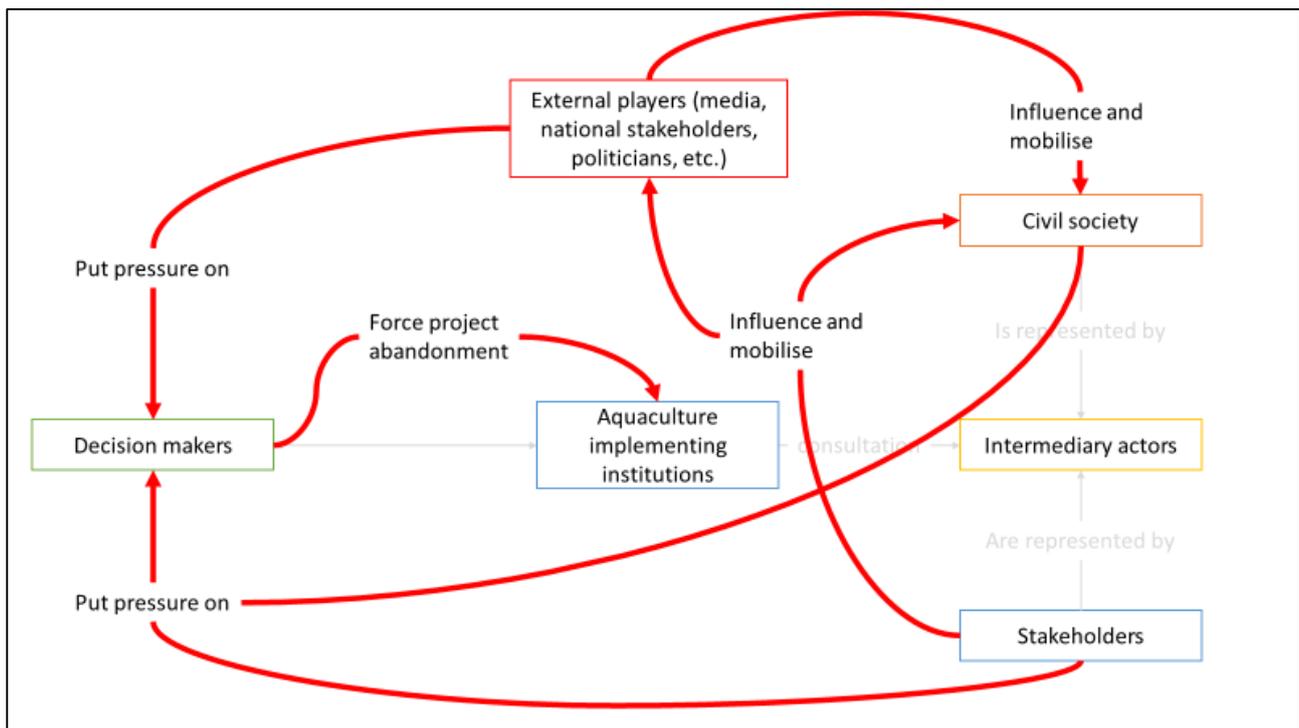
⇨ External players: people outside the local network but which can be connected to, and influence, it, in a way or another (media, national NGOs, national politicians, etc.)

⇨ Civil society: basically, the people living in the impacted area

⇨ Intermediary actors: people that are "called" to represent other actors. For instance, the corporatists, the member of NGOs, the chairman of a professional organization, etc.

⇨ Stakeholders: people who are connected to a stake/an issue. Included also in the civil society, but with networks, links, social tools, etc., that can be specific to the stake they hold

⇨ Aquaculture implementing institutions: the local/regional public institution in charge of implementing marine spatial planning

⇨ Decision makers: people who will take the decisions (politicians or high level technicians)

Figure 3: How the blocking stakeholders can lead to social unacceptability

Figure 3 illustrates in a schematic way how social networking processes may rely on social mobilization et social opposition. The complexity for the administration is strengthened by the potential interconnections between the local and external networks that can converge to a powerful social opposition to decision-making. Contrary to a current sector-based policy based on decision-making, by industry or by social collective, the social complexity also claim for the necessity of engage holistic and integrated management processes which involves a large category of stakeholders linked by cross-cutting issues.

In this sense, addressing the development of aquaculture also raises the question of the sustainability of fisheries, tourism or any other coastal use. The social acceptability of aquaculture (and its development) can only be dealt efficiently in a more holistic framework that takes into account the reality of the territory.

2 Participatory approaches as a means of addressing the social acceptability for the governance of complex social ecological systems

2.1 Main basis of the participatory approach concept

Participation is a key issue to enhance social acceptability (Prno, 2013; Urvoas, 2015; Fortin et Fournis, 2013; Batellier, 2015). The International Union for Conservation of Nature (IUCN, 2009), states in a methodological guide for the selection of areas for aquaculture development that "the participatory approach, as a well-structured and properly implemented strategy, applied to the selection and management of aquaculture sites, represents an opportunity to guarantee the acceptance and permanence of any aquaculture project, since it allows all stakeholders to be involved in the definition and implementation of the process". According to Yates and Caron (2012), this allows stakeholders to take the leadership of the project and contribute to making it more favourable. Moreover, participation promotes trust between stakeholders and allows stakeholders to feel more respected and considered (Moffat and Zhang, 2014). The top-down rational frequently used for the implementation of this type of project should therefore be replaced by a more horizontal process (Fortin and Fournis, 2013).

The definition of participation is controversial and varies greatly from different authors. There are different forms of participatory processes depending on the degree of stakeholder participation, which can take the form of information, consultation, concertation and co-decision (Arnstein, 1969; Ehler and Douvere, 2009) (Figure 4). Co-decision is the most favourable to social acceptability, but it is also the more complex to implement, mainly in large projects. A participatory process involves engaging and bringing together different stakeholders in a project to collectively formulate proposals about it. In this perspective, it differs from consultation, as the goal goes beyond knowing the views of the participants. A participatory process is more a collaborative work where participants share and compare ideas, develop collective objectives, produce a vision on a subject together, etc. The process is not a consultation, but a process of collaboration.
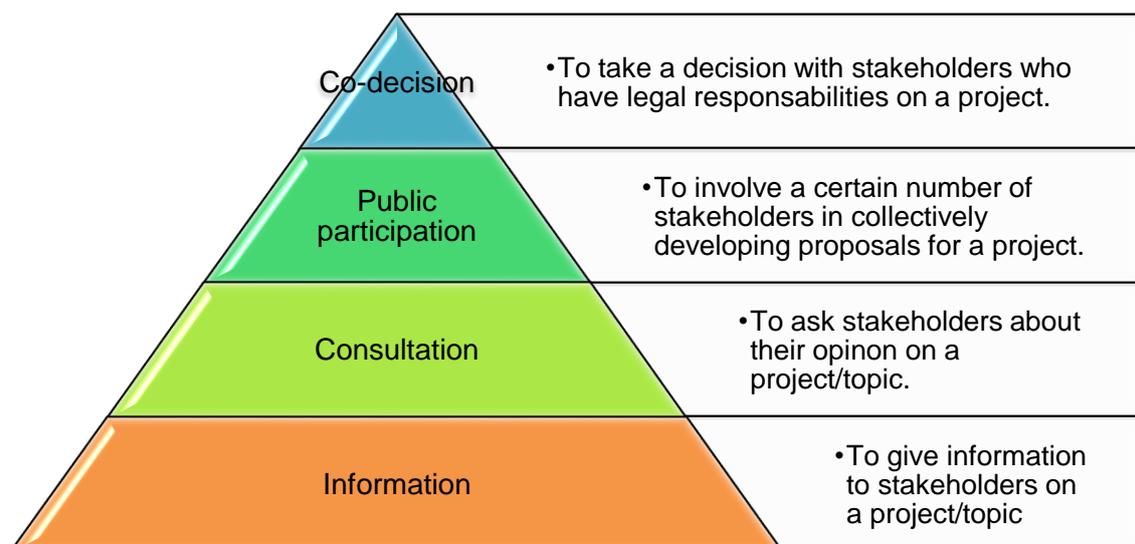

Figure 4 : Simplified ladder of the participation within a decision-making process

A participatory process can be included in a project frame for different reasons. One of the main motivations for a project holder comes from the idea that having stakeholders working together will help increasing the project efficiency. This is what we call the instrumental objective of a participatory process.

Starting the process enables to create an opportunity for the participants to get to know each other, to exchange on everyone knowledge, expectations, daily issues they face, etc. All these interactions will inevitably impact the group functioning and then contribute to produce a shared knowledge and vision on the project topic. In that way the initial instrumental objective may come along with group effects and boost social change. This is a reason why creating or strengthening links between the participants is highly valuable in this type of process.

Another effect may also be observed as a process is on-going. While the participants are working together, different specific issues may raise such as social equity, social justice, etc. For instance, on a project related to water resources with a technical component, the financial question will emerge at some point. Talking about the cost and use of infrastructures may drive the discussion towards the willingness and ability to pay of social categories of stakeholders as well as the question of access to resources.

From the initial instrumental objective, a participatory process will finally raise a panel of questions and issues related to the initial topic. Which is why its implementation may have impacts in terms of social change, equity to access resources, social justice, etc., even if broaching those issues was not initially "planned".

An efficient consultation process must respect a certain number of conditions, and the reactions observed in the field are very important (Dionnet et al, 2017). Important conditions must be met:

- the work of the participants must have an impact on the decision-making process (Urvoas, 2015),
- the objectives must be defined upstream so that the participants are aware of the elements in order to be able to act,
- all categories of actors must be represented and the delegates must have representative legitimacy (Yates and Caron, 2012),
- the process must be transparent to build trust among participants (Moffat and Zhang, 2014),
- all categories of actors are represented, the process must adapt to each territory and case (Thomson and Boutillier, 2011),
- as conditions may change over time and therefore the process must also do so.

Consultation does not necessarily have to result in an acceptance of aquaculture development. A rejection should not be seen as a failure but as a building process over time that is likely to evolve. The objective of this process is to verify the suitability of a project to the needs of the territory and to explore the positive and negative effects of the scenarios considered.

2.2 Some examples of stakeholders involvement in other frameworks

The European Water Framework Directive (EU WFD, 2000)

This directive has been adopted by the European Parliament on the 23rd of October, 2000. Since 20 years now, it institutionalizes, at different levels of intensity across European countries, the participation of stakeholders to integrate water management at the scale of water basin (Jager et al., 2016). The purpose of "Integrated Water Resources Management" (IWRM, dedicated terms), as it is implemented by the EU WFD, is to institutionalize a mechanism by which local water problems (including tough ones: pollution, scarcity,

flooding, etc.) can be solved locally, with the integration of every stakeholders in the resolution process. The idea is to promote efficient, integrative, local, and acceptable solutions for water problems.

As noticed by the reference above, even if there are different implementations of the EU WFD across Europe, there are three leading countries in terms of participation: France, Spain and The Netherlands. It is not the purpose here to make comparisons between these different implementations, but to explore potentiality for fostering social acceptability through participation.

In many cases, this integrated governance of water occurred by institutionalizing an "assembly of users" (directly citizens in some cases, various colleges of stakeholders in other cases, elected, or nominated), which is in charge of ruling of the various disputes between stakeholders, but also, and more importantly, of the compliance of regulation, its ecological status, and its governance, to EU WFD standards. In some cases, these assemblies can have only a consultative role, in some few cases, it is a final decision-making entity, as in France (Commission Locale de l'Eau, CLE). These "water assemblies", however, do not exclude participation dedicated to specific projects (dams, ecological restoration projects, water scarcity mitigation plans, etc.), or in broader public than just their members, but support it by having initiated peaceful dialogic governance between stakeholders.

It would be presumptuous to state that these mechanisms solves any matter concerning participation or social acceptability issues. It is also partially wrong to argue that every water basin in Europe experiments a "peaceful concerted governance", but still, it is widely considered that EU WFD foster a large positive and efficient integrated management (De Coninck, 2015; Seguin, 2015).

Le Parlement de la Mer (Parliament of the Sea) of the Occitanie region in France

The « Parlement de la Mer » (Parliament of the Sea) is a unique experiment in France (https://www.laregion.fr/Parlement-de-la-mer) to implement an integrated coastal management in the Occitanie region (northern Mediterranean). This geographical area is economically specialized on industrial tourism. However, other traditional activities coexist such as fisheries, shellfish farming in lagoon and offshore, and an emerging massive demand for offshore wind farm development. These past, present and future activities are struggling, as as highlighted in several MedAID case studies for instance, and probably, in most places. Struggling for sea access, political representation, exclusivity on the activity allocation decision making process, existence.

And it was by finally noting that every new coastal or "sea related" project was endangered by these struggles, that the idea of a sea assembly ("Parlement de la Mer") emerged in the arena of both the decision makers and the stakeholders.

The « Parlement de la Mer » has been implemented in 2013, in order to set up a peaceful dialogic and integrated governance of the coast (Beynet, 2019). It's a consultative assembly, but involved in every coastal project, which try to reach exhaustiveness in terms of stakes and stakeholders representation.

This institution supports stakeholders mobilization in various projects, such as industrial harbour rehabilitation, participative governance definition (Lisode, 2019) , onshore wind farm planning (see below), etc.

Onshore and offshore wind farm planning and implementation in France

Wind farm energy is an interesting comparison point, as it has some similarities with the **actual European** process of offshore aquaculture planning:

- Win farms energy development is a centralized process (national or regional decision making process, regional zoning, and local implementation).
- The product, wind farm power, is promoted as a positive value product.
- Till very recently, the positive value of the product was opposed to local opponents,and the NIMBY[1] syndrome was frequently invoked to delegitimize their claims (Nadaï, 2007).
- Wind farm production implies high capital mobilizing which cannot cope with too many implementation uncertainties.

In the current context, the lack of social acceptability could question the European objective of developing the renewable energy production in the framework of the energy transition (Bauwens 2015). Since opponents are still very focused on refusing the development of wind farms, the lack of an adapted governance of the project itself is a main argument against. On the basis of this claims, the public authorities have reacted by implementing participatory approaches that are more in line with the experts' recommendations. These processes are organized as followed:

1. A first phase of zoning where offshore wind farm can be implemented:
   - A preliminary stage for mobilizing stakeholders in order to make them ready for participating to the process, support them, group by group, for enhancing they capabilities to produce relevant data and collecting missing data, in particular the ones required by some stakeholder groups.
   - A second stage for collecting stakeholders global concerns about the proposed zoning. A third stage for debating between stakeholders groups about a consensual zoning and for debating about the governance of future implementing projects of offshore wind farms.
   - A final public debate (widely open) is organized when the consensual zoning proposals are evaluated by the citizens.
2. A second phase of implementation when participatory processes are organised accordingly to preliminary participation charters debated in the first phase, within the finally chosen areas.

As a result, wind farm planning in France suggests the factual lack of social acceptability is not linked to be associated to the "product" (positive value of "green energy"), but to the planning and the implementation of the infrastructure of production, i.e. wind farms themselves. This can be translated in terms of the lack of a suitable institutional framework that strongly limits the ability to implement participatory approaches (lack of means, institutions, technicians and experts, time, etc.).

Intensive offshore aquaculture is quite new in most areas in Europe, and intensively implemented in countries where social acceptability may not have the same value, or the same consequences, but it's unlikely the fact the aquaculture production has positive values that could lead to a better social acceptation.

---

[1] « Not In My BackYard", an acronym to describe situation where locals oppose their own interest to a public good they can support ("it's a good project, but I don't want it in my backyard")

2.3 Key principles to ensure an ethical, useful and productive participatory process

As a participatory process can be a good way to reach ambitious goals, it can be tempting to "help" stakeholders finding an interest in participation. The main formalized fundamental principles to support good conditions of use and implementation for those processes are summarized as follow:

1. A participatory process has an impact on the final decision, meaning that it has to be clear from the beginning how the participants' suggestions and recommendations will be taken into account in the decision process and why.

2. A participatory process **has specific objectives** determined upfront, but it should **remain open to a variety of proposals**. It is never possible to know the final solution when the process starts; participants may bring conflicting proposals and decision-makers have to **take every proposal into account, with no judgment** on one or another.

3. **Participants are free to participate** or not and must be fully informed from the beginning; participation cannot be paid or forced in any way.

4. During the process **all stakeholders are represented** to diversify the viewpoints and stimulate interactions.

5. **A participatory process must be transparent** about: the final decision-maker(s) and how the participants' contribution is used; the process implementation and the participants' place in it; and the existing doubts on the project or required data.

6. A participatory process recognizes the **existence of multiple viewpoints.**

7. A high-quality and neutral animation will be decisive for the success of a participatory process.

8. A participatory process is both **iterative and adaptable, and is built step by step**. The process may evolve as new needs, ideas or expectations may rise along the steps.

9. Stakeholders involved and concerned by a participatory process need to **be given access to resources**.

3 Planning and implementation of a participatory process in practice

The previous sections have drawn an overview of participatory processes and the principles guiding their design. We will now explain the different steps to design and plan this type of process. We have decided to make a distinction between the process planning in a three steps procedure (chapter 4) and the mobilization of stakeholders, as the latter constitutes a critical step of the process and the efforts required should not be underestimated.

3.1 Planning a participatory process

Planning a participatory process is a complex work because of three main reasons at least: the problem complexity; the diversity of stakeholders' objectives and constraints; and the uncertainties on stakeholders' reactions. Thus, we suggest to follow three main steps, in parallel with creating a team of stakeholders (called "project team") directly responsible for the final decision and the strategy for stakeholders' mobilization (Figure 5). The chronology suggested provides some guidance on how to articulate the different steps; it can surely be adapted to the context's specificities.

The project team is in charge of clarifying any question related to the space for participation in the project, and is involved in the strategic planning.
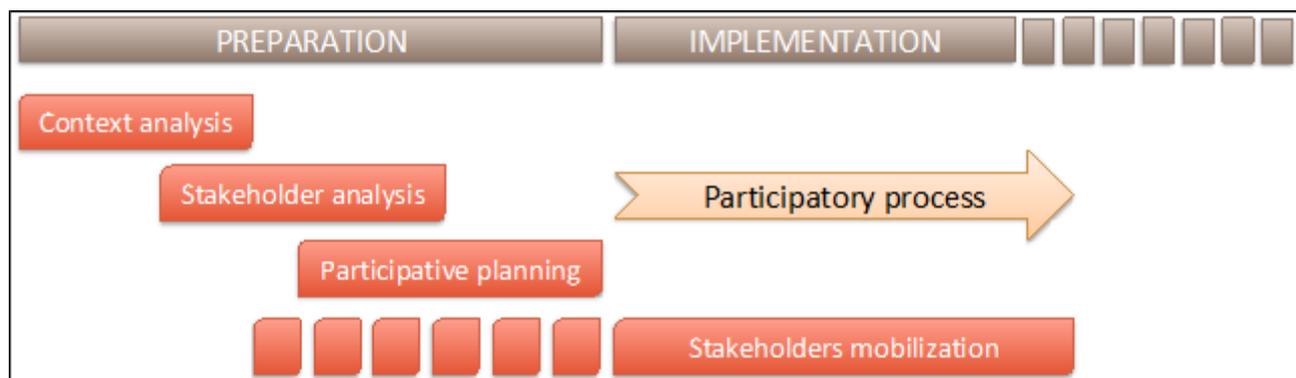
Figure 5 : main steps to plan a participatory process (Lisode, 2019)

3.1.1 Context assessment

Assessing the project context is required to understand where comes the need for participation, if the selected level of participation is adequate, and also to ensure that implementation means and resources mobilized are well adapted to the situation. This analysis should be done by the project team in charge of facilitating the process. The following questions can be used to verify that all important issues are well considered.

1. **Global approach:** is the process integrated in a broader approach? Which one?
2. **Promoter and its goals:** who decided to organize it? What are the motivations and the expectations?
3. **Space/time:** what is the geographical perimeter of the process? How long the process is expected to last?
4. **Participants and expectations:** who will participate? What are their expectations?
5. **Mental block/bottlenecks:** are there any potential conflicts that can be anticipated?
6. **Impacts:** what will happen to the outcome of the process?

Additional interviews and a bibliographic review (including recent legislation for example) can be conducted in order to develop a more complete vision of the context.

3.1.2 Stakeholders analysis: assessment of stakeholders' power relations

The second stage aims at understanding and assessing the power relations (or influence) between the stakeholders involved in the process. You should be able to answer questions such as:

- Who are the stakeholders involved? What are their relationships and interactions? What are their roles and responsibilities?
- Who may be winning or losing something through the project? How and why? What are the relationships between the "winners" and "losers"?

This analysis should help to assess the power relations (or influence) between stakeholders, to understand how the process can be affected by these interactions, and how they should be integrated in the process design.

Finally, this work contributes to determine the strategy and efforts to mobilize, the dialogue platforms needed, and its adaptation to the type of stakeholders identified. While working on this assessment, it is necessary to keep in mind that potential participants will attend the collective sessions only if they have an interest in doing so (see the Stakeholders mobilization and engagement part for details below).

3.1.3 Participatory planning of the process

The final stage of this planning process relies on setting out the different components of the participation process in a strategic plan. The project team will define different steps and for each step, the associated objectives, the participants concerned, the tools mobilized and some means that can be added. This plan is a tool that should be followed as much as possible along the process.

In addition, this step is already an opportunity to consider how the process will be evaluated; it may require documents, tools or data to be collected from the beginning of the fieldwork.

3.2 Implementing a participatory process

3.2.1 Stakeholders mobilization and engagement

According to the Cambridge dictionary, mobilization is "the act of organizing or preparing something, such as a group of people, for a purpose" and the engagement can be defined as "the process of encouraging people to be interested in the work of an organization, etc." Thus, mobilization should be considered as a process itself (with its own dedicated staff, resources and timeline), done all along the project and starting approximately with the participatory process (or before) – the design and planning steps can provide useful information that contribute to a good mobilization. The aim is to engage stakeholders who will be involved in the entire participatory process and who will be willing to attend the meetings. This work is a crucial step in a participatory process as far as this is indeed the main goal of the whole process.

Stakeholders mobilization requires to previously work on selecting who to mobilize (and why); and then on how mobilize participants.

- **Who to mobilize and why** : Mobilization is about having a group of stakeholders who will be able and willing to come to each session of the process; and this group of stakeholders should be the same all along the project. For instance, we can consider a set of consecutive workshops on a water reuse project; each workshop will be based on some information used or developed during the previous

sessions. If you have the same participants all along the process, all of them will gradually learn information on water reuse; all of them will learn to know each other; and the group will probably have a better functioning as the project goes along. For each session it will not be necessary to spend too much time on participants' presentation and on reminders of the past session.

Thus, the idea is to find the "good participant" for each category of stakeholder; this participant can be considered as the "project manager" within his institution. Once chosen well, this participant will relay information from the workshop sessions to its colleagues and pairs, on the technical part as well as on the methodological and participatory approach.

Working on "who do you mobilize" can come with the representativeness question. But what you might be looking for in a participatory process is the exhaustiveness in terms of type of stakeholders. An important point in a participatory process is that every voice is recognized and ideally, every voice is represented. If you have minorities, the process is aiming at integrating them; and it might be better to have one representative of minorities discussing with one representative of a majority, instead of keeping the proportion in the process.

Besides, representativeness means an important cost. In a representative group of stakeholders, it might also be difficult to have every one willing to participate to the process.

Thus, representativeness of people within a given territory is not really adapted to a participatory process. What you can rather reach is having a good and diverse mix of stakeholders, ensuring at least that each voice participates. At any time of the process you shall describe who participates and how the participants were chosen.

- **How to mobilize participants**: The stakeholder analysis is useful in mobilization as it helps understanding the participants' objectives and constraints, and the power relations or influences between potential participants. It will help you understand why people can be motivated to participate, why they would decide not to be involved, etc. Then you can use this information to adapt your mobilization plan and efforts. Depending on the situation, the formal invitation letter is compulsory. Though it is not always enough and you should also have a face-to-face meeting with the beneficiary. This interview is the occasion to better explain the reasons why you want the person to participate, and the opportunity to convince this person to get involved in the process.

  Whatever form the mobilization takes, it should bring sufficiently detailed information on the project, on the process, and state the specific goals from the very beginning in order to raise people's interest and stimulate their motivation to participate.

3.2.2 Consolidating the correct implementation of working sessions with stakeholders

The objective of participatory sessions with stakeholders is to collectively produce something (an action plan, a diagnosis, a decision, etc.). This objective can only be achieved, if at least the participants communicate and work together effectively. There is a wide range of useful tools available to handle the complexity of this collective exercise with a large variety of actors. These tools can take the form of complex data and information available to participants and are indeed formalized and enable the interaction between participants and the production of knowledge.

The tools mobilized in a participatory approach must be adapted to the objectives of each session organized, (for instance: role-plays used to carry out prospective work (a); participatory natural resource management plan (b); participatory mapping for a diagnosis (c)). The use of these tools by a facilitator will help communicating, listening and interacting among participants. The role of the facilitator is to ensure that:

- each participant can actively participate in the discussions,
- make feel confident with the rest of the group,
- is being able to give each opinion without judgement,
- there is mutual understanding within the group.

If necessary, the facilitator can help to formulate an idea to ensure that everyone understands the main basis of the discussion. The facilitator's role is then to help participants to find common and shared solutions, through encouraging the acceptance of the decision by everyone. In addition, the choice of venue and date will contribute to the smooth running of the sessions and the whole process. During the planning of the process it is necessary to ensure that participants are available and that the proposed time is appropriate for everyone; for instance, participants should not have to make a choice such as "I can attend and participate to the workshop or I can watch the football match with friends".

3.2.3 The best moment for participation

Participation is always possible and most of the time it has positive consequences if it meets certain standards (see below). Planning may vary according to the specific context, but the majority of the operational activities to be implemented can be partially or fully generalized. The description of a generic participatory process, as in the case of aquaculture development in Europe, should contain the following four steps:

1. **Policy making stage**
   ⇨ Depending of the countries, it can be national or regional scale
   ⇨ It occurs when the decision of promoting offshore aquaculture is made
   ⇨ Participation can be understood in a traditional way, accordingly to the democratic infrastructure of the countries relatively to policy making
   ⇨ Or in a more innovative way (national consensus conference, etc.)
2. **Planning stage**
   ⇨ It's mostly a regional process
   ⇨ It occurs when "optimal areas" are studied, and decided
   ⇨ Participation is often suggested…
   ⇨ …but merely genuinely implemented
3. **Implementing stage**
   ⇨ It occurs when the farms and other required infrastructures are built
   ⇨ We don't talk about participation anymore but more about "participatory site supervision"
   ⇨ Everything is already decided, the monitoring of citizens helps to reduce the negative externalities of the construction
4. **Functioning stage**
   ⇨ The farms are in place and functioning
   ⇨ We are not anymore in the field of "participation" but more in the field of "corporate social responsibility" (which can include some participation, but in a different way).

Participation needs to be strengthened and enforced in the planning stage, as it is the optimal moment. Lack of social acceptability is more evident in the last two activities. Strong opposition against the farms already in place, or against local aquaculture development plans from civil society, or from a group of local actors

(environmentalists, fishermen). Managers of marine aquaculture projects are often too focused on these conflictual social situations, demanding "tools and methods" to inform social acceptance at this early stage, forgetting that these situations are consequences of both the past context and the lack of upstream participation. Indeed, as it is consensually accepted by experts in participatory processes, improving social acceptability requires participation at the earliest possible stage. There are two rationales associated with the implementation of participation in late stage processes:

1. Everything is already shaped and decided, and it is impossible to integrate the constraints of the participants, and then the project will be unsuited to their needs;
2. The process in which participation occurs may appear to be rigged (because participation seems useless to opponents), and diminish the legitimacy of the project.

This last point should not be overlooked, as lack of governance could be the most serious obstacle to social acceptability.

4   Assessing the Social Acceptability through a three steps approach experimentation

The proposed research-action approach consists in working with the stakeholders in charge of aquaculture development on the issue of social acceptability. The objective is to exchange on their perceptions of the problem, on the way it is taken into account in their strategies, in order to understand what makes a project ((not acceptable and to build a common and rational vision of the problem. Social acceptability, which is a complex issue, is thus questioned through constraints and bottlenecks in order to express a degree of social acceptability.

4.1   A three steps approach to assess SA of aquaculture development

To work with stakeholders, interviews and workshops have to be carried out. They will bring together various institutional actors (local, regional and national administrations), intermediaries (representatives of fishermen, from the tourism sector, NGOs, industries relying on or impacting the resources and area where the project could take place, citizens…), researchers, and fish farmers. It will group stakeholders that are all part of the aquaculture development issue. The purpose of these interviews and workshops is to work directly on the issue of acceptability, to reintroduce the concept at the core of aquaculture development issues, and not as a secondary amenity that could be dealt with "at a later stage". This approach makes it possible to move away from a normative assessment of social acceptability that is highly context-dependent. The issue of social acceptability is generally dealt with in "northern" countries, and by formulating very inductive normative assumptions about what social acceptability is and the factors favouring it.

To implement this approach over a case study, the process is organized in 3 phases, as illustrated in Figure 6. Each of these phases will build over the previous one in a continuum of research-actions.
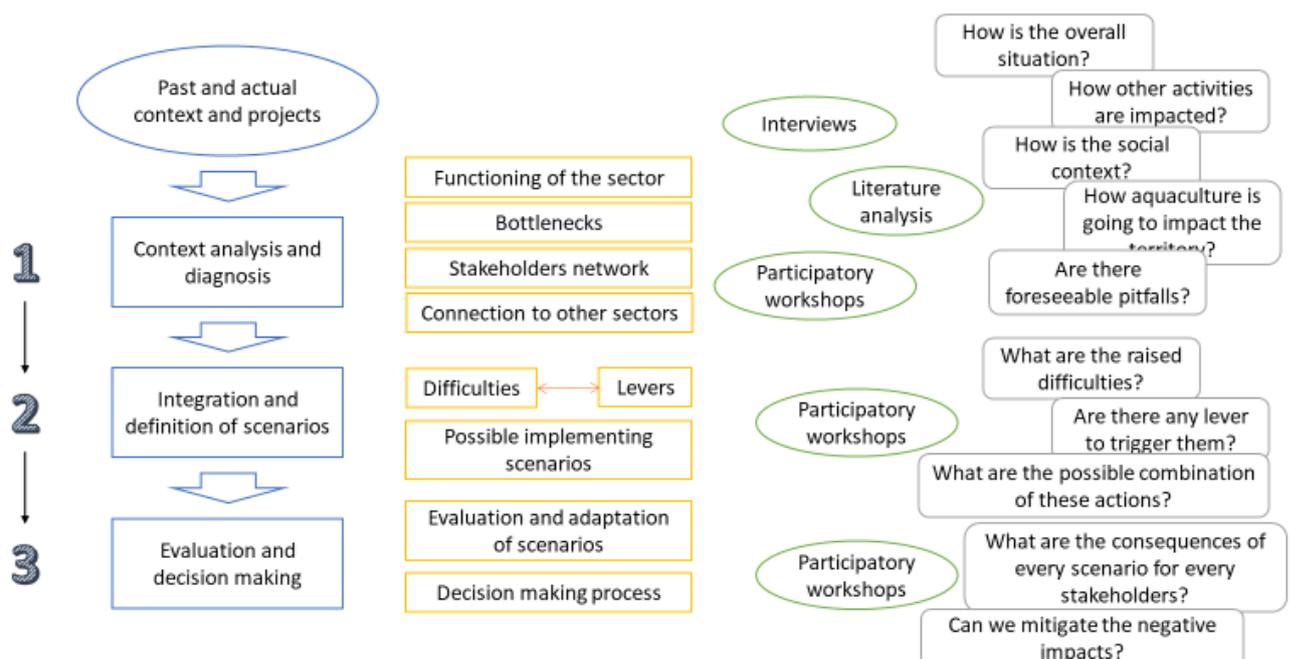
Figure 6 : A 3 steps approach to assess Social Acceptability of Aquaculture Development

- **1ˢᵗ Phase: Context analysis and diagnosis of the aquaculture development:**

The objective of the first phase is to get a good understanding of the context and the place occupied by the issues of social acceptability of aquaculture in the case study. Questions are for instance: how is the overall situation at the scale of the territory where the project could take place? What are the social, economic, institutional and environmental context? How aquaculture is going to impact the territory, positively and negatively? What will be the activities impacted and how it will be impacted by aquaculture? Identify potential biases of development and uncover hidden conflicts. To that purpose, literature review (existing studies), stakeholders mapping, individual interviews and/or participatory workshops are useful tools to support this 1ˢᵗ phase. Individual interviews with different stakeholders at the central, regional and local levels will have to reflect the diversity of stakeholders, opinions and perceptions about aquaculture development (see chapter 3 about "Who to mobilize"). Additional interviews can take place later in the process if additional stakeholders and/or issues are identified in the next phases. This survey work allows the elaboration of an exhaustive diagnosis of the context, to meet the stakeholders and to sound out their interest for a participatory approach. Individual interviews also allow stakeholders to express themselves more freely before working in groups.

- **2ⁿᵈ Phase: Integration and definition of scenarios**

The integration and definition of scenarios will be achieved through the implementation of a participatory workshop on the evolution of aquaculture activity and its impact on the various components of society. The process can be divided into several workshops if needed. The objective of the workshop is to understand, in an empirical way, which elements contribute to the social unacceptability of aquaculture and what are the conditions to be implemented to promote the development of sustainable projects. What are the raised difficulties? Is there any lever to trigger them? What are the possible combinations of these actions that could give birth to scenarios?

If needed, a separate participatory workshop with a specific sector of the society can be planned if it is perceived as more efficient before joining other stakeholders in a second participatory workshop or in the 3ʳᵈ phase. Feel free and as adaptive as needed.

- **3ʳᵈ Phase: Evaluation and Decision Making**

The evaluation and decision making phase will rely again on participatory workshops. This objective of the 3ʳᵈ phase is to bring the participants to build a shared vision of the social acceptability issues on the territory. The objective of the workshop (with the same participants) is to work directly with them on the issue of acceptability. Participants will then have to evaluate aquaculture development scenarios with a view to social acceptability.

The interviews and the previous workshops in phases 1 and 2 should provide a good understanding of the context and the factors that could lead to social unacceptability. Participants will work on scenarios built from the two previous workshops. What are the consequences of every scenario for every stakeholder? Can we mitigate the negative impacts?... These scenarios will be evaluated and adapted to feed the decision making process with a proposal of a socially acceptable project. But it could also be reported a context which is inappropriate to the development of aquaculture. That doesn't have to be perceived as a failure of the process, but as avoided costs (transaction and investment costs) of a non-sustainable project.

4.2 Recommendations on the implementation of the 3 steps approach

The proposed 3 steps approach is rather a logical, embedded and continuous framework. But a set of recommendations has to be formulated prior to its implementation.

4.2.1 The three hotspots

INFORMING, DEBATING, CO-BUILDING, CONSULTING ARE DIFFERENT WORDS WITH DIFFERENT MEANINGS.

Informing is always the minimum minimorum to insure trust and to avoid escalation. But the maximum benefit from participation is reached when people impacted by a project are invited to propose adaptation of it… and when their participation has an impact on this project!

STAKEHOLDERS INCLUSION AND PUBLIC PARTICIPATION ARE DIFFERENT

It's always very useful to work with the very stakeholders, group of interests, professionals, who are directly impacted by a project. First of all, because you probably want them aboard rather than against you, and secondly, because it will help improving the project. And it could be enough for small scale projects. But if you plan to implement projects that could significally change everything around, it couldn't be enough to insure social acceptability (see below). Therefore, you will also have to implement a participatory process oriented to civil society, and to jump out from the usual arena.

SKILLS, BUDGET, TIME

It's true it takes time to make all these participatory process. But less time than recovering for a massive "social unacceptability" failure. And time is always a problem… if the project hasn't been well planned with people able to design participatory processes. The processes we discuss below are examples of technical projects with an intensive well designed participatory process.

It takes time, budget, and specific skills. Most of public institutions in charge of natural resource in general, in Europe, (water management, farming land management, protected area management, etc.), have now the soft skills that allow them to manage of social acceptability (sociology, politology, anthropology, participatory engineering, etc.), for purpose.

4.2.2 Every situation is different

But asking the good questions can help in framing the participatory process.

- ⇨ How is the overall situation?
- ⇨ How other activities are impacted?
- ⇨ How is the social context?
- ⇨ How aquaculture is going to impact the territory?
- ⇨ Are there foreseeable pitfalls?
- ⇨ What are the raised difficulties?
- ⇨ Are there any levers to trigger them?
- ⇨ What are the possible combinations of these actions?
- ⇨ What are the consequences of every scenario for every stakeholder?
- ⇨ Can we mitigate the negative impacts?

4.2.3 Three possible steps

1 Context analysis and diagnosis	⇨	**2** Integration and definition of scenarios	⇨	**3** Evaluation and decision making
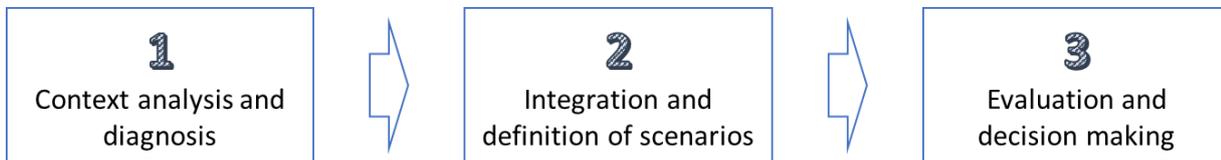
Context analysis and diagnosis

Beside everything technical, the important point to investigate, is the impact of your project on the existing usages, and not from an expert point of view, but from the stakeholders themselves. This is an important stage for a genuine participatory process. It can be organized in many different ways, including an authentic dialog with experts, but it must be focused on the understanding on the activities of the stakeholders, not in explaining them how your project is good for them.

Integration and definition of scenarios

A way to simplify the debates, and to operationalize the interactions between the project manager and the stakeholders is to build various scenarios for the project, with iterations between proposals from one group to the other. It's possible to start with proposal from scratch of the stakeholders, but it you want to make it simple and shorter, you would probably prefer to propose different (smart) scenarios to the stakeholders, then to evaluate, and adapt them. The idea is to have (really) different scenarios, not to close too much the interactions. Then, you can evaluate (desk job) the feasibility of these scenarios, and to prepare (counter)proposals for the final stage. But it's very important that these counterproposals really take into account the proposal of the stakeholders, by integrating them, or, if it's not possible, by explaining why.

Evaluation and decision making process

Then, on the base of the counterproposal scenarios, you can organise a final debate between stakeholders to evaluate the consequences of every scenario, to find mitigations actions, and to prepare the final decision making process.

What about civil society?

As mentioned below, you should take into account the fact that civil society has to be involved. It can be done at any stage, as another iteration: at the second stage, for instance, you propose scenarios, modified by stakeholders, evaluated in public meeting by citizens, then you build counterproposal based on that.

Or it can be done in parallel: at the first stage, you organise public meeting to gather public perception about aquaculture, and to make an evaluation of the expectations of the civil society.

But definitively, it has to be done at the third stage, to present the final scenarios, and to make and evaluation of it, to have the big picture.

4.2.4 Finally, …
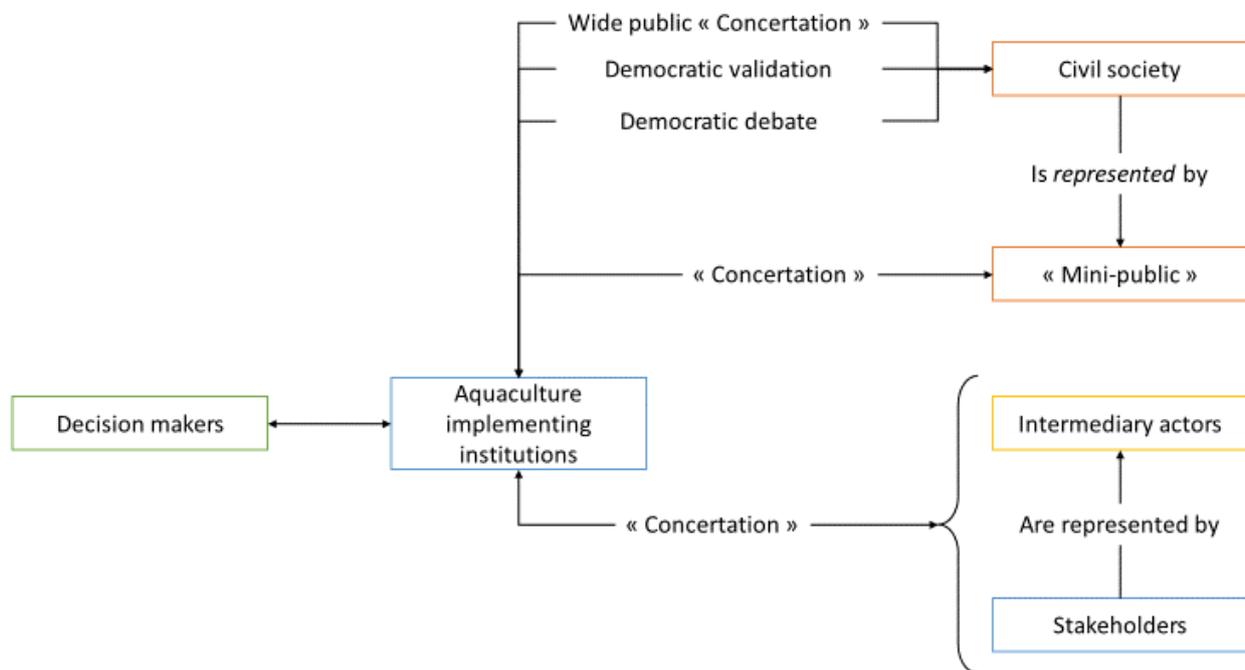
Figure 7 : Enforcing social acceptability by implementing a "safe" participatory process

As already discussed, the above figure depicts how to design a participatory process to enforce social acceptability. The existing networks of impacted or impacting stakeholders and intermediaries actors are associated to a genuine participatory process, in a way of a "Concertation"[2], to improve, mitigate, adapt it; but civil society as a whole is included in the participatory process.

---

[2] « Concertation » is a French word and means a participatory process where participants build together proposals and where the rationality to include, or not, these proposals into the design of the project is transparent to the participants (they have a clear answer on why their proposals are included or not).

5 Participatory tools and good practices rules

Various guides are available worldwide, among which:

- English language: Lisode's Guide to public participation and facilitation:http://www.lisode.com/wp-content/uploads/2019/06/Guide_Lisode_version_finale_EN_publication.pdf
- English language: King Baudouin Foundation. 2006. Participatory Methods Toolkit: A Practitioner's Manual. http://80.65.129.195/en/Virtual-Library/2006/294864 A review of 13 methods that can also be downloaded separately.
- English language: BiodivERsA Stakeholder Engagement Handbook (2014). Best practice guidelines for stakeholder engagement in research projects. Guidelines and Additional resources: Practical Method Notes, Conflict management Tools, Templates. https://www.biodiversa.org/702
- Various languages (English, German, Spanish, Italian, Dutch, French, Hungarian, Russian) Harmonicop's Guide: Learning together to manage together: https://www.ecologic.eu/1625
- French langage: Lisode : Guide de concertation territorial et de facilitation : http://www.lisode.com/wp-content/uploads/2017/03/Lisode_Guide_concertation.pdf
- French langage : Fondation Nicolas Hulot pour la Nature et l'Homme. 2015.Démocratie participative, Guide des outils pour Agir.
  http://www.fondation-nature-homme.org/sites/default/files/publications/130912_democratie_participative-guide_des_outils_pour_agir.pdf
- French langage : Fondation Roi Baudouin. 2006. Méthodes participatives. Un guide pour l'utilisateur.
  https://www.kbs-frb.be/fr/Virtual-Library/2006/294864
  https://www.issuelab.org/resources/29723/29723.pdf

So it would be pointless to make another list of tools which can be used for public participation, group facilitation and stakeholder engagement. Rather we will support the designer of public participatory process in these depositories. However, there are a few rules to be observed in the use and implementation of these tools:

Rule 1: No improvisation

Most of the tools for public participation are inspired, or very closely connected to management or knowledge engineering sciences. And, as for project management, there are different moments, different objectives, different contexts, etc., which should gain advantage to be equipped with the adequate tool. You won't use the same tool for gathering perception about landscape impact with wide public, and for fine tuning a technical option with a small group of stakeholders. As for project management, objectives, public, contexts, have to been clarified prior to choosing the corresponding tool.

Rule 2: Consultation and deliberation, extraction and co-building

Most of the time, public participation is reduced to extracting data from the participants (consultation), for diagnosis purpose for instance. For a participatory process to be useful, you have to emphasize the co-building stages between participants (deliberation). Participation is not about collecting single views, but about supporting the building of a collective vision.

Rule 3: No limit? The means!

With the required means (skills, budget, time), it's possible to make everything participatory.

Rule 4: Small or large groups?

There are two ways to handle large groups, the first one, is to make a selection of people (with election, of statistic filtering), and to work with them as a small group. That's the spirit of Citizen Jury for instance.

Or, you can address large groups directly, with, most of the time, a large group of facilitators, professional or specifically trained, and adapted methods (open forum, world café, etc.).

Rule 5: Stakeholders or citizens?

Citizen participation is connected to public communication, and most of the time, it's a mix between workshops (in large group or smaller groups, cf. Rule 4), and communication processes, to inform the people who don't participate, to make the project, and the results of the participation, visible.

Stakeholders participation is easier in the way they are less, more visible, and more connected to the existing decision-making processes. But not all of them!

Rule 6: Eventually, someone will be in charge of facilitating a workshop

"Facilitation technics" are tools to handle a group during a workshop. This is the minimum skill to acquire to keep control on a workshop.

Rule 7: A rich repository of tools for participation

Role playing games to explore complexity, participatory modelling, participatory simulation, participatory mapping, theatre, post-it, drawing, photo safari, walking diagnosis… a lot of things are already tested, and used. You just have to pick one.

6   Discussion and General Recommendations

Can aquaculture, and in particular marine and coastal aquaculture, fulfill the objectives assigned to it or the hopes placed in it, both by the Blue Revolution and Blue Growth?

Probably not in its current form or according to the way aquaculture development is and has been thought. After years of assured positivism, mainly based on the fact that World aquaculture production has gradually overpassed that of capture, for the first time FAO expresses some doubts about the ability of marine fish farming to cope with the "farming more than catch" issue: "*despite the increasing output from global aquaculture, farming of marine fishes is unlikely to overtake marine capture production in the future*" (FAO 2020, the State of World Fisheries and Aquaculture 2020).

Yes, if development is rethought in a more peaceful and integrated way by taking the time to formulate and debate the stakes and objectives of its development. If there are strong drivers and incentives to marine aquaculture development, these drivers and incentives also carry with them adverse effects and development biases that may question the sustainability of aquaculture development. These effects and biases have to be carefully addressed and taken into account through an objective that has to be clearly explained, transparent, shared and understandable by all and, above all, correctly formulated. This results today in the Social Acceptability issue.

All along the present document, the importance of assessing Social Acceptability through participatory processes has been underlined as key to support aquaculture development in a sustainable way, as well as for other maritime sectors of the Blue growth. To that purpose, participatory approaches present a number of advantages and benefits.

First of all, robustness of policy actions is higher when they are supported and legitimized by social groups that have a certain critical mass and relays in other social groups. For instance, in the case of onshore wind energy in France and after an initial positive growth, the opponents have been able to aggregate around their struggle a multitude of other social groups to completely change the vision of wind power by rural territories.

Secondly, the implementation of programs, plans and projects always fits into a local context that cannot be neglected.

Finally, it is currently a fundamental expectation of European citizens to be involved in the decision-making processes concerning projects that affect or impact them.

The importance of participatory approaches is again more crucial in the context of marine territories and marine socio-ecosystems where decision making is currently based on technical and expert paradigms due to the historical context of European maritime management. Coastal areas are also socially and economically perturbed (collapse of the fishing economy, risks of submersion, questioning intensive tourism, outermost maritime regions and often poorer areas, etc.), under strong environmental pressures and at the same time have to face huge development projects within the Blue Growth Strategy (wind farms, marine aquaculture, etc.).

To implement such projects and achieve the BG's objectives, there is a lack of transfer of skills and experience from traditional territorial approaches (integration of stakeholders, territorial facilitation, long-term consultation bodies, etc.) to the proposed approaches for coastal areas that remain more based on technical and engineering approaches driven by external objectives (e.g. developing marine and offshore aquaculture without consideration to the territorial demand). As already underlined in the chapter about the identification of bottlenecks chapter, there're still important gaps to manage the social acceptability by

spatial planning through the MSP, while good practices and experience from the Water Framework Directive could have been of significant help and an inspiring example.

Figure 8 illustrates some of the benefits when adopting a virtuous approach assessing SA through participation vs. costs of the dominant technical approach of projects engineering.

Analysis of local contexts, stakes and social issues	vs	Projects developed "ex nihilo" without insights on local integration (technical, of course, but also social)
Integration of stakeholders and citizens at the right moment of decision-making processes (as far upstream as possible)	vs	Information campaigns dating from the thirties ("it's good for you, do not worry, we take care of everything, it's our job")
Sincerity of concerted action	vs	Processes of "technical administrative concertation" deployed when everything is already decided
Take the time of the social dialogue	vs	Accelerate decision-making
The cost of not realizing projects because of their social unacceptability	vs	The cost of an accompanying approach to improve the legitimacy of the project

Figure 8 : Factors influencing SA through integration of the local context and legitimization with stakeholders

After implementing the 3 steps approach over different case studies, a cross-comparison was made between the results of the interviews and workshops with materials from the scientific literature. Results of the interviews and participatory workshops were about the proposals that have been put forward by stakeholders to think about aquaculture development in a different way, i.e. one that would be more socially acceptable. These proposals can be cross-referenced with and structured according to four main recommendations: **1) Support concertation, 2) Give importance to the adequacy between the territory and the project, 3) Value the benefits of the project and promote transparency and 4) Establish a framework that support aquaculture development and compliance to the development process.**

The following four sheets present these four recommendations by quoting and synthetizing main proposals from stakeholders and illustrating where it fits into the scientific literature.

Various stakeholders have expressed their willingness to participate in decision-making and advocate the involvement of all stakeholders.

Do not start from a negative premise as to the willingness of certain stakeholders to participate in the debate. Implement an initial and separate workshop if needed.

In the evaluations process, participants expressed the wish for a feedback on the study and that results of the workshops should be taken into account in decision-making.

In scenario games or prospective work, participants have often difficulties in projecting oneself for others (inhabitants, civil society).

1   Support concertation

- According to scientific literature, **participation is key to social acceptability process**. IUCN (2009) states that "the participatory approach, as a well-structured and properly implemented strategy applied to selection and management of aquaculture sites, represents an opportunity to ensure the acceptance and permanence of any aquaculture project, since **it allows all stakeholders to be involved in the definition and implementation of the process**".

- A participatory process allows stakeholders **to take ownership of the project** and thus be more supportive of it, and this **promotes trust** between actors and allows stakeholders **to feel more respected and considered**.

- The top-down logic, i.e. "top down" frequently used for the implementation of aquaculture projects, should therefore be replaced by **a more horizontal process** (Fortin and Fournis; 2013).

- There are **different forms of participatory processes**. Depending on the degree of stakeholder participation, it can take the form of information/communication, consultation, concertation and co-decision. Concertation and co-decision are the most favourable levels for social acceptability, but co-decision seems difficult to apply to projects of this scale. To be effective, **concertation** must respect a certain number of conditions:

  - The work of the participants must have an impact on the decision-making process
  - The objectives of the participatory process must be defined upstream
  - All categories of stakeholders must be represented
  - The participatory process must be transparent
  - This should allow the expression of different points of view
  - It must be adaptive in time and space

- It should also be kept in mind that **public participation does not always promote a positive public response** to a project. Thus, a participatory process that would lead to a negative response to aquaculture should not be seen as a failure.

2 Give importance to the adequacy between the territory and the project

Check that the territory is suitable:

Assess the impact of aquaculture over the environment.

Anticipate needs: Extension of ports, reservation of areas at port level for aquaculture farms, increase the capacity of training centres, etc.

Adopt an integrated and holistic view and adapt the project to the territory:

- Do maritime spatial planning.
- Implementation of **a global pollution management plan** (source by source).
- Take into account the needs of activities already present in the territory.
- Take into account the specific characteristics of the territory (bathymetry, seabeds, compliance to carrying capacity...)

→ By adopting a participative and concertation approach

- An **exhaustive diagnosis of the territory**, carried out at the beginning of the process, makes it possible to check if the **territory is suitable to a project** and get the necessary information to build a project adapted to the territory. To be relevant, it must address economic, social and environmental issues, but also governance assets and the values that the "public" attaches to places, landscapes, etc. (Batellier, 2015). Ideally, this diagnosis should be carried out in a participatory way, it will be richer and will contribute all the more to reducing the unacceptability of projects (Wolsink, 2012). **Stakeholders feel more respected when we do not decide for them what they need and what impacts them** (Moffat and Zhang, 2014).

- It is important to pay attention to the different uses present in the area. The coastline is coveted by a large number of activities that use common resources, so it is essential to think about its management in **an integrated way**. This approach is particularly valued by IUCN in its guide to aquaculture site selection: "As aquaculture is currently one of the last sectors to establish itself in a specific area, it is essential that **synergies and incompatibilities with other sectors be identified** to ensure that aquaculture is integrated into the local economy and that sites are selected and managed in an appropriate manner".

- **Spatial planning** is an effective tool for managing a large number of activities. This makes it easier to analyse the constraints of the territory and therefore to take them into account more effectively. However, it must be built on the basis of an exhaustive diagnosis as explained above.

To address issues related to aquaculture development, workshop participants proposed:

More feedback from the studies carried out.

Implementation of a label to **inform the consumer and improve product traceability**.

The benefits of the project must be well distributed:
- Help fishermen who wish to convert to aquaculture.
- Allow fishermen to **enter concessions**.
- Review laws regarding taxes paid by fishermen.
- **Compensate inshore fishermen** for the impacts they suffer either directly from aquaculture farms (a percentage of the farm's profits could be dedicated to fishermen) or from the government.
- **Replace off-shore farms with on-shore farms**.
- **Distribute aquaculture companies along the coast** in order to reduce their concentration in a single place.

Informing the "public" is important because it allows them to assess whether a project is "good in itself". But it is important that the "public" be able to react, express their concerns and points of view and, above all, that these feedbacks be taken into account. This information, while unilateral, is closer to the "utilitarian" vision of social acceptability. Because it means that the State does not understand that citizens are opposed to aquaculture and that it is up to it to judge which option is the best in terms of the alternatives available. This seems to run counter to a good process.

Secondly, it is essential that communication be done on the impact/fall out of the project. Benefits and negative impacts are important elements in the social acceptability of aquaculture. Many bottlenecks in case studies revolve around the negative impacts of aquaculture or poorly distributed positive impacts. It is therefore important that the project leader discusses these aspects with the "public". Because even if it is not possible to erase certain impacts, the fact that they are known to the "public" at the beginning of the project facilitates their acceptance. This is even more important if the impacts are predictable but there is still considerable uncertainty about their nature and magnitude (Yates and Caron, 2012).

Once these benefits are expressed, it is also **important that they are well distributed** (Wolsink, 2012). There must be benefits that balance the impacts and that they are well distributed (Prno, 2013). Actors will have more difficulty withstanding the constraints of the activity if they do not see the positive benefits for their territory.

In a number of case studies where aquaculture is developing alongside an existing fishing activity, fishermen suffer a number of inconveniences with aquaculture, but do not benefit from the positive effects on employment. They are doubly penalised, because aquaculture could enable some fishermen in difficulty to retrain, but they are not part of the process, and aquaculture attracts the most qualified jobs from the fishing industry and thus penalises this sector, which lacks this qualified workforce.

- More **control and monitoring** of operators' practices (licences limits, home ports, etc.).
- **Scientific monitoring** of the state of the ecosystem at least twice a year (or every season) under and around the cages with qualified personnel.

- More **stringent regulations**.
- A **normative framework** for the disposal of cages at sea.
- **Sound and proven impact studies**.
- **Allocation of licence subject to** the absence of Posidonia beds and sufficient depth.

- **Political will** (more human and financial resources allocated).
- Create a **Ministry of the Sea**.
- **Establish think tanks** at decision making level.
- A more transparent government strategy **towards aquaculture and inshore fisheries sectors**.

4 Establish a framework that supports aquaculture development and compliance to the development process

It is important that the **construction process of a project is well framed** and that the result of this process is respected. Prno (2013) explains that this framework is important because for such projects, stakeholders want to be sure that the project will be conducted in a reliable and responsible manner. The stakeholders met during the study attach great importance to this. Of the 20 concerns mentioned, 5 are directly related to non-compliance with agreements/regulations.

According to IUCN, **the State can play the role of administrator and facilitator in this process**. For instance, the actors of the Bay of Monastir (Tunisia) seem to be waiting for the State to take on this role more. But it is important that this be done in the public interest. For according to Fortin and Fournis (2013), "for several decades, the State has tended to open up as a partner or companion to economic development in the field of natural resources, creating confusion with its role as guarantor of the general interest and the common good in relation to that of economic enterprises".

This framework must be **adapted to the context of the territory**.

7 References

- AAC (2020) Second Recommendation on the Future Strategic Guidelines for the Sustainable Development of EU Aquaculture. Disponible sur (https://www.aac-europe.org/images/Second_Recommendation_on_the_Future_Strategic_Guidelines_for_the_Sustainable_Development_of_EU_Aquaculture.pdf)

- Arkema, K. K., Abramson, S. C., & Dewsbury, B. M. (2006). Marine ecosystem‐based management: from characterization to implementation. Frontiers in Ecology and the Environment, 4(10), 525-532.

- Arnstein, S. R. (1969). A ladder of citizen participation. Journal of the American Institute of planners, 35(4), 216-224.

- Bacher, K. (2015). Perceptions and misconceptions of aquaculture: a global overview. GLOBEFISH Research Programme, Vol. 120, Rome, FAO. 35 p.

- Batellier, P. (2015). Acceptabilité sociale : cartographie d'une notion et de ses usages. Cahier de recherche. Montréal : Les Publications du Centr'ERE (Centre de recherche en éducation et formation relatives à l'environnement et à l'écocitoyenneté), Université du Québec à Montréal.

- Bauwens, T. (2015). Propriété coopérative et acceptabilité sociale de l'éolien terrestre. Reflets et perspectives de la vie économique, De Boeck Ed., 2015/1-2 (Tome LIV), pp. 59-70. DOI: 10.3917/rpve.541.0059

- Beynet, J-M. (2020). Habiter le littoral d'ici 2100 : Prospective et propositions pour l'Occitanie, Librinova, 2020 (http://www.lisode.com/wp-content/uploads/2019/06/Quelles-participations-des-citoyens-dans-laction-publique-Les-citoyens-d%C3%A9battent-et-r%C3%A9pondent.pdf)

- Boutilier, R-G., Thomson I. (2011). Modelling and measuring the social license to operate: fruits of a dialogue between theory and practice. 10p.

- Brugère, C., Aguilar‐Manjarrez, J., Beveridge, M. C., & Soto, D. (2019). The ecosystem approach to aquaculture 10 years on–a critical review and consideration of its future role in blue growth. Reviews in Aquaculture, 11(3), 493-514

- Burbridge, P., Hendrick, V., Roth, E., & Rosenthal, H. (2001). Social and economic policy issues relevant to marine aquaculture. Journal of Applied Ichthyology, 17(4), 194-206.

- Campos, A. S., Ha-Duong, M., & Merad, M. (2010). Synthèse de littérature sur l'acceptabilité sociale du captage et du stockage du CO_2.

- Cicin-Sain, B., Knecht, R. W., Knecht, R., Jang, D., & Fisk, G. W. (1998). Integrated coastal and ocean management: concepts and practices. Island press.

- Clarke, J., and Flannery, W. 2020. The post-political nature of marine spatial planning and modalities for its re-politicisation, Journal of Environmental Policy & Planning, 22:2, pp 170-183, DOI 10.1080/1523908X.2019.1680276

- Chuenpagdee, R., and Jentoft, S. 2013. Assessing Governability – What's Next, in Bavinck, M., Chuenpagdee, R., Jentoft, S., & Kooiman, J. (Eds.). Governability of Fisheries and Aquaculture. Theory and Applications. MARE Publication Series 7. pp 335-349. DOI 10.1007/978-94-007-6107-0_18

- COM (2002) 0511. Communication from the Commission to the European Parliament and Council. A strategy for the sustainable development of European aquaculture

- Costa-Pierce, B. 2002. The 'Blue Revolution' - Aquaculture Must Go Green, World Aquaculture 33(4), January 2002.

- EUMOFA, European Market Observatory for Fisheries and Aquaculture Products. 2019. The EU Fish Market, 2019 Edition, Luxembourg: Publications Office of the European Union, 2019, 101p.

- De Coninck, A. (2015). Faire de l'action publique une action collective: Expertise et concertation pour la mise en œuvre des continuités écologiques sur les rivières périurbaines (Doctoral dissertation).
- Dionnet, M., Imache, A., Leteurtre, E., Rougier, J. E., & Dolinska, A. (2017). Guide to public participation and facilitation, Lisode, 64p. https://www.lisode.com/wp-content/uploads/2019/06/Guide_Lisode_version_finale_EN_publication.pdf
- Douvere, F. (2008). The importance of marine spatial planning in advancing ecosystem-based sea use management. Marine policy, 32(5), 762-771.
- EATIP (2012). The future of European aquaculture—Our Vision: a strategic agenda for research & innovation. European Aquaculture Technology and Innovation Platform (EATIP), 41p. http://eatip.eu/wp-content/uploads/2018/02/EATIP-SRIA-2012.pdf
- EC (2014). Blue Growth, Brussels, European Commission. Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions EC Blue Growth year. Available at: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52012DC0494 (accessed 1 April 2020).
- EC (2016). Multiannual national aquaculture plans summaries by country. Disponible sur: http://ec.europa.eu/fisheries/cfp/aquaculture/multiannual-national-plans_en
- EC COM(2013) 229 final. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Strategic Guidelines for the sustainable development of EU aquaculture; 12p.
- EU Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy. Official Journal L 327 , 22/12/2000 P. 0001 – 0073.
- Ehler, C., & Douvere, F. (2009). Marine Spatial Planning: a step-by-step approach toward ecosystem-based management. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides no. 53, ICAM Dossier no. 6. Paris: UNESCO. 2009
- European Court of Auditors. (2014). The Effectiveness of European Fisheries Fund Support for Aquaculture vol.10, Special Report Nº, Luxembourg, 2014
- FAO, (2016). Report of the Workshop on Increasing Public Understanding and Acceptance of Aquaculture – the Role of Truth, Transparency and Transformation, Vigo, Spain, 10–11 October 2015. FAO Fisheries and Aquaculture Report No. 1143. Rome, Italy.
- FAO. (2018). The State of World Fisheries and Aquaculture 2016 - Contributing to food security and nutrition for all. Rome. 200p.
- Flannery, W., Clarke, J., McAteer, B. 2019. Politics and Power in Marine Spatial Planning, in Maritime Spatial Planning: Past, Present, Future, Jacek Zaucha, Kira Gee Ed. Palgrave Macmillan pp. 201-217. DOI 10.1007/978-3-319-98696-8
- Flannery, W., Healy, N., Luna, M. 2018. Exclusion and non-participation in Marine Spatial Planning, Marine Policy Volume 88, February 2018, pp. 32-40.
- Flannery, W., & Cinnéide, M. Ó. (2012). A roadmap for marine spatial planning: A critical examination of the European Commission's guiding principles based on their application in the Clyde MSP Pilot Project. Marine Policy, 36(1), 265-271.
- Fortin, M. J. and Fournis, Y. (2013). Facteurs pour une analyse intégrée de l'acceptabilité sociale selon une perspective de développement territorial : l'industrie du gaz de schiste au Québec. Etude pour le comité d'évaluation environnementale stratégique, Rimouski, UQAR.
- Fortin, M. J., and Fournis, Y. (2011). L'acceptabilité sociale de projets énergétiques au Québec : la difficile construction par l'action publique. In Actes du colloque Territoire et Environnement: des représentations à l'action, Université de Tours, décembre (pp. 321-331).

- Fortin, M.J., and Fournis, Y. (2013). Facteurs pour une analyse intégrée de l'acceptabilité sociale selon une perspective de développement territorial : L'industrie du gaz de schiste au Québec. Chaire de recherche du Canada en développement régional et territorial. Département sociétés, territoires et développement. UQAR / GRIDEQ-CRDT. 187p.
- Fournis, Y., & Fortin, M. J. (2015). Une définition territoriale de l'acceptabilité sociale: pièges et défis conceptuels. [VertigO] La revue électronique en sciences de l'environnement, 15(3).
- Freeman R.E. (1984), Strategic Management: a Stakeholder Approach, Pitman, Boston
- Funtowicz, S.O. and Jerome R. Ravetz (1991). « A New Scientific Methodology for Global Environmental Issues » In Ecological Economics : The Science and Management of Sustainability. Ed. Robert Costanza. New York: Columbia University Press: 137-152
- Gendron, C. (2014). « Penser l'acceptabilité sociale : au-delà de l'intérêt, les valeurs ». Communiquer, 11, 117-129
- Guillen, J., Asche, F., Carvalho, N., Polanco, J. M. F., Llorente, I., Nielsen, R., ... & Villasante, S. (2019). Aquaculture subsidies in the European Union: Evolution, impact and future potential for growth. Marine Policy, 104, 19-28.
- Hishamunda, N., Ridler, N. & Martone, E. (2014). Policy and governance in aquaculture: lessons learned and way forward. FAO Fisheries and Aquaculture Technical Paper No. 577. Rome, FAO. 59 p.
- Hoagland, P., Jin, D., Kite-Powell, H. (2003). The optimal allocation of ocean space: aquaculture and wild-harvest fisheries. Marine Resource Economy 18, 129–147.
- IUCN (2009). Guide for the Sustainable Development of Mediterranean Aquaculture 2. Aquaculture site selection and site management. Gland, Switzerland and Malaga, Spain, IUCN. 303 pp
- Jager, N.W.; Challies, E.; Kochskämper, E.; Newig, J.; Benson, D.; Blackstock, K.; Collins, K.; Ernst, A.; Evers, M.; Feichtinger, J.; Fritsch, O.; Gooch, G.; Grund, W.; Hedelin, B.; Hernández-Mora, N.; Hüesker, F.; Huitema, D.; Irvine, K.; Klinke, A.; Lange, L.; Loupsans, D.; Lubell, M.; Maganda, C.; Matczak, P.; Parés, M.; Saarikoski, H.; Slavíková, L.; Van der Arend, S.; Von Korff, Y. (2016). Transforming European Water Governance? Participation and River Basin Management under the EU Water Framework Directive in 13 Member States. Water 2016, 8, 156.
- Jones, P. J., Lieberknecht, L. M., & Qiu, W. (2016). Marine spatial planning in reality: Introduction to case studies and discussion of findings. Marine Policy, 71, 256-264.
- Krause, G., C. Brugere, A. Diedrich, M.W. Ebeling, S.C.A. Ferse, E. Mikkelsen, J.A. Pérez Agúndez, S.M. Stead, N. Stybel, M. Troell. (2015). A revolution without people? Closing the people-policy gap in aquaculture development. Aquaculture 447: 44–55.
- Kyriazi, Z., Maes, F., Rabaut, M., Vincx, M., & Degraer, S. (2013). The integration of nature conservation into the marine spatial planning process. Marine Policy, 38, 133-139.
- Lisode. (2019). Retour d'expérience : Quelle participation des citoyens dans la construction de l'action publique ? 16p. http://www.lisode.com/wp-content/uploads/2019/06/Quelles-participations-des-citoyens-dans-laction-publique-Les-citoyens-d%C3%A9battent-et-r%C3%A9pondent.pdf
- Macias, J.C., Avila Zaragozá, P., Karakassis, I., Sanchez-Jerez, P., Massa, F., Fezzardi, D., Yücel Gier, G., Franičević, V., Borg, J.A., Chapela Pérez, R.M., Tomassetti, P., Angel, D.L., Marino, G., Nhhala, H., Hamza, H., Carmignac, C. & Fourdain, L. (2019). Allocated zones for aquaculture: a guide for the establishment of coastal zones dedicated to aquaculture in the Mediterranean and the Black Sea. General Fisheries Commission for the Mediterranean. Studies and Reviews. No 97. Rome, FAO. 90 p.
- Mercier, S. (2010). Une analyse historique du concept de parties prenantes : Quelles leçons pour l'avenir? Management & Avenir, 33(3), 142-156. doi:10.3917/mav.033.0142.

- Moffat, K., & Zhang, A. (2014). The paths to social licence to operate: An integrative model explaining community acceptance of mining. Resources policy, 39, 61-70.
- Nadaï, Alain. (2007). "Planning", "Siting" and the local Acceptance of Wind Power: Some Lessons from the French Case. Energy Policy. 35. 2715-2726. 10.1016/j.enpol.2006.12.003
- Prno. (2013). An analysis of factors leading to the establishment of a social licence to operate in the mining industry. Resources Policy, 38(4), 577-590
- Quesada-Silva, M., Iglesias-Campos, A., Turra, A., Suárez-de Vivero, J. L. 2019. Stakeholder Participation Assessment Framework (SPAF): A theory-based strategy to plan and evaluate marine spatial planning participatory processes. Marine Policy Volume 108, October 2019, Article 103619.
- Ravetz, J. R. (2006). Post-normal science and the complexity of transitions towards sustainability. Ecological complexity, 3(4), 275-284.
- Rey Valette H., Mathé S. (2017). La notion d'acceptabilité sociale : de quoi s'agit-il et comment peut-on intervenir ? In : Durabilité des aliments pour le poisson en aquaculture : réflexions et recommandations sur les aspects technologiques, économiques, sociaux et environnementaux. Le Gouvello Raphaëla (ed.), Simard François (ed.). Paris : IUCN, 72-76. ISBN 978-2-8317-1831-6
- Ruiz‑Chico, J., Biedma‑Ferrer, J. M., Peña‑Sánchez, A. R., & Jiménez‑García, M. (2020). Acceptance of aquaculture as compared with traditional fishing in the province of Cadiz (Spain): an empirical study from the standpoint of social carrying capacity. Reviews in Aquaculture.doi:10.1111/raq.12442
- SAM ADV, Directorate-General for Research and Innovation (European Commission); 2017. Food from the oceans. How can more food and biomass be obtained from the oceans in a way that does not deprive future generations of their benefits? Luxembourg: Publications Office of the European Union, 2017, 71p. DOI 10.2777/66235
- Seguin, L. (2015). Entre conflit et participation: double apprentissage dans un mini-public et un mouvement de contestation. Participations, (3), 63-88.
- Shindler, B., Brunson, M. W., & Cheek, K. A. (2004). Social acceptability in forest and range management. Society and natural resources: A summary of knowledge, 14, 1-17.
- Soto, D.; Aguilar-Manjarrez, J.; Hishamunda, N. (eds). (2008). Building an ecosystem approach to aquaculture. FAO/Universitat de les Illes Balears Expert Workshop. 7–11 May 2007, Palma de Mallorca, Spain. FAO Fisheries and Aquaculture Proceedings. No. 14. Rome, FAO. 221 p.
- Urvoas A-C. (2015). L'acceptabilité sociale des énergies marines renouvelables sur un littoral convoité. Application au projet de parc éolien offshore en Baie de Saint-Brieuc. Sciences Po Toulouse. 115p.
- Wolsink, M. (2012). Wind power: Basic challenge concerning social acceptance. University of Amsterdam. DOI: 10.1007/978-1-4419-0851-3_88. 39p.
- Yaffee, S. L. (1996). Ecosystem management in practice: the importance of human institutions. Ecological applications, 6(3), 724-727.
- Yates, S., & Caron, M. A. (2012). La communication comme vecteur de l'acceptabilité sociale des grands projets. Journal of Professional communication, 2(2), 93-106
- Young, O. R., Osherenko, G., Ekstrom, J., Crowder, L. B., Ogden, J., Wilson, J. A., ... & Halpren, B. S. (2007). Solving the crisis in ocean governance: place-based management of marine ecosystems. Environment: science and policy for sustainable development, 49(4), 20-32.
- Yucel-Gier, G., Arisoy, Y., & Pazi, I. (2010). A spatial analysis of fish farming in the context of ICZM in the Bay of Izmir-Turkey. Coastal Management, 38(4), 399-411.

Publications électroniques AMURE

Série Rapports

AMURE
CENTRE DE DROIT ET D'ÉCONOMIE DE LA MER

www.umr-amure.fr

UBO
Université de Bretagne Occidentale

Ifremer

cnrs