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Contributors: Julien Dilasser, Maryse Ganne, Mónica Campillos-Llanos, Carla Murciano Virto, Maria Plaza Arroyo, Ana Lloret., Cristina Cervera-Núñez, María Gómez-Ballesteros, Márcia Marques, Lisa Sousa, Adriano Quintela, Fátima Lopes Alves.

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Coordinator	Maryse Ganne, Julien Dilasser
Authors	Julien Dilasser, Maryse Ganne, Mónica Campillos-Llanos, Carla Murciano Virto, Maria Plaza Arroyo, Ana Lloret., Cristina Cervera-Núñez, María Gómez-Ballesteros, Márcia Marques, Lisa Sousa, Adriano Quintela, Fátima Lopes Alves.
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Preamble

This report presents the work carried out as part of Task Cl.3.2. Spatial demands and future trends for maritime sectors and marine conservation of the SIMNORAT project. The specific objective of this component is to investigate current and future demands of maritime sectors, with reference to cross-border issues.

This work was led by CEREMA and mobilized the Instituto Español de Oceanografía, CEDEX, and the University of Aveiro. The results of the bibliographic research were enriched by the analysis of interviews and workshops run by these partners and by the French Agency for Biodiversity.

Part – I. Concept and method

1 Why focus on spatial demand in the MSP and how to characterize it?

In recent decades, due to rapid population growth and the scarcity and depletion of land resources, the share of food and energy resources from coastal and marine areas has increased significantly. At sea, resources use is gradually expanding into deeper waters and further offshore.

The demand for use and exploitation of marine space has thus greatly increased, on the one hand because of the expansion of traditional uses (fishing, navigationg, aquaculture, among others) and on the other hand the development of new activities such as marine renewable energies (wind and waves). (Douvere 2010)

In this context, the MSP is a necessary tool to regulate these increasing pressures on the seas and the good state of the marine environment and to ensure the prevention and management of conflicts of use (existing or potential). Indeed, it must help to ensure "*greater certainty of access to desirable areas for new private sector investment*", as well as "*simplified and increased transparency of permitting and licensing procedures*" (Ehler, et al 2009).

The ambition of the MSP is to realize a desired future (EC 2018) in the light of current realities and potentialities. This includes analyzing the spatial consequences of future trends in each sector and defining specific and achievable development objectives.

Visions of each of the maritime sectors are not necessarily spatialized. When they are, they can not still be represented on a traditional map. Structural maps are not geographically accurate down to the smallest detail and are often used in visions for easier presentation.

Visions of maritime sectors with a spatial component show the future consequences of sea use trends in a given area within existing sectors, as well as possible new uses. (EC 2018). The vision and possible scenarios are increasingly expressed during the early stages of the MSP process (for example French cases of 2030 visions in the preparation of « Documents Stratégiques de Façade »). They are based on the public policies and territorial strategies at work for each activity. However, according to Herry and Winder (Herry and Winder, 2015), scenarios need to be created with stakeholder participation, either in the creation of the initial narrative, defining the focus / scope, or by checking the plausibility and the potential results.

However, if these strategies allow the definition of spatial allocations for the future development of certain activities, there are a number of sectors in which such detailed planning could therefore be inappropriate. To specify cable routes on the seabed between fixed points, from the point of view of the cable industry, it is more cost-effective to determine the appropriate routes on a case-by-case basis, avoiding obstacles. Likewise, many commercial fish species are highly mobile and the importance of individual fishing areas changes considerably over time. It is therefore important that there is some flexibility in places where such activities can occur if fishermen want to maximize their effectiveness (EC 2018).

Moreover, the objective of the MSP process, through its analysis of current developments, is to define a **complete projection of the spatial ambitions of the given sectors of activity**. In this exercise, however, consideration should also be given to possible future trends in the maritime sectors, including changes in their growth, technological breakthroughs and interactions / competition with other activities that may have spatial implications beyond the estimates of sectoral strategies and provide new perspectives.

The principles outlined above have all played a role in the characterization of spatial demand by activities for the SIMNORAT project area. Thus, on the one hand, to allow for a uniform consideration of activities, including those least likely to be planned, and on the other hand, to allow the input of other elements of contexts such as interactions between activities, favorable (or not) public policies or general contexts influencing the development of an activity, the capitalization of the direct expression of the representatives of the activity was retained to account for the spatial demand.

The interest in this study in the direct expression of the spatial demand by the representatives of the maritime sector activity constitutes its originality. This expression reflects the concrete vision, specific to each sector, of its evolution as well as its expectations regarding the MSP.

The purpose of this study is not to define and study several prospective development scenarios or to map sectoral trends, but rather to explore the factors influencing its development (policies, interactions, context, etc.) and to characterize positioning strategy with respect to the MSP.

2 Spatial Demand Analysis Method for the SIMNORAT Project

2.1 Building a common analytical framework

In such an approach requiring the integration of work of international comparison, to build a problematic means to have a transversal, transcultural or transnational grid of reading (Ghorra-Gobin, 1998). The construction of a common reading grid for all the Member States covered by this analysis was therefore an essential step in this work. Thus, based on the conceptual framework and the stakes of the characterization of the spatial demand developed previously, **this exercise identifies the common variables likely to constitute a priori factors influencing the expression of the spatial demand**.

A common analysis grid of the expression of space demand has therefore been developed for the following 8 maritime sectors

- Aquaculture
- Fisheries
- Cables and Pipelines
- Offshore Wind Energy
- Ports and Shipping
- Yacthing
- Oil and Gas
- Marine renewable energy

This grid (detailed below) is initially generalist, because it must be adaptable to all sectors studied. This grid must also be able to take into account the different contexts and management structures of each of the Member States concerned by this study and must therefore remain sufficiently "flexible" to be impregnated with the particularities of each case.

The framework of analysis shared by the three Member States takes into account the different concepts previously defined in this report (see below). **It is therefore a question of (qualitatively) apprehending the spatial demand expressed by the stakeholders of each sector, but also of characterizing this spatial demand. This characterization requires an analysis of the capacities of the sectors to organize themselves and to express their demands and by a contextualization reflecting on current and future trends that may explain certain positions.**

In the analysis grid created for this study, three rubrics must make it possible to bring contextual elements and to account for the spatial demand expressed by the representatives of each sector: Structure of the sector and channels of expression to claim "spatial demand", the analysis of the sector in its environment: interactions with other activities and marine conservation, Characterization of spatial and prospective demand around future trends.

- **Structure of the sector and channels of expression to claim "spatial demand"**

The objective of this section is to analyze, for each maritime sector, the structuring of the sector, its organization and its level of participation in the construction process of the MSP in order to understand the channels of expression which it has for claim a "spatial demand".

An organized sector is considered here as a facilitating factor for the expression of demands and spatial demand. This section lists the various organizations involved in the representation and promotion of each sector of activity. The analysis of the **structuring of the sectors** can highlight the weight that a sector can represent in the consultations on the MSP.

It also discusses the different places and means of expression for these organizations in consultation bodies or through their own means. The notion of consultative forum used in this section refers to areas of interaction that encourage local stakeholders (Beuret 2006) or contribute to the construction of territorial projects. This notion integrates institutionalized consultation processes (Cadoret, 2006). Finally, a global analysis of the position of the sector is proposed. The aim is to formulate (on the basis of the set of data found more on each activity sheet) an interpretation of the position taken by the sector with regard to spatial applications. It is about questioning about what methods do sector representatives use to express their spatial demands. Are they pro-active or wait-and-see? Do they use regulatory remedies to support their remarks? Do they claim a right of access to the resource, a historical and legitimate user status or other?

Depending on the case, this part can integrate the direct expression of the spatial demand and specify areas concerned by a request from the sector. However, it should be remembered that, in the context of this study, spatial demand is qualitatively reported and that it is not a matter of quantitatively accounting for it.

- ## The analysis of the sector in its environment: interactions with other activities and conservation

This part aims at understanding and analyzing the weight of the interactions of the activity with its environment on the characterization of the spatial demand. Three types of interactions are thus studied as possible factors influencing the spatial demand:

The **interactions between activities** be it between different sectors or in the same sector (example: different fishing practices).

The **interactions between activities and environmental considerations**: the constraints felt by the parties concerned with respect to environmental regulations in the development of their activities.

Cross-border interactions combining indifferently the two types of interactions mentioned above when they appear between actors of different nationalities or on a border area.

This section lists the obstacles or opportunities identified by the representatives of each sector, in the literature and in interviews, in terms of spatial development of their sector. It identifies, through the expression of the actors, the sources of potential conflicts (spatial or resource competitions) but also the opportunities for synergies between activities and with the marine environment. This analysis also allows, in some cases, to identify gaps between the representation of professionals and the potential conflicts identified in the status reports of the MSP. Taking into account interactions between activities and the marine environment is a source of data to be linked to the analysis of the spatial demand for marine conservation (another part of task C.1.3.2).

- ## Characterization of spatial and prospective demand around future trends.

A last topic was created to specify other context elements in the analysis. These may be factors representing obstacles or opportunities for the sector in its development or its means of expression of the spatial demand (eg technological development, political aspect, structuring / seniority of this or that sector) or of a state of play of MSP reflections or approaches in the State concerned which leads to a lack of statements and positions on the subject.

2.2 Three-step research

The research work resulted in a combination of bibliographic analyzes and the capitalization interviews carried out by SIMNORAT partners as part of other tasks of the SIMNORAT project,

- **Desk analysis**

In accordance with the Grant Agreement, an important place has been given to the desk analysis.

The common analysis grid was used for each of the eight sectors and at the level of the 3 member states. The research and analysis was done by project partners - Cerema for France, IEO and CEDEX for Spain and UAVR for Portugal - in order to benefit from the extensive knowledge of these partners on territorial contexts, specific issues and organization of their sectors.

Thus, "**activity sheets**" have been completed for each sector of activity at the level of each country.

They are designed as a tool to study current and future sector trends and potential spatial demands.

The sector sheets focus mainly on the expected evolution of the sectors analyzed, based on the current spatial needs but also on the anticipated future developments of the industry. At the same time, the sheets look at the structuring of activities, the interaction that exists among sectors and between sectors and the environment. Finally, the fact sheets aim to characterize the expression of spatial needs by representatives of the sector by capitalizing contextual elements and the positioning of stakeholders.

- **Interviews**

The very purpose of this work is the analysis of spatial demands by stakeholders. The search for information directly from industry representatives is therefore an interesting source of data to complete and refine the analyzes provided by the literature review. Various tasks of the SIMNORAT project required obtaining information from stakeholders. Thus, the preparation of these interventions with the project partners involved in this work allowed the inclusion of elements related to spatial demands and activity evolution trends.

A total of forty-four anonymized interviews were carried out by the project partners out of twenty three were in France, thirteen in Portugal and eight in Spain. Twenty-five interviews with representatives of fishing, shipping, industry and boating activities were used for this task.

- **The synthesis of the works**

This summary was produced at the level of the 8 activity sectors according to the following plan:

- Structure of the sector and channels of expression to claim "spatial demand"
- The analysis of the sector in its environment: interactions with other activities and marine conservation
- Characterization of spatial and prospective demand in future trends.

Beyond the quantitative elements that have been capitalized, this part focuses on the legal, political and technical contexts that can influence the spatial demand of a sector.

Part II. Activity sheets

Co-funded by the European Union

Reminder of the characteristics of the sector (extract C1.1.1 - Initial Assessment)

Fisheries: spatial distribution

The anchovy example in subarea VIII (Bay of Biscay) :The Spanish fleet operates mainly in divisions VIIIc and VIIIb in spring, while the French fleet operates in division VIIIa in summer and autumn and in division VIIIb in winter and summer

Main objectives of the The Common Fisheries Policy

- Restore and maintenance of fish stocks at maximum sustainable yield levels (MSY) so to uphold a profitable fishing industry in coastal areas
- Fisheries management can take the form of input control, output control, or a combination of both. Input controls include :
- Rules on access to waters – to control which vessels have access to which waters and areas
- Fishing effort controls – to limit fishing capacity and vessel usage
- Technical measures – to regulate gear usage and where and fishing efforts (minimum size of species)

Output controls mainly consist of limiting the amount of fish from a particular fishery, in particular through total allowable catches (TACs and quotas). Also, since 2015, a landing obligation is introduced gradually, which requires all catches of regulated commercial species, (including by-catches),on-board to be landed and counted against quota

The Common Fisheries Policy increasingly has recourse to multi-annual plans which often combine different management tools.

The Common Fisheries Policy : multiannual plans

Multiannual plan for the sustainable exploitation of the stock of sole in the Bay of Biscay covering ICES areas VIIIa and VIIIb

=> bring spawning stock biomass to above the precautionary level of 13,000 tonnes

Measures for the recovery of the Southern hake and Norway lobster stocks in the Cantabrian Sea and Western Iberian Peninsula

=> increase the spawning stock biomass of Southern hake to 35,000 tonnes for two consecutive years. For Norway lobster, rebuild stocks to within safe biological limits.

Recovery plan for Northern hake => increase the quantities of mature fish in the Northern hake stock to at least 140,000 tonnes.

Of the sole catches in the Bay of Biscay, the French fleet landed 92% of the weight respectively. The Belgium share reached 8% of the total landings.

In 2014, Portuguese and Spanish fleets mainly shared the Norway lobster catches in the Cantabrian Sea and Western Iberian Peninsula, with respectively 89% and 11% of total landings in weight.

This management plan concerns Spanish, French, Portuguese, Irish, UK, Dutch and Belgian fleets

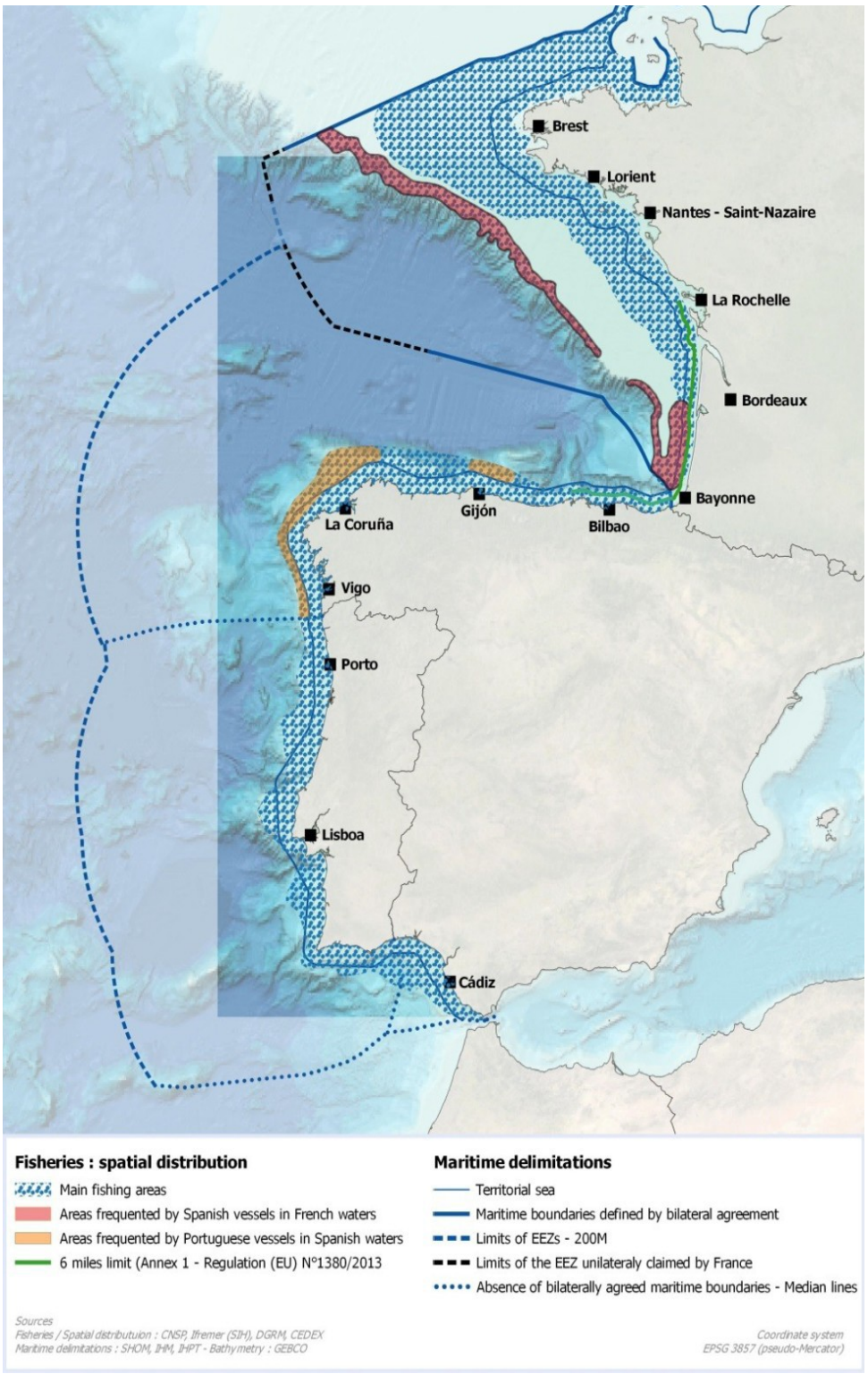

Illustration 1: Fishing activity in OSPAR IV area

Structure of sectors and canals of expression for the spatial demands

Key points

The fishing industry is a generally well-structured sector. It presents national and regional representation institutions in the three Member States. This structuring is a result of historical importance of the activity for these three countries.

Institutions such as the French « Comités National des Pêches » (CNPEM), « comités régionaux des pêches » (CRPEM) and the Spanish "Cofradias", are recognized in the consultation bodies of the State and local authorities. French CRPEM are recognized by decree as a member of the French Conseils Maritimes de Façade (CMF)

Their legitimacy is confirmed by their good level of representativeness and the economic weight represented by the fishing activity. However, the balance sheet is noticeably different in the case of Portugal where "The professional and associative structures present a deficient organization and a low level of representativeness"[1] despite the large number of associations and cooperatives of different sizes (types fisheries, location, ship-owners, fishing industry, etc.).

The participation of these institutions in the public debate is considered to be proactive in the French and Spanish cases and they have several forums of expression and by their own means (websites and other activity reports).

In France, the representatives of the profession (CNPEM & CRPEM) are notably involved in the Conseil National de la Mer et des Littoraux (CNML) and in Conseils Maritimes de Façade (CMF) and are therefore involved in the development, implementation, monitoring and evaluation of the Stratégie Nationale pour la Mer et le Littoral (SNML). Fishery representatives are also consulted through local and regional approaches. This is the case, for example, in Bretagne and Pays de la Loire, which respectively set up consultative bodies to develop regional sea and coastal strategies (CRML and ARML).

The professional fishing organizations and other associative entities representing the sector of these three Member States participate in the advisory bodies of the European Union, international institutions and the general administration of the State. They are rather pro-active. Interviews with Spanish fisheries stakeholders highlight an expectation about the creation of a consultative body for negotiations with other sectors.

In Portugal, a commission composed by the main fishing associations and organizations took part of the Situation Plan development.

1 PEN - Pesca 2007-2013 (2007). Plano Entratégico Nacional para a Pesca. 84pp. http://www.promar.gov.pt/Download/PROMAR/PEN_Pesca.pdf.

FRANCE

In France, administrative and professional structures are involved in fisheries management at the national level (Ministry of Ecology / Directorate of Maritime Fisheries and Aquaculture and National Fisheries Committee) at regional level (Regional Prefect, maritime Prefect, DIRM, DDTM / DML, regional fisheries and marine farming committees).

The professional sector of marine fishing is organized around a National Committee of Fisheries and Marine Breedings (**CNPEM**) with 14 regional committees (**CRPEM**) and 12 departmental and interdepartmental committees. They bring together professional elected representatives, trade union representatives, producer organizations and maritime cooperatives from different types of fisheries. The Fisheries Committees have essentially a representation and co-management role with the State of the marine fisheries and marine farming sector.

This representation involves participation in national, regional and local public bodies and national regulations; the promotion of trades, promotion and communication actions to the general public; or the contribution to the European Fund for Fishing and Maritime Affairs (EMFF). The regional committees can also contribute to the different planning processes (Documents stratégiques de façade, works on Schémas Directeurs d'Aménagement et de Gestion de l'Eau, Natura 2000 programs, fight against marine pollution, etc.,").

The interests of the sector (in terms of occupation of space in particular) are also defended by representatives of the profession (**CNPEM & CRPEM**) in the **conseil national de la mer et des littoraux (CNML)**. The CNML is involved in the development, implementation, monitoring and evaluation of the Stratégie nationale pour la mer et le littoral (SNML). The CNML is obligatorily consulted on the decrees relating to the management of the public maritime domain, as well as on the priorities of intervention and the general conditions of attribution of the State aids. The CNML contributes to the coordination of the policies of the sea and the coastline: it plays a role of animation of the Conseils Maritimes de Façade (CMF).

The **Conseils Maritimes de Façade** are involved in the preparation of the documents stratégiques de façade (DSF). The representatives of the sector (CNPEM & CRPEM) can make recommendations and opinions in the framework of the development of the strategic front of the building (DSF).

Fishery representatives are also consulted through local and regional approaches. This is the case, for example, in Bretagne and Pays de la Loire, which respectively set up consultative bodies to develop regional sea and coastal strategies (CRML and ARML). These strategies are not devoted to maritime spatial planning but allow fishermen's representatives to express the needs of the sector (notably in terms of space).

As part of the implementation of the various public policies relating to the sea and the coast (and in particular the PEM), the (national and regional) marine fisheries and marine farms committees formulate some position reports. These reports thus characterize the position of fishery professionals regarding to the development of another activity or the development of a policy.

SPAIN

Act 3/2001, March 26, of State's Maritime Fisheries

The law[2] recognize the traditional implantation of the "Cofradías de Pescadores" (Fishermen's Associations) on the coast, and their legal nature of public non-profit corporations, and establishes the bases of their democratic composition and operation regime that will be developed, expanded and controlled by the Autonomous Communities. The antecedents of the "Cofradías" go back to the eleventh century.

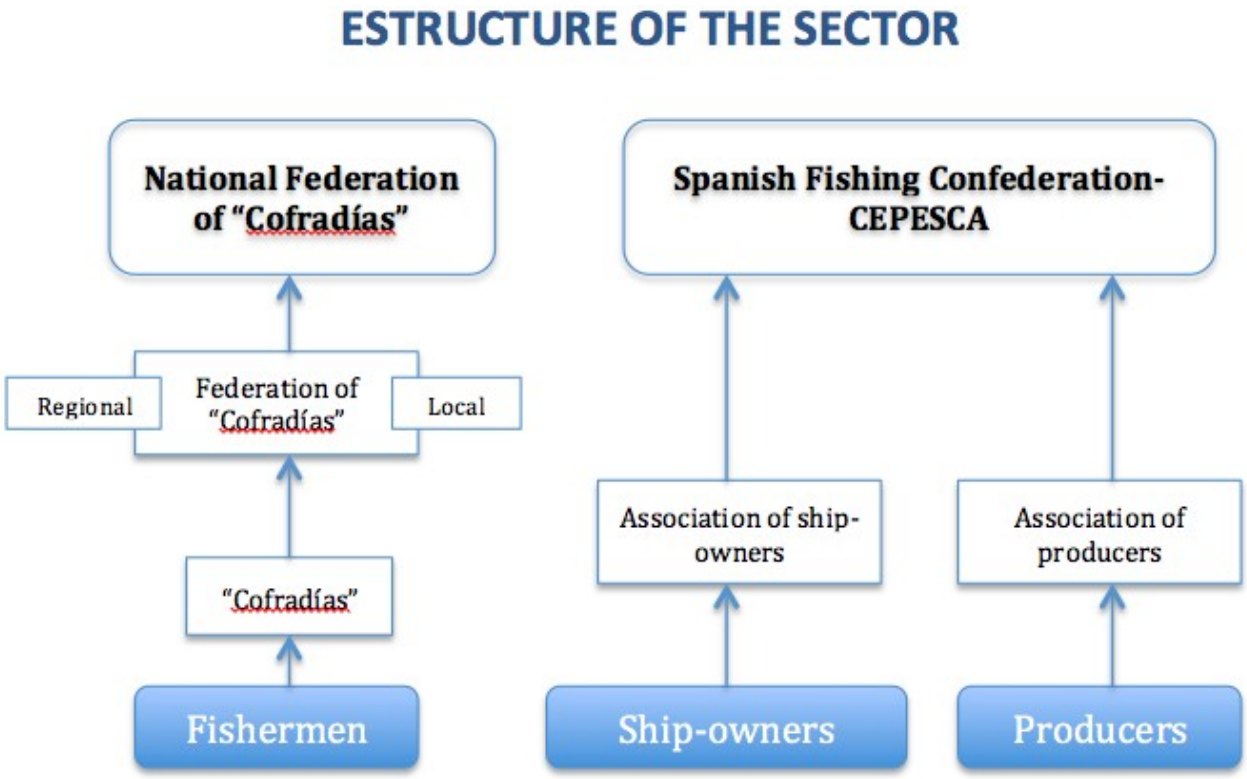

Illustration 2: Spanish fisheries sector

In article 41 of the Law, of instruments of the management policy of the fishing sector, one of the measures identified are related to the promotion and regulation of associative entities in the sector.

Section 2 of the law regulates the "Cofradías" that are "Corporations of public law, non-profit making, representing economic interests, which act as consultation and collaboration bodies of the competent administrations in matters of maritime fishing and of the management of the fishing sector." Owners of fishing vessels and workers in the extractive sector are allow to be members of the "Cofradías" .

Article 46 establishes the functions of the "Cofradías" that will be, among others, to act as consultation bodies for the competent public administrations and to provide services to its members and represent and defend their interests.

Article 48. The representative organs of the "Cofradías" are the "Junta General", the "Cabildo" and the "Patrón Mayor".

The National Federation of Fishermen's "Cofradías" may integrate, if applicable, the "Cofradías" and its federations and act as an interlocutor between them and the General State Administration on maritime fishing, performing those actions that the General State Administration may delegate to it.

Section 4. of the law is dedicated to "Other entities representative of the fisheries sector". Article 56 of "associative entities and union organizations" says that shipowners associations and union organizations will be

2 Act 3/2001, March 26, of State's Maritime Fisheries

considered for interlocution and collaboration in decision making when it may affect the interests that they represent.

CEPESCA[3] - "Confederación Española de Pesca"

Created in 2007, is the most important national fishing business organization in Europe and one of the most representative in the world. It agglutinates: 37 shipowners associations; 800 fisheries enterprises; 861 vessels; 10.000 workers; 311.674,88 GT; 1.000 millions euros o business volume; 50% of captures at national level

In summary it groups 95% of the deep-sea fleet, a high percentage of coastal fleet of medium size and a 64% of GT of the Spanish fleet.

Among its objectives:

- Join forces to make a better defense of the economic and professional interests of the Spanish fishing sector.
- Be a privileged interlocutor of the different administrations, encouraging dialogue and collaboration with them.

National Federation of Fishermen's "Cofradías"[4]

Among other functions:

- Coordinate, manage and represent the socio-economic interests of all "Cofradías".
- Channel as many actions, projects or programs carried out by the Administration that affect the socioeconomic interests of the fishing sector.

Nowadays it represents 225 Cofradías, that means 40.000 workers , 9000 of them, shipowners.

The Order of 10 June 199813 creates the Consultative Committee of the Fishing Sector as a body for consultation, deliberation and advice of the Ministry of Agriculture, Fisheries and Food in matters within its competence relating to maritime fishing, the management of the fishing sector, management of the marketing of fishery products, fisheries research and aquaculture.

The Consultative Committee of the Fishing Sector will have the following composition:

- The President, who will be the General Secretary of Maritime Fishing.
- Four Members representing the General Secretariat of Maritime Fishing, which will be appointed by the President among the officials of the same.
- Four Members representing the public law corporations of the fishing sector, nationwide.
- Four Members representing the business sector to the extractive fishing industry, nationwide.
- Four Members representing the trade union organizations of the national fishing sector.
- Four Members representing the transformation and marketing sector, nationwide.
- Two Members representing the aquaculture sector, nationwide.
- Two Members with free appointment of the President, chosen from professionals of recognized prestige.

A Secretary, who will be the Deputy Director General of Support and Coordination of the General Secretariat of Maritime Fishing.

The Fisheries Sector Commission will be the cooperation body between the general administration of the state and the Autonomous Communities.

3 http://www.cepesca.es

4 http://www.fncp.eu/quienes-somos/

PORTUGAL

The Portuguese fishing fleet is characterized by a predominance of small-scale fishing vessels (90% of vessels smaller than 12m in length overall). The fishing vessels are classified according to the area in which they operate: (i) local fishing vessels, (ii) coastal fishing vessels, and (iii) long-distance fishing vessels. In the Mainland, the main fishing areas are located in the coastal zone, mainly up to 6 miles where the local fleet operates almost exclusively.

In Portugal, administrative structures are involved in fisheries management at the national level (Ministry of the Sea / Directorate of Natural Resources, Safety and Maritime Services (DGRM) and Portuguese Institute of the Sea and Atmosphere (IPMA)) at regional level (Regional directorates of fisheries and agriculture – North, Centre, Algarve). As a member of the European Union, the EU Common Fisheries Policy governs the fisheries management, in Portugal.

The Directorate-General of Natural Resources, Safety and Maritime Services (DGRM), from the Ministry of the Sea, is the National Fisheries Authority to provide fishing permits. In accordance with the rules of the Common Fisheries Policy, and in the exercise of the powers of the National Fisheries Authority, it is incumbent upon the DGRM, in particular, pursuant to Article 5 (5) of Regulation (EC) 1224/2009 Council of 20 November 2009 to coordinate the control activities of all national control authorities. Is also responsible for coordinating the collection, processing and certification of information related to fishing activities and reporting, information to the Commission, the European Fisheries Control Agency, other Member States and, where appropriate, third countries.

Professionally, the fishing sector is organized in Associations that differ in scope by the typology of fishing (industrial or artisanal) typology of fishing gear, regional associations. Professional and associative structures present a deficient organization and a low level of representativeness (PEN-Pesca, 2007) despite the high number of associations and cooperatives with different scope (types of fishery, location, ship owners, fishery-processing industry etc.).

Membership in Regional Fishery Bodies

- European Inland Fisheries and Aquaculture Advisory Commission (EIFAAC)
- International Council for the Exploration of the Sea (ICES)
- International Whaling Commission (IWC)

Possible places of expression for actors in the sector:

A Commission composed by the major fishing associations and organizations accompanies the elaboration of the Portuguese MSP process: the “Situation Plan”. In this work, DGRM promoted several meetings with associations and organizations of the fishing sector, namely:

- AAPF - Associação de Armadores de Pesca da Fuzeta
- OLHÃOPESCA - Organização de Produtores de Pescado do Algarve, CRL
- ARMALGARVE POLVO -Associação dos Armadores da Pesca do Polvo do Algarve
- AMPIC - Associação dos Moradores/Pescadores da Ilha da Culatra
- QUARPESCA - Associação dos Armadores Pescadores de Quarteira
- APTAV - Associação de Armadores e Pescadores de Tavira
- AAPABMG - Associação Armadores Pesca Artesanal da Baía de Monte Gordo
- APPA - Associação dos Profissionais da Pesca de Albufeira
- AAPABA - Associação Armadores Pesca Artesanal do Barlavento Algarvio
- VIANAPESCA – Cooperativa de Produtores de Peixe de Viana do Castelo
- APROPESCA - Organização Produtores de Pesca Artesanal
- AAPN - Associação Armadores da Pesca do Norte

- APPCE - Associação dos Pescadores Profissionais do Concelho de Esposende
- APPRMM - Associação de Profissionais de Pesca do Rio Minho e do Mar
- AAPLCL ZO – Associação dos Armadores da Pesca Local, Costeira e Largo da Zona Oeste

The right to participate in the preparation of the Situation Plan was made possible through the provision of the Situation Plan website[5] during the all process. It were made available the minutes of the meetings of the various Working Groups and the Consultative Committee, the permits for the Private Use of Maritime Space (TUPEM) already assigned, among other relevant matters. The interested parties were thus able to follow the various stages of the preparation of the plan" Meetings were held with those interested in the preparation of the Situation Plan, namely those related to uses and activities where it is expected that there will be more conflicts in the use of the maritime space[5]

It were organized several meetings with the fishing sector in the whole Portuguese mainland.

Analysis of the sector in its environment: interactions with other activities and conservation

Interactions with other sectors

The professional fishing representatives consider that the activity is a condition to be taken into account in the installation of other activities in the marine environment, because it is an activity that can easily be threatened by the occupation of certain areas. "*Due to the development of new practices, increased pressures and the necessary protection of the natural environment, the issue of sharing of space is considered as a central issue common to all activities and particularly sensitive for fisheries professional that is totally dependent on the marine environment"*.

The incompatibility between the fishing activity and the permanent occupation of the maritime zones for the installation of structures, such as aquaculture or the installation of underwater cables and structures which forbid the use of certain fishing gears, is indeed abundantly reported [6].

Thus, if in the bibliography found for these three countries, the negative interactions are sometimes explained through encompassing terms ("other activities", "new activities", "permanent occupation of zones"), depending on the countries.

The French fishermen express their concern regarding the development of Renewable Energy at sea which, according to the representatives, *"will have consequences both in terms of degradation and modification of marine habitats and in terms of use conflicts for professionals*". These considerations also appear in the words of representatives of the sector gathered during the interviews in France: "Renewable energies, then there for once, it will take places. [...] So there are areas that are going to be locked for fishing, that's obvious. *[...] So these are areas that the fishermen are going to be cast out [...] people on those areas have shared their territory, they know their places and that is satisfactory to everyone. Except that everything is gone because in the middle there may be a wind farm "*; and in Portugal: *"The only evidence of any restriction is with respect to the area of wind farms. […] In our area of activity [6 miles from the coast], I predict that there may be 3 or 4 areas where there may be some conflict with us. Like the case of the renewable energies [Offshore wind energy] in Viana do Castelo that is in a fishing zone"*[7].

Such concerns are also expressed about the mining activities of marine aggregates extractions even if a double positive and negative interaction of dredging activity and sediment immersion is recognized: the activity allowing to maintain accessibility commercial ports, such as fishing, and allow good navigation conditions but with adverse impacts on the environment and exploited resources, which may have negative consequences for fishing

5 Plano de Situação do Ordenamento do Espaço Marítimo (PSOEM) (2018) http://www.psoem.pt/discussao_publica/

6 Interview with Fisheries representative in France

7 Interview with Fisheries representative in Portugal

activities. Some expressions point to the difficulties of planning extraction projects, making it difficult to discuss with professionals and proposing definitions.

"Fixed" structures are not the only ones to interact with the fishing sector. In summer, the increase in the number of boaters makes the cohabitation at sea complicated. This cohabitation has not been due to the sharing of space and the direct incompatibility of the two activities, but, according to the fishermen, to the respect of the rules and the knowledge of good practices. *"like everywhere there are people who respect, then there are people who do not respect. [...] "sometimes there are behaviors that can be accident-prone*".

Interactions with conservation

The direct link between fishing and the availability of resources makes the activity very dependent on the quality of the environment, the fluctuation of stocks and overfishing. Increasing awareness of the imperatives of sustainable development results in the implementation of policies and regulations to protect the marine environment. These policies are reflected in particular through the Common Fisheries Policy and the implementation of the MSFD and protection systems for the environment such as marine protected areas. Interactions between fishing activities and conservation can therefore be considered beneficial when they are understood by fishermen as a means of sustaining the activity. However, these conservation activities may lead to the prohibition of certain practices or the limitation of certain areas and thus directly contradict certain fishing activities. This situation points to possible tensions between fishermen and conservationists: " Some fishermen are very afraid of protecting the environment, they feel stigmatized".

According to some representatives, the application of the directives inevitably leads to sanctions. "*The fisheries sector notes that the dialogue with environmental stakeholders only concerns restrictions"*[8]. The analysis made by the sector of the common fisheries policy and environmental policy, for example, concludes with a tendency to restrict activity. "*The PMI (Integrated Maritime Policy) (...), Habitat [habitat directive], (...) the NATURA network (...) when they really arrive, in the end, they are restrictions. There is no dialogue* ".

In addition there are conflicts between representatives of the sector and some environmental protection associations. In Spain, for example, CEPESCA (Confederación Española de Pesca) declares in some of its presentations "*that the sector suffers the indiscriminate attack of the environmental NGOs*"[9]. This feeling is also apparent in the interviews with professional fishermen: "*There are some NGOs that are still somewhat extremist" [10]; "the beginning of the war between protection and productio*n"[10].

Not all types of fisheries activities are incompatible with conservation, so different areas may conflict with conservation while others may have synergies (such as artisanal fisheries). Although some fishing gear may be dangerous to certain types of ecosystems (trawling in a rich benthic zone), the sector is involved in some conservation projects as well as in the development of MPA management plans (e.g. El Cachucho" in Spain).

Cross-border interactions

It appears that cross-border interactions most often involve internal interactions with the fishing sector (fisheries-fisheries). These interactions generally involve competitive effects on the resource in a context of reduced accessible spaces. In addition to interactions with other sectors such as the development of renewable marine energies already mentioned above, sources of tension exist in particular between the French sectors of fishing and Spanish one. Indeed, on the French side, some representatives point to tensions in the French zones: "*There is a natural planning that exists is the border France-Spain which is more or less respected. [...] it is not rare that we have local boats that grumble because the Spanish enter our areas* ". These tensions seem to be less vehement between the sectors of the Portuguese fishing and the Spanish fishing: "*I do not believe there is competition of the space on the sector of fishing with the other side of the border*". The bibliographic research and the interviews conducted with representatives of the Spanish fishery did not reveal any mention of these tensions between the French and Spanish sectors. "*There is no tension between the different sectors. These conflicts that you commented, we are not aware*"[8].

8 Interview with Fisheries representative in Spain

9 Proposals from CEPESCA for the general elections of 2016

10 Interview with Fisheries representative in France

Interactions may also exist between "*certain fishing activities and the establishment of certain types of Marine Protected Areas*" (CNPEM 2012a). In the Bay of Biscay, the case of the marine protected area called "El Cachucho", could be considered as a conflict between two different sectors in a transboundary zone (Conservation-fisheries) and the same sector in a transboundary context (fisheries-fisheries). In this area, fisheries are regulated and some fishing gear is forbidden. Until now, this regulation only applies to Spanish fishermen while fishermen from other EU countries could fish without restriction.

Characterization of spatial demands and prospective on future trends

Key points

Most of the expression of professional fishing representatives concerns claims for the defense of fishing quotas. However, in these discourses (mainly in France), the notions of rights of use, rights of access to the resource and right to produce often refer to both the notion of quota and space.

For the sector, it is a question of asking for the defense of authorized areas in the face of the permanent occupation of the maritime zones for the installation of activities, such as aquaculture or the installation of underwater cables and structures which prevent the use of certain fishing gear. Representatives, such as the French CNPEM, claim not to confine fishing activities in defined areas as long as they have to keep their wide range of activities since they are by nature dependent. "*We no longer talk about planning activities and uses, but to present a map of these specific strategic objectives, but we are talking about presenting a map, for the occasion that presents the vocations of various zones*"[11]. According to some representatives, a total delimitation of the sea "*represents an appropriation of the institutionalized civil societies that would amount to expropriating the historical actors. [...] It's a kind of hand-over-the-sea [...] There are areas where they will not have the right to fish, areas they will not be allowed to go at all or using gears*".

On the contrary, they ask, throughout the maritime area, to consider the strategic planning of maritime fishing activities across all other maritime activities, that is to say by "systematically taking into account the guarantee of coexistence of these activities with the maritime fishing activities "(CNPEM 2016). In the framework of the implementation of the French MSP, the professional fishing sector intends to make known and recognize areas where it has "rights of use"(CNPEM 2016). In such areas, the priority of use would be given to fishing activities.

Fishermen may consider that they do not have a real right, like the concessions and other titles of occupation or exploitation that certain activities have.« *The law does not protect those that do not have a title [occupation title], because what the Law says is: "when awarding a title, account must be taken of pre-existing titles, or the pre-existing occupations*". And then says that pre-existing occupations are those that have a title![…] The restrictions of the MSP are related to the problem of incompatibilities. It means, one determined activity or occupation will prevent other occupations. Therefore, the problem is particularly to who does not have a title of occupation, such as the case of fishing. […] Fishing is a "*common use*", it means that fishing does not have a title of private occupation. When there is another activity that competes with fishing in a certain space, those who use this space for fishing activity are not entitled to any kind of financial compensation[12].

Please note: it is possible that the lack of spatial interest among some fishermen (especially Spanish) is linked to the absence of industrial renewable marine energies projects for the moment on the Spanish maritime areas. The negative interaction between the fishing activity and the offshore wind farm installation is indeed frequently mentioned in the analysis of the MSP. The reflection on Maritime Spatial Planning, which is less advanced in Spain than on the two other Member States, may also explain this weaker concern for the defense of maritime space in Spain.

11 Interview with Fisheries representative in France

12 Interview with Fisheries representative in Portugal

In Portugal, Spain and France, the precedence of the professional fishing activity places in each case the sector in the position of a well-established historical stakeholder but in relative decline defending its interests in the face of the increasing occupation of the spaces occupied by some other activities. "*Fishing was always a use of the ancestral maritime space, without limitations, in the past there was only one to use the oceans and, therefore, there was no conflict in the occupation of the maritime space. […] As a major user of the maritime space [fishermen], it is necessary to ensure that new stakeholders do not compete in an area that can be rich in fish resources*".

Current developments in the sector

Overall, stakeholders in the professional fishing sector expect a decrease in the available space at sea given the almost exclusive occupation of certain uses or the restrictions resulting from environmental protection, as well as the alteration of certain ecosystems.

Representatives of fisheries see a trend towards changing occupation and sharing of marine space. Already shared between many activities (professional fishing, maritime transport, marine culture, etc.), the maritime area is more and more coveted because of the rise of other activities (aggregates extractions, marine renewable energies, pleasure, dredging and dumping of sediments dredged at sea, etc.). Even if these activities do not present the same levels of constraints for fishing, they all contribute to the increase of the pressure exerted on the activity.

In addition, the fishing delays caused by these redeployment are carried out in areas already densely exploited and pose problems of internal cohabitation of the sector (for the space or the resource) and increase the pressures on the marine environment, especially close to the continent. Due to logistics reasons and proximity to the continent, it is also the coastal strip that is coveted by many other uses (renewable marine energies parks, extraction of aggregates, immersion of dredged sediments, pleasure boats, etc.).

Constraints / opportunities

Overall professionals consider that their activity will continue: "*This is a historical activity that for me will never disappear; it will mutate but they have extraordinary capacity of adaptation "[...] It is possible to stabilize it and there are even small possibilities of development*"[13]. However, these professionals believe that the restrictions will continue to increase [14] and that a certain number of organizations are working according to an ecological prism that is too important to constrain the development of their activities.

Some fishery representatives believe that the adaptations to be made by the sector with regard to new environmental considerations must be accompanied by actions by the public authorities that are struggling to be pushed at national level (at least in France). The absence of definitions of areas of importance or of lesser constraints for fishing (as is sometimes the case for other activities) is also regretted in these terms (CNPEM 2016).

At the same time, mechanisms exist to maintain the activity, starting at the European level, by the Common Fisheries Policy (CFP) and the European Maritime and Fisheries Fund(EMFF), whose goal is to sustain the activity. However, the management of the fishing capacity of the European Union tends to stop the increase of the European fleet. There has been a reduction in the number of vessels and people working in the fisheries.

Prospective estimation of the evolution of the spatial demand

Spatial demand for the professional fishing sector is already high in all three countries. It is mainly expressed in the form of a will to defend authorized areas in the face of the permanent occupation of the maritime zones for the installation of structures. The need of sharing space, the pressure on resources exploration and postponements of fishing will likely have the effect of increasing these attempts to defend the areas of access to the resources.

In France, where the consultation on MSP processes goes back several years and where development initiatives for offshore wind farms have already been undertaken, the demands of fishing professionals are

13 Interview with Fisheries representative in France

14 Interview with Fisheries representative in Portugal

very present in the consultation processes. It is conceivable that in the light of the development of reflections on MSP and the development of MREs in the three countries, the expression of spatial demand by fishermen is developing in the same way.

FRANCE

As part of the implementation processes of the Maritime Spatial Planning in France, the Marine Fisheries and Marine Cultures Committees formulated a position letter (CNPEM 2016). These positions address the interactions between professional fishing and other activities at sea as well as requests for "rights of use": "In order to strengthen its position in the maritime area, the professional fishing sector intends to make known and recognized in the implementation of the MSP the areas where it has" **rights of use** ", in default of having real rights (like concessions and other titles of occupation or exploitation of certain activities). These spaces are particularly necessary for the sustainability of fishing activities and should therefore be primarily dedicated to them (which does not preclude the possibility of cohabitation with other uses, to the extent that they would be exercised according to compatible with fishing activities, via management rules to ensure this compatibility).

These "rights of use" include the following areas, whose perimeters may change depending on the season of the year, the natural variability, as well as the regulations in force:

- Halieutic functional areas,
- Fishing cantonments,
- Spaces with subservient resources (e.g. shell beds, mud flats, etc.),
- Areas of fishing agreements (e.g. Central Channel agreements, Nord Finistère agreements, etc.),
- Areas of high fishing interest / particularly structuring for the activity of some fleets,
- Etc. "

At the same time, the CNPEM claims that: "*fishing activities must in no way be confined to these areas alone, since they must retain their wide range of action since they are by their very nature subject to changes in halieutics resources. On the contrary, in addition to the possibility of giving priority for fishing activities to the areas previously listed, it is generally appropriate, in the whole of the maritime area, to consider the strategic planning of fishing activities in a transversal manner to all other maritime activities, meaning by systematically taking into account the issue of a guarantee of coexistence of these activities with the maritime fishing activities* ".

The representatives of fishermen see a trend towards changing the occupation and sharing of the marine area: *"Already shared between many activities (professional fishing, maritime transport, marine cultures, etc.), the maritime area is more and more sought-after by the rise of other activities (aggregates extractions, marine renewable energies, pleasure craft, dredging and dumping of sediments dredged at sea, etc.)* "(CNPEM 2016)

"Because of the development of these new practices, the increasing pressures and the necessary protection of the natural environment, the question of the sharing of space is a question that is growing in the issues facing professional fishing. The reduction in available space at sea, given the almost exclusive occupation of certain uses or the restrictions resulting from environmental protection, as well as the alteration of certain ecosystems with essential functionalities for the renewal of the fishery resource constitute major concerns for the marine fisheries sector ". (CNPEM 2016)

SPAIN

In view of the multiannual guidance programs approved by the Commission for Spain, the ship construction, modernization and reconversion policy is aimed at not increasing fishing effort except in exceptional cases.

Increment and reduction of fisheries activities is regulated in article 29 of the Law which explicit that in case of a increment or reduction of fisheries possibilities, the assigned quota of each fisheries' vessel will be incremented or be reduced proportionally.

CEPESCA redacted a document with propositions to the political parties in Spain for the elections in 2016. Some of the proposals are as follows:

- *It is necessary to get more possibilities of fisheries for the species whose scientific data shows that this increment will not alter in a significant manner its "good status" following the objective of getting the maximum sustainable yield for all species by 2020.*
- *A system should be established in the EU that guaranties that the quotas of some countries will not be underutilized while other member states don't have enough.*
- *In the "Report on the fishing sector of 2017"[15] from CEPESCA some ideas regarding future trends :*
- *The Spanish fisheries sector has been experienced a continuous adjust since the entrance of Spain in the European Union in 1986. That means a reduction in the number of vessels and GT in the different fishing grounds and different fishing gears.*
- *Some objectives of the sector are to get better fisheries possibilities. This means not to increase the number of the vessels but to get better quotas from EU.*

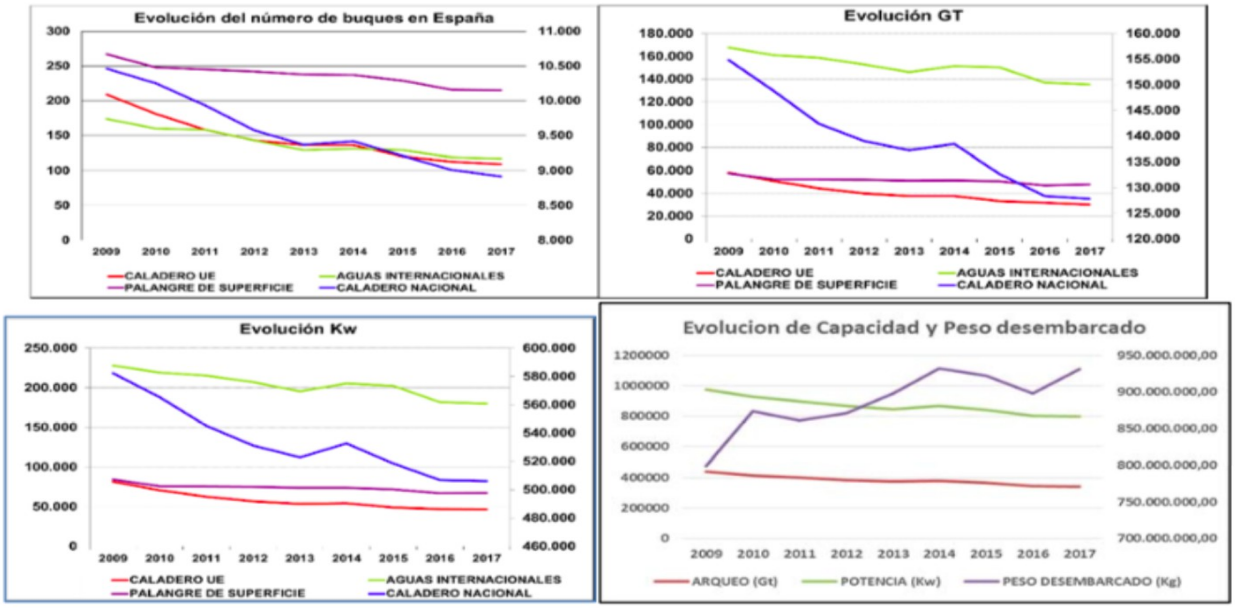

Illustration 3: Annual report on the activity of the Spanish fishing fleet- (DATA 2017)

We can delimitate some areas of occupation. Most of the fishing vessels in Spain are small boats developing artisanal fisheries (70,9%)[16],the average length of active fishing vessels in Spain is 11,28 m[17], therefore, is likely probable that most of the activity will be concentrate close to the coast, inside the 12 nautical miles of the territorial waters.

15 Informe del Sector Pesquero Español 2017 http://www.cepesca.es/download-doc/181833

16 http://www.mapama.gob.es/es/pesca/planes-y-estrategias/informe-anual-actividad-flota-2018-esp-mapama_tcm30-450996.pdf

17 http://www.mapama.gob.es/es/pesca/planes-y-estrategias/anexo-informe-anual-2018-esp-mapama-def_tcm30-451000.pdf

Illustration 4: Traditional fishing grounds in the SIMNORAT area

From the report on the sector from CEPESCA[18] some objectives:

- Extend the adoption of best practices in the development of fishing activity to ensure environmental and socio-labor sustainability.

Regarding the MSP implementation process, Spain is in a very early stage. Till now, the only representation of the sector is in the MSP Working Group in charge of the development of the plans, (coordinated by the Sub-directorate General of the Protection of the Sea), through the Sub-directorate General of Control and Inspection of the General Directorate of Fisheries Management.

PORTUGAL

The sector represenatives and authorities states that *"The most important areas of fishing for the local fleet, are placed between the coast line and 3,5 nautical miles offshore, and more specifically the areas surrounding in the proximity of fishing harbours (up to 6 nautical miles along the coast), given that for smaller vessels operating only with one crew member, this will be the permitted area of operation"* (PSOEM Vol. III A[19])

Fishing is one of the uses that traditionally occupies a large part of the national maritime space, with a higher incidence in areas closer to the coast (from the coast to about 6 miles offshore) and at lower depths (up to 200-400 meters). The conflict between the fishing activity and the permanent occupation of sea areas for the installation of structures, such as aquaculture or the installation of cables and submarine structures that prevent the operation of certain fishing gear has been abundantly reported. In order to avoid, and minimize, conflicts that may exist between fishing activity and private use of the maritime space, the Situation Plan sought to characterize exhaustively the main fishing zones as well as the main fisheries, in order to identify the fishing zones conflict, ensure continuity of fishing activity in coastal areas and safeguard the main fisheries of local fishing communities.

"*The cartography of the reference situation, in addition to the registration of the regulatory fishing areas, was concerned with mapping the results of several scientific studies on the distribution of fishing activity, depending on the type of fishing gear, the type of vessels (local or coastal), seeking to collect information directly from*

18 "Informe del Sector Pesquero Español 2017" http://www.cepesca.es/download-doc/181833

19 Plano de Situação do Ordenamento do Espaço Marítimo (PSOEM) (2018) http://www.psoem.pt/discussao_publica/

fishing communities on the places most commonly used by fishermen and whose access they consider more relevant to preserve." (PSOEM Vol. III A[20])

20 Plano de Situação do Ordenamento do Espaço Marítimo (PSOEM) (2018) http://www.psoem.pt/discussao_publica/

Co-funded by the European Union

Reminder of the characteristics of the sector (extract C1.1.1 - Initial Assessment)

A development still modest…The "Med-Atlantic ecobonus" project :

- Spain, France, Italy, Portugal
- Design a new effective, sustainable and coordinated incentive scheme to support the demand for MoS valid for Atlantic and West Mediterranean markets

A sea route between Asia, Gibraltar and the major ports of Northern Europe, among the largest in the world

Four traffic separation schemes (TSS) : Off Ushant, Off Finisterre, Cabo da Roca, Cabo de Sao Vicente

The headquarters of EMSA (European Maritime Safety Agency) in Lisbon

Multilateral and bilateral agreements on maritime safety and pollution prevention :

- the cooperation agreement for the protection of the coasts and waters of the North-East Atlantic against pollution signed in Lisbon on 17 October 1990 between Spain, France, Portugal, Morocco and the European Commission
- The "Biscay Plan", French-Spanish plan of intervention in case of pollution in Atlantic signed on November 25, 1999

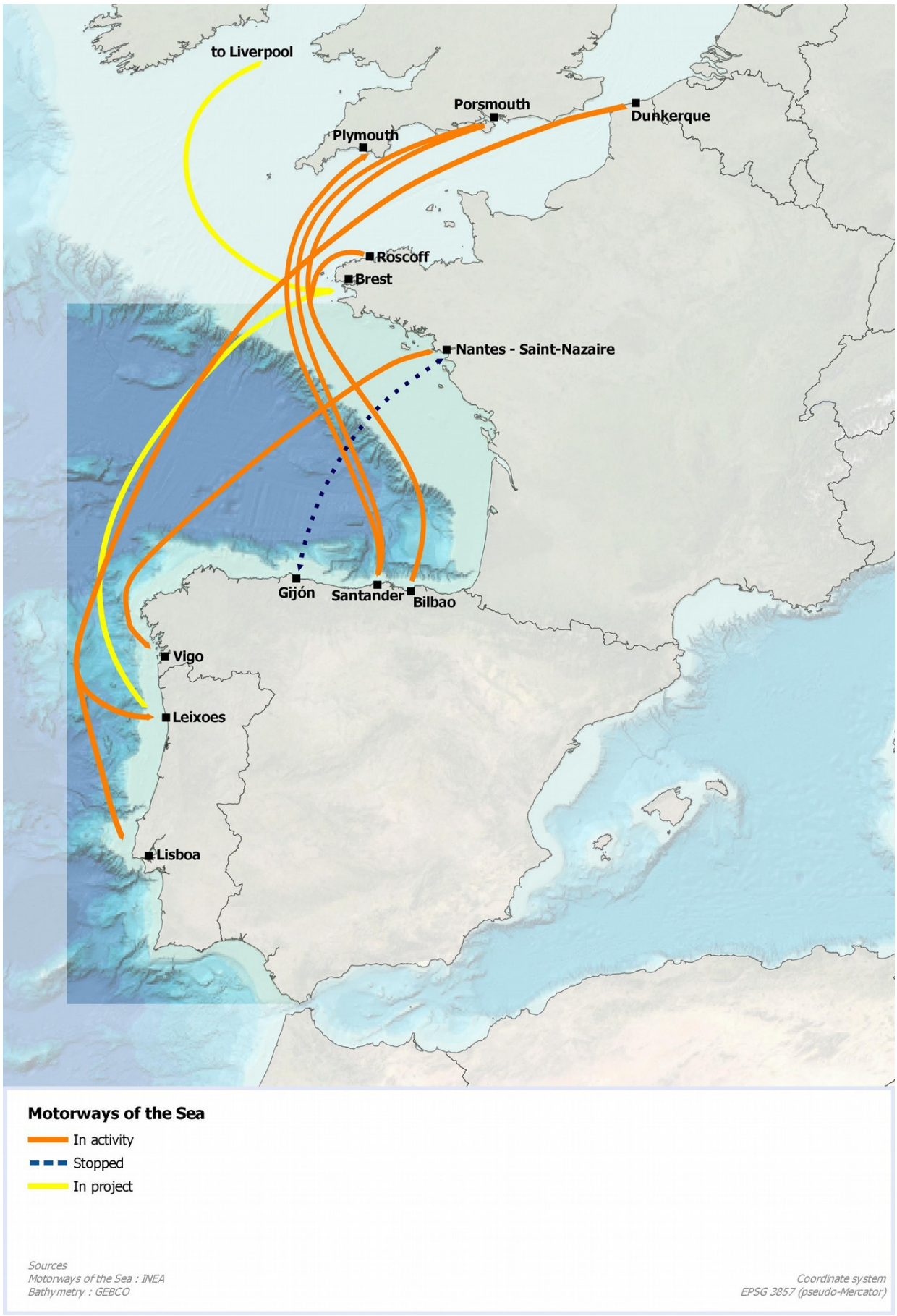

Illustration 5: Motorways of the sea in the OSPAR IV area

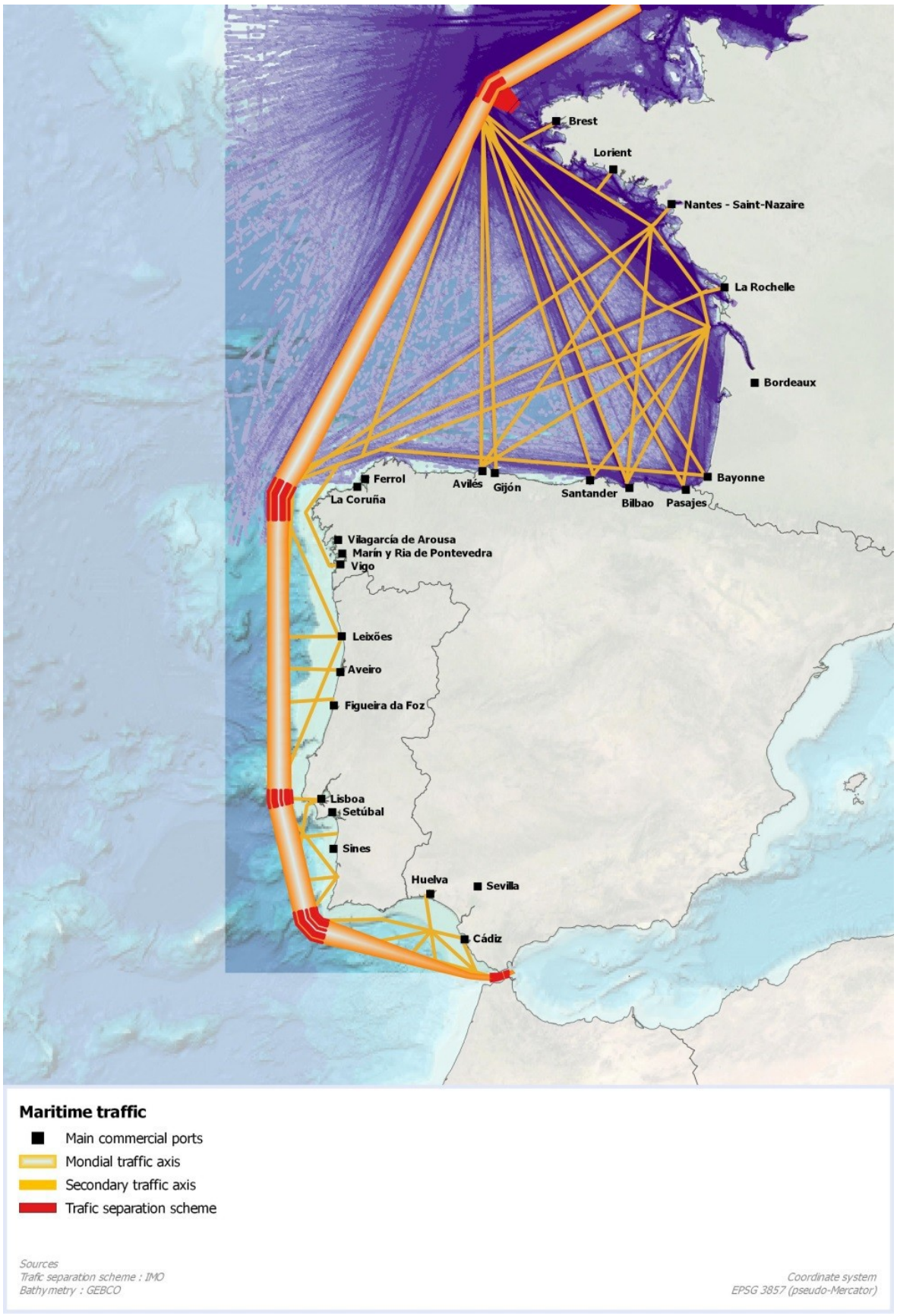

Illustration 6: Maritime Trafic in the OSPAR IV area

Structure of sectors and canals of expression for the spatial demands

Key points

Stakeholders acting to regulate maritime traffic are:

- States (protection systems, patrols, promotion of maritime transport), Within its EEZ, the State ihas the right to decide on the organization of maritime routes
- IMO, International Maritime Organization (legislation on the energy efficiency of boats). The International Maritime Organization (IMO) is recognized as the only international body responsible for developing international guidelines, criteria and regulations for ship handling systems. It establishes rules and standards for navigation and maritime transport, such as the delineation of internationally recognized traffic separation schemes.
- Ports : Shipping and ports sectors are interlinked. It is important to anticipate which ports will be frequently accessed by what kind of ships in the future in order to determine which routes ships will use (European Commission. 2018.). Ports can also set the conditions of access for ships. It is therefore possible to analyze the various port strategies to understand the possible evolutions of the activity.

Shipping routes do not strictly limit the sector's activities to this area. (EC, 2018). This means that ships are generally free to navigate wherever they wish. Limits to this principle are put in place at an exceptional level (see the IMO navigation routes). Traditionally, ships had the right to use the marine space with very few restrictions. In the exclusive economic zone (EEZ) and on the high seas, the principle of freedom of navigation applies. This principle of customary international law has been codified in Article 87[21] of the United Nations Convention on the Law of the Sea (UNCLOS). In the territorial sea ships are entitled to innocent passage (Article 8 of the Convention). In straits used for international navigation, ships *enjoy the right of circulation* (Article 38 of the Convention). However, there are exceptions to free navigation rights. In accordance with Articles 56 and 60 of the Convention, coastal States may construct artificial islands and facilities and structures in their EEZs and establish safety zones around which it is prohibited to navigate. For the MSP, this means that the designated shipping routes must be free from other incompatible uses, as their use by vessels is recommended or even mandatory.

Ship-owners have a very international dimension[22]. However, several structures represent the interests of ship-owners in each of the Member States. This is particularly the case of "Cluster Maritime Français[23] » even if the latter is not specific to the transport sector) for France; the "Asociación de Navieros Españoles" (ANAVE[24]) and the Center for the Promotion of Short Sea Shipping in Spain or the Portuguese Association of Shipping Agents (AGEPOR[25]).

In each of the three Member States, port associations defend the interests of their sector. They bring together different players involved in the port world such as medium-sized commercial ports or large industrial ports. Apart from these port associations, each port authority is an actor of its development and intervenes as stakeholders in the public debate.

More generally clusters such as the French Maritime Cluster or the Spanish Association of Maritime Poles (CME) aim to promote and develop the national maritime sector.

The port authorities of the three Member States are themselves stakeholders in the consultations and value their interests and development objectives. Position reports, press releases and dedicated websites are typically used by port industry representatives for the three countries. The same is true for clusters and associations of ship-owners' representatives.

21 *www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf*

22 Interview with Maritime transport/port representative in France

23 https://www.cluster-maritime.fr

24 https://www.anave.es

25 Associação dos Agentes de Navegação de Portugal (AGEPOR) http://www.agepor.pt/index.php

In addition to the channels opened by the aforementioned structures, representing the interests of the actors of the maritime sector, national maritime congresses have been organized for several years, constituting a forum of debate for the maritime sector this is particularly the case in Spain, with the maritime congresses; in France, with the "Assises de l'Economie de la Mer" etc. In the opinion of some representatives especially in Spain: "*This type of forum works very well"* and get *"very tangible results"*[26] thanks to the participation of different stakeholders (experts, administration and the private sector.

In Portugal and France, port authorities participate in public consultation as part of MSP processes. The representatives of the major French sea ports sit on the Conseil Maritime de Façade (CMF). The CMF "Nord Atlantique Manche Ouest" (NAMO) also provides a seat for a representative of the French ship owner[27], which does not seem to be the case for the CMF "Atlantique Sud". In Portugal, the Port Authorities participate in advisory committees as part of the implementation of the situation plan.

FRANCE

The sector of maritime transport of goods and passengers is represented by several entities such as the French maritime cluster or Armateurs de France. However, most of the publications of the various organizations focus on economic development or the competitiveness of ports not on the MSP or the spatial needs.

Representatives of the Great Maritime Ports sit on the Maritime Council of Facade (CMF). the inter-prefectoral decree relating to the composition of the CMF for the North-Atlantic Manche Ouest coast also provides for a seat for a representative of the French shipowner (Armateur de France), which does not seem to be the case for the South Atlantic coast.

Position reports, press releases and web sites are used to express the representatives of the industry. However, very few address the subject of space demand.

The Fédération des Industries Nautiques (FIN) brings together the various stakeholders involved in water sports and leisure activities. It now has nearly 800 members, grouped into 8 "professions": manufacturers, maritime and river charter companies, engine manufacturers, large yachting, equipment manufacturers, trade and maintenance, service providers, sliding and outdoor sports. FIN is a privileged interlocutor of public authorities at national, regional and European level, assisting and advising companies in many fields. It also plays an informative role for the general public and the media, particularly with regard to changing market trends and regulations.

Le Cluster Martime Français (CMF) made up of companies of all sizes, competitiveness clusters, federations and associations is also a representative of the boating and yachting industries.

SPAIN

At the country level, the State-owned Spanish Port System includes 46 Ports of General Interest, which are managed by 28 Port Authorities. The Ministry of Development, through the public body State Ports Public Authority (Organismo Público Puertos del Estado, OPPE), exercises the coordination and efficiency control over them. According to the Royal Legislative Decree 2/2011, the State Ports agency is a body answerable to the Ministry of Development that is responsible for implementing the government's port policy.

In this respect, the Ministry of Development has the competence to approve the strategic development model, the criteria for action as well as the general technical, economic, financial and human resources management objectives of the whole port system. On its part, each Port Authority (Autoridad Portuaria, AP) is responsible for developing a Strategic Plan with the aim of conducting pertinent actions to improve the quality of the port infrastructures.

26 Interview with Maritime Industry/Energy representative in Spain

27 Interview with Maritime transport/port representative in France

Both the State Ports Public Authority and the different Port Authorities make up the Spanish State Port Authority System (SPTE[28]).

On the other hand, the General Directorate of Merchant Marine, belonging to the Ministry of Development, is the competent body for the general organization of the maritime navigation and the civil fleet in Spain, as established by the Law of State Ports and the Merchant Marine approved by the Spanish Royal Legislative Decree 2/2011, of 5 September.

In addition, the Royal Decree 362/2017 structures the General Directorate of Merchant Marine in the following bodies with the rank of general sub-directorate:

- The General Subdirectorate of Safety, Pollution and Maritime Inspection
- The General Subdirectorate of Maritime Regulations and International Cooperation.
- The General Subdirectorate of Coordination and Administrative Management.

The Royal Legislative Decree 2/2011 also designs the Maritime Captaincies as the peripheral organs of the Spanish Maritime Administration, dependent on the Ministry of Development.

The State Ports Authority (OPPE), in collaboration with the different Port Authorities, is in charge of formulating the Strategic Framework of the State Port Authority System. According to this Framework, several plans are established by each Port Authority, i.e. the Plan for the Utilization of Port Spaces, the Special Plan and the Infrastructure Master Plan, to formulate the Strategic Plan of the port, as well as the corresponding Investment Plan.

Many associations (gathering mainly stakeholders of private companies) structure the defence of the interests of the private sector in this area:

The Association of Spanish Ship-owners (ANAVE) is a national business organization, constituted for the coordination, representation, management, promotion and defence of the interests of the Spanish shipping companies. It actively participates in international and national associations and organisations (e.g. ECSA European Community Shipowners Associations, ICS International Chamber of Shipping, ISF International Shipping Federation, or BIMCO The Baltic and International Maritime Council, among others) while provides a meeting/ discussion space for maritime transport's stakeholders and ensures relations between the sector and the national and European administrations.

The Shortsea Promotion Center-Spain[29], established in 2002, has consolidated a series of activities that have contributed to the dissemination of short sea shipping, of the advantages and opportunities it offers, and the necessary coordination between the different agents that form part of one same sea-land chain. Shortsea's strategic goal is to consolidate a meeting point between the public and private agents responsible for forming sea-land transport chains, with a vocation for coordination, identification and promotion of initiatives. This contributes to materializing the potential of intermodal-based maritime transport in order to establish integral door-to-door transport solutions, always respecting the purposes, goals and skills of each of its (28) members. Presidency is currently held by ANAVE and there are two vice presidencies held, respectively, by CETM (Spanish Confederation for the Transport of Goods) and the State Ports Public Authority.

PIPE, the Platform of Investors in Spanish Ports[30], was created in 2013 with the aim of becoming the opinion forum within the Spanish port sector, i.e. to propose changes and improvements to boost competitiveness, development and sustainability within the Spanish economy. The platform is composed of the most important business groups that have invested in the Spanish port system, the premises of which are found in major Spanish ports.

The E/ ROM Forum (Participatory methodological procedure for channelling, collecting and disseminating studies and technical-scientific analysis) is an open discussion forum for the ROM Program, established by the Spanish Port Administration, aiming at providing Recommendations for Maritime Works (R.O.M). The purpose of this instrument is to promote a broader scope of the discussion process regarding the documents associated with the

28 Sistema Portuario de Titularidad Estatal, SPTE.

29 Asociación Española de Promoción del Transporte Marítimo de Corta Distancia

30 In Spanish, "Plataforma de Inversores en Puertos Españoles (PIPE)".

Normative Program, generating channels for a continuous and structured debate in order to progressively improve the quality of port infrastructure.

On the other hand, the Spanish Maritime Cluster Association (CME) also provides room for the association and collaboration of the varied Spanish maritime industries and players, while allows and fosters discussions on different sector needs and issues of interest. On the whole, the CME targets the promotion and development of the Spanish maritime sector, to achieve a higher level of competitiveness of the entire sector and provide a general defence of its interests. The cluster has a national scope and aims to have in its bosom all associations, companies, public or private institutions and non-for-profit legal-private entities that are involved, directly or indirectly, in the maritime sector. The CME is integrated into the European Network of Maritime Clusters (ENMC) that brings together maritime clusters of main European countries: Belgium, Holland, France, United Kingdom, Germany, Italy, Norway, Finland and Denmark.

Within the CME, different working groups created to improve the competitiveness of the Spanish maritime sector, depending on the different interests of (and manifested by) the CME partners. These working groups constitute a meeting-point for different (maritime) sector stakeholders with similar concerns and needs, and provide a place to discuss topics of interest and find solutions to problems in the sector, as well as to find partners to carry out business initiatives. Through the activities of each WG, political and institutional relations are also facilitated, the CME being the qualified voice before the administration to defend the interests of the members.

In this sense, the Working Group on Transport Logistics and Fuel (GT TLyC) was created to improve the competitiveness of the Spanish maritime sector, in particular in matters relating to port services, bunkering and other port costs as well as to encourage the application of liquefied natural gas (LNG) as fuel in ships.

PORTUGAL

Mobility and Transports Authority (AMT) is the responsible regulator entity in Portugal, the for maritime transport activity. The AMT aims the harmonization of procedures, indicators and management tools of the sector. It also promotes, among others, the verification of the conditions for the existence and development of domestic shipping and related activities, in particular as regards their competitiveness and the attractiveness of investment in the sector (AMT, 2018)

The sector has a national association, the Portuguese Association of Shipping Agents of Portugal - AGEPOR, that represent the associates at national and international level in everything that relates to the economy of the sector and the defense of their interests (AGEPOR, 2018).

Regarding the ports association, the Association of Ports of Portugal (APP) is a non-profit association working as a forum for discussion and exchange of information on matters of common interest to ports and maritime transport.

The APP will contribute to the development and modernization of the National Port System, assuming a function that underlay its creation: to constitute itself as a privileged space for reflection and decision (APP, 2018).

In the Mainland subdivision, two plenary meetings of the Consultative Committee were held and six Working Groups (WGs) were formed, consisting of public bodies with competence in the fields of environment, nature conservation, underwater cultural heritage, defense, security and navigation, tourism, port administrations and the licensing of uses and activities

Analysis of the sector in its environment: interactions with other activities and conservation

Interactions with other sectors

Any fixed installation (wind farms, aquaculture, offshore oil and gas) near an area used by ships (whether or not an officially designated shipping route) may have adverse effects on the maritime transport activity. Infringement

to respect the fundamental principle of freedom of navigation, and the diversion of sea routes, could also have a significant impact on short sea shipping[31] (in addition to the economic aspect due to surplus fuel consumed).Buffer zones must be established around fixed installations to avoid collisions between ships and these structures. These areas shall be of sufficient width to allow safe navigation taking into account the density of traffic (including leisure boating and service vessels to offshore structures) and the dimensions of large vessels navigating in this area. In bad weather or in emergency situations, ships may have to leave the course or find shelter. In addition, wind farms can cause interference on the radar display[32].

The traffic separation scheme express recommendations related to different uses[33] to avoid theoretical incompatibilities existing between maritime transport and other sectors of activity. Traffic separation schemes as well as maritime access to port infrastructure have been duly identified in MSP approaches or at-sea regulations by country and there are no permits for use and private activities in these areas. These schemes therefore make it possible to limit the conflicts of use with the other activities, but represent a loss of access to the maritime space for the other sectors. However, no questioning of traffic separation schemes, existing maritime routes or new line development projects appears in the MSP's reflections.

On the maritime areas closest to the coasts, difficulties of cohabitation appear with the other activities, namely with boating: "*Relations at the local level quite strong with the pleasure boat since, in fact, we share the Bay, and so we shares many very local issues*"[34]. These cohabitation difficulties do not seem to create real conflicts. Near shore marine areas are also areas of interaction with fishing[35].

Interactions with conservation

Some industry representatives estimate that some environmental objectives are difficult to sustain. Some regulations concerning environmental objectives for ports are concerned. There may be limitations concerning the artificialization of soils or limits related to dredging or water quality objectives, which are considered too ambitious . Others point to the strong prohibitions of MPAs on shipping [36]. These objectives, which are considered too restrictive, can lead to a "mistrust" of professionals "*in relation to these very hard indicators*" . "*We can only agree that we need to improve biodiversity globally, but targets must be sustainable and we have a much more global vision*". "*It is not because we have more legislation, more protection statutes or strategies that things work better. MSP can contribute positively to these public policies, from the practical point of view I do not know*".

Cross-border interactions

Cross-border interactions do not occupy a large part of the expression of the representatives of the maritime transport, because by definition the shipping transport is considered as an international activity that naturally crosses different countries. *"At sea, there is no problem of territoriality finally".*

31 Interview with Maritime transport and port representative in Spain

32 https://www.msp-platform.eu/faq/msp-sectors

33 www.imo.org/en/OurWork/Safety/Navigation/Pages/ShipsRouteing.aspx

34 Interview with Maritime transport/port representative in France

35 Interview with Maritime transport and port representative in Spain

36 Interview with Maritime transport/port representative in portugal

Characterization of spatial demands and prospective on future trends

Key points

The representation of the maritime transport sector is rather well-structured. However, the regulations relating to the uses at sea are mainly of international order which induces a small number of mentions to space demands in the speeches of the representatives of the national channels.

Indeed, in both the maritime and port transport sectors, at the national level, the position reports, press releases and websites do not address the subjects of the occupation of the marine area. The sector representatives, in the rare cases where they manifest themselves on the question of the spatial influence of the activity, are most often in favor of maintaining the existing lines in the reflections on the MSP .

At the international level, the representatives put forward the international law and freedom of navigation defined in the United Nations Convention on the Law of the Sea (UNCLOS): *"The planning of space for us that translates into a big rule that is freedom of movement on the seas and oceans. [...] It is the main concern to circulate as much as possible in harmony with other activities"* .

The sector depends on economic markets fluctuations than provisions decided in the context of national MSP processes. It is therefore difficult to interpret a stance on the part of the stakeholders of these activities as they express very little on the issues of the sharing of maritime space. This sector, that is very well established and developed, is a very important player to be considered during the MSP discussion processes[37].

There is little expression of future trends in space applications and the analysis of commercial transport traffic in the maritime area is difficult. The planning and creation of new shipping routes is more a matter of commercial considerations and global trade than of the spatial planning of maritime activities at the national level (Frémont & al. 2013). Shipping has grown robustly worldwide in recent years. Despite the fact that the financial crisis has affected the sector significantly (2009-2010), it tends to recover quickly and growth models have matched pre-crisis rates and even surpassed them. Sea routes around the world and maritime traffic are expected to in coming years. The sector is now experiencing strong growth worldwide.

Mainly governed by conventions and international maritime law, the organization of commercial shipping is not affected by the MSP processes. Commercial maritime transport (freight and passenger transport, including ocean cruises), given its economic importance highlighted in the context of the sea economy, is, in fact, generally considered a priority over other activities.

In 2018, the European Commission produced a report on the MSP in the context of blue growth (EC. 2018), which identifies several development factors that could affect the space demand of the commercial transport sector. Most important factor is the use of larger ships and the effects of re-routing.

On the Atlantic coast of the OSPAR IV region, several trends are evoked:

According to some representatives, current transport policies advocate a greater development of maritime transport in intra-European transport are opportunities for the development of **short-sea shipping**[38].

Indeed, the development of short-sea shipping and intermodality seems to be a trend. In a highly competitive national and international context, some commercial ports as in the French maritime basin-scale are not intended to compete with the ports of first rank of Western Europe. They therefore adopt strategies for developing their activities at the regional and interregional levels. As an example, the port of Nantes-Saint-Nazaire is intended "To position itself as an intermediate port[39] in order to preserve and develop its assets in energy, bulk, containerized and Intermodal freight transport". These strategic positions will undoubtedly have an influence on the development of short sea shipping.

37 Interview with Maritime transport/port representative in France

38 Interview with Maritime transport and port representative in Spain

39 Projet de DSF NAMO. Situation de l'existant. Chapitre1. DSF Namo- septembre 2016

Several medium-sized ports (in particular, in France the regional commercial ports of Bretagne and the port of Sables d'Olonne [40]) are so in a logic of short-sea shipping / coasting and **intermodal connections** .

The development of "**highways of the sea**". According to the estimates of the French and Spanish ports concerned, the Montoir-de-Bretagne / Vigo and Montoire de Bretagne / Gijon lines should experience strong growth and another line between them could soon be labeled “highway of the sea”. The course of this future highway of the sea Montoir-de-Bretagne / Vigo could also be extended later to the ports of Le Havre and Algeciras (southern Spain).

FRANCE

The representatives of the sector, in the rare cases where they manifest themselves on the question of the spatial influence of the activity, are most often in favor of maintaining the existing lines in the context of the MSP. At the international level, the representatives put forward: International law and freedom of navigation, Navigation safety, and the needs of ships from the point of view of navigational characteristics:

To support the shipping sector, MSP should keep free space needed for shipping (rather than limiting shipping activities to designated areas) now and in the future. Furthermore, MSP should make sure that safety zones to incompatible activities are sufficient (EC. 2018).

UNCLOS provides that all States are free to use the high seas with due regard for other States’ interests. These freedoms include navigation, fishing, marine scientific research, the laying of undersea cables and pipelines, and the construction of artificial islands.

SPAIN

Today, more than 90% of global trade in volume is carried by sea. Indeed, maritime transport has been experiencing a robust growth worldwide over the last years. Despite the fact that the financial crisis hit significantly the sector (2009-2010), it tends to recover quickly, and growth patterns have equaled pre-crisis rates and have even surpassed them. It is expected that shipping routes in the world will increase in the following years both in number and traffic intensity, especially regarding consolidated routes serving northern European ports.

In Spain, development planning of port activities and infrastructures is to be included in every Strategic Plan developed (or to be developed) by each Port Authority. In this sense, it should be noted that a considerable development took place during the first decade of the XXI century (2000-2010) when substantial investment in port infrastructures was made.

The Annual Report of the Statistical Observatory of Short Sea Shipping in Spain (2017) showed a substantial increase in the number of shipping lines offering a maritime-highway multimodal service, by comparison to the second half of 2016. Still, other indicators show stability or even some reduction in the case of vessel number; such reduction might affect more particularly the container transport subsector.

As for the Motorways of the Sea, the indicators over the first semester of 2017 show no significant change (with respect to 2016 values); however, in the annual calculation, the capacity offered in the Atlantic façade, which supports two motorways of the sea (i.e. issuing respectively from Gijón and Vigo, in Northern Spain, to Saint Nazaire, in Western France, has increased by 160%. The reason behind consolidation seems to be more efficient operation and cost saving; additional factors could relate to the emerging economic and regulatory environment.

40 Projet de DSF SA. Le développement durables des activités économiques maritimes et littorales et la valorisation des ressources narturelles minérales, biologiques et énergétiques. Chapitre 1.

Illustration 7: Regular shipping routes and Motorways of the Sea transiting Spanish North Atlantic waters (INE)

In addition, experts are betting for a progressive construction of larger ships, being able to transport more cargo in a single trip and involving a reduction in the number of vessels transiting the seas. If these predictions take place, administrations would need to prepare to invest in new major port infrastructures, since today the majority of ports appear not to be adapted to host ships with a capacity greater than 18 000 TEU (Twenty foot Equivalent Units- standardized containers). Ships sailing in the seas in the coming years might reach capacities of around 24 000 TEU.

On the other hand, aware of the advisability of giving a turn to its environmental strategy, the European Commission has selected the project 'CORE LNGas hive' to promote the use of LNG as a usual fuel in maritime transport. The initiative therefore benefits from the aid of the 'Connect Europe' mechanism for the development of the Trans-European Transport Network, and will receive European funds worth 16,7 million Euros.

'CORE LNGas hive', the total investment of which amounts to 33,3 million Euros, is promoted in Spain by the agency State Ports Public Authority and is coordinated by Enagás. It was first presented last May 2018 and has 42 partners from Spain and Portugal. Its objective, by 2020, is to develop an integrated, safe and efficient logistics chain in the Iberian Peninsula for the supply of liquefied natural gas as fuel in the transport sector, especially maritime.

Aggregate extractions and dredging

Reminder of the characteristics of the sector (extract C1,1,1 - Initial Assessment)

In France

Industrial Construction (sand and gravel) extracted 2.000.000 m^3 in 2015. Material extracted for beach nourishment.

Lack of data

In Spain

[NB: in Spain, the only extractive activities that can be carried out are extractions of sands for the creation and regeneration of beaches, port dredging necessary for the construction of ports and waterways and dredging works for land reclamation in port areas]

Material extracted for beach nourishment 260,000 m3 in 2015 (Pontevedra / Cádiz)

In Portugal

Material extracted for beach nourishment 140,000 m3 in 2015 (Algarve region)

A demand for beach nourishment could increase in the next years to adapt to climate change and fight coastal erosion

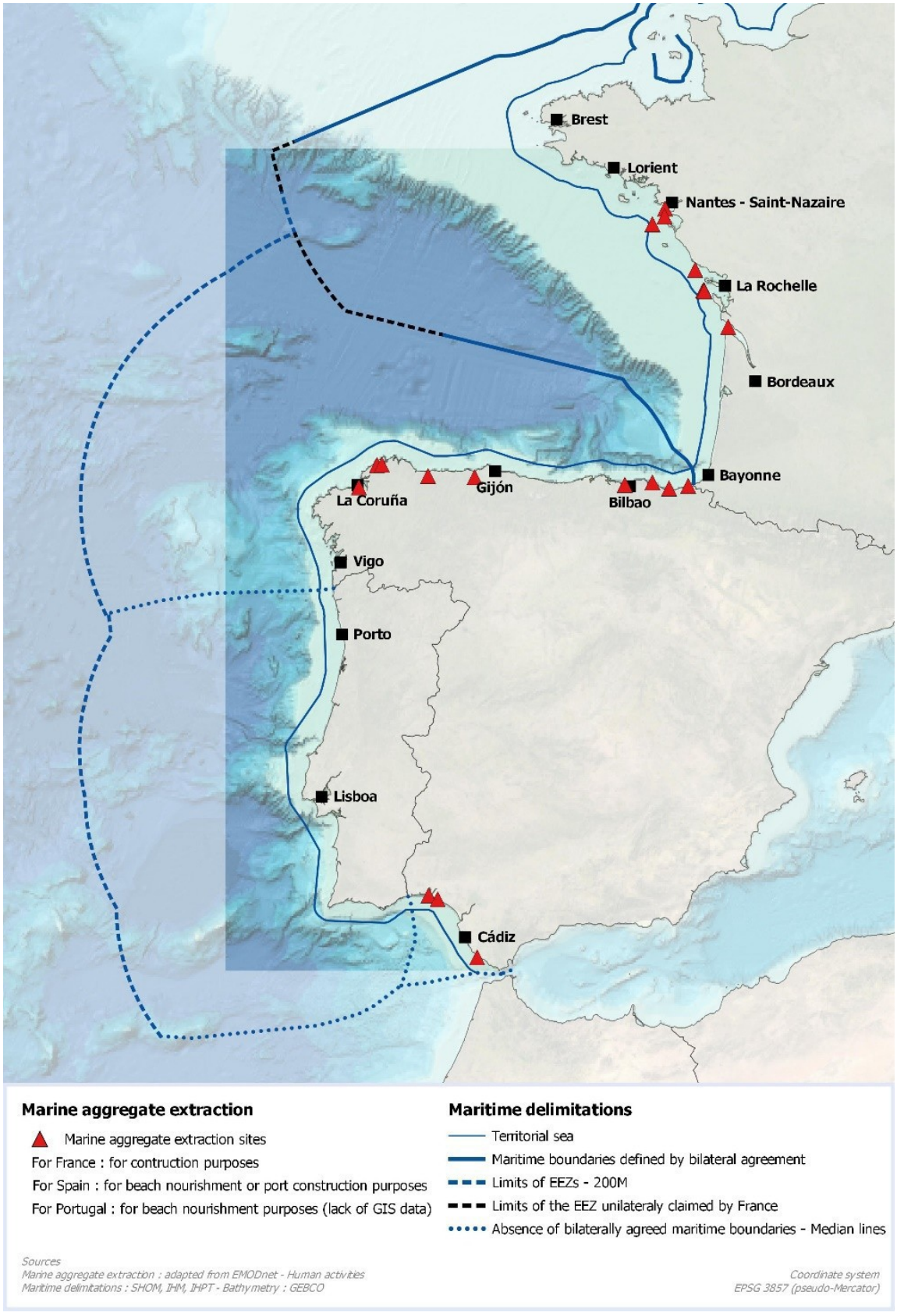

Illustration 8: Aggregate extraction activity in the OSPAR IV area

Structure of sectors and canals of expression for the spatial demands

Key points:

The disparities in the context of the regulation of aggregate extraction and dredging activities in the three countries led to major differences in the structuring of the sectors around the issues of Maritime Spatial Planning.

Thus, in France, where the industrial exploitation of the resources of the seabed is authorized, the representatives of the sectors undertake to highlight the stakes of their activities. The Union Nationale des Industries de Carrières et Matériaux de construction (UNICEM) is the federation that brings together companies (SMEs and groups) of mineral extraction industries. UNICEM brings together almost all mineral extraction industries. The Union Nationale des Producteurs de Granulats (UNPG) is the main component of the UNICEM federation. UNPG activities are not specific to offshore extraction but the organization has a Marine Aggregates Commission. Both organizations promote all activities including the exploitation of marine aggregates, especially through dedicated sites[41] and publications (UNPG. 2015).

At the same time the professional organization of the French shipping and maritime services companies "Armateurs de France" contributes to the valorization of the activity of extraction of marine aggregates.

On the other hand, in Spain only beach regeneration activities and port dredging are allowed[42], so the sector is organized accordingly. Indeed, the sector is closely linked to beach management and recreational activities (managed respectively by local and regional governments) and the port activities sector (managed by the central or regional government, depending on the type of ports and activities. Environmental management of port dredging activities has been tackled within the framework of the international conventions for the protection of the marine environment (namely OSPAR, UNEP/MAP-Barcelona Convention, London Convention), which have developed specific guidelines in this area. In order to articulate these activities consistently with such guidelines, the "Recommendations for the management of dredged material in Spanish ports (RGMD)" were adopted in 1994, and subsequently replaced in April 2014 by the "*Guidelines for the characterization of the dredged material and its relocation in waters of the public maritime-terrestrial domain*", developed within the Interministerial Commission of Marine Strategies (created for the purpose of transposing the EU Marine Strategy Framework Directive – MSFD) which is to be formally adopted in the near future[43].

In relation to the extractions made to obtain sand for use in port fillings or beach nourishment, ICES elaborated its "Guidance for the management of marine sediment removals", adopted by the OSPAR Convention in 2003. In addition, there is a Spanish "Technical instruction for the environmental management of marine sand mining for beach nourishment projects" since 2010, which incorporates the environmental variable to sand extraction projects, despite that no national regulations have been formally adopted in the field.

Apart from the dedicated sites and the publications of the stakeholders in the three Member States (already mentioned above), structural and regulatory disparities can be found in the means of expression of sectors depending on the country.

In Spain, where the sector depends mainly on the three governmental dimensions, the possible places of expression seem to be well-established communication channels between different administrations, public agencies and administrative levels.

In France, the stakes of the sector are defended within the CMF. The professional organization "Armateur de France" has a seat in this consultation body. On the French Facade North Atlantic West Channel (NAMO), the participation of the sector in CMF in favor of marine aggregates can be considered as active.

41 http://sablesetgraviersenmer.fr/

42 Ley 22/1988, de 28 de julio, de Costas.

43 https://www.mapama.gob.es/es/costas/temas/proteccion-medio-marino/directrices2015_tcm30-157006.pdf

The representatives of the sector are therefore involved in the preparation of the “Docmument Stratégique de Facade” (DSF) and the “Documents d'Orientation pour une Gestion durable des Granulats Marins” (DOGGM). They are also consulted through local and regional approaches. This is the case, for example, in Bretagne and Pays de la Loire, which respectively set up consultative bodies to develop regional sea and coastal strategies (CRML and ARML).

In Portugal, there is a working group on Aggregate extraction and dredging from Portuguese MSP (PSOEM). Its purpose is to establish criteria for identifying areas suitable for dredged sediment deposition and offshore strategic sediment management areas. This working group has the participation of the following entities: Directorate General of Natural Resources, Security and Maritime Services; Portuguese Environmental Agency; Directorate General of Cultural Heritage; Portuguese Institute of the Sea and the Atmosphere and Port Authorities

FRANCE

The Union nationale des industries de carrières et matériaux de construction (**UNICEM**) is the federation that brings together companies (SMEs and groups) of mineral extraction industries. UNICEM brings together almost all mineral extraction industries: aggregates, ornamental rocks, chalk, lime, gypsum, industrial minerals, UNICEM federates 18 branch unions and 19 regional unions.

The National Union of Aggregate Producers (UNPG) is the main component of the UNICEM federation. The activities of UNPG are not specific to offshore extraction but the organization has a commission "Marine Aggregates"

As part of the preparation of the “documents stratégiques façade (**DSF**) Nord-Atlantique-Manche-Ouest et Sud-Atlantique », the composition of the « conseils maritimes de façades (**CMF**) » includes a representative of the mining sector designated by the UNICEM. The documents stratégiques de façade can pursue objectives of sustainable management of mineral raw materials (L. 219-5-1 of the French Environment Code[44]).

The documents d'orientation pour une gestion durable des granulats marins (**DOGGM**) is the marine aggregates component of the DSF.

The main objective of the DOGGM is to define a decision-making framework for the sustainable management of marine aggregates exploration and exploitation projects at the scale of each seafront, taking into account environmental sensitivities and socio-economic needs, sustainable development objective and within the framework of the Integrated Maritime Policy. On the one hand, the DOGGM sets out general guidelines that define for the entire facade a production capacity objective and methods of concertation around projects, environmental protection, compatibility research with other economic activities and monitoring. exploration and exploitation activity, etc.

On the other hand, the DOGGM is a framework that also allows to assess the relevance of the projects and their main characteristics (location, surface, duration, etc.) according to the environmental components (species, habitats, functional areas, ...) and economic (other anthropic activities: fishing, yachting, ...) even before starting the formal process of instruction. The provisions of the DOGGM form an integral part of the front-end strategic documents. The allocations of the mining titles and the authorizations of mining works must be compatible, or made compatible, with the objectives and provisions of the frontal strategic document (L.219-4 of the code of the environment).

The representatives of the marine aggregates extraction sector are also consulted in the context of local and regional approaches. This is the case, for example, in Bretagne and pays de la Loire, which respectively set up consultative bodies to develop regional sea and coastal strategies (CRML and ARML). These strategies are not devoted to maritime spatial planning but allow sector representatives to express the needs of the sector (especially in terms of space). At a meeting of the ARML (Pays de la Loire) of 19 December 2019, UNICEM was able to present the needs and challenges of the sector.

44 https://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000006074220

As part of the implementation of the integrated maritime policy in France and the valorization of the sector, the representative bodies of the marine aggregates sector express the stakes of the sector through publications or the websites of organizations.

SPAIN

Although several countries allow the industrial exploitation of seabed resources (mainly sand and gravel) for construction purposes, such activity has been expressly prohibited in Spain since the entry into force of the Coastal Law[45] in 1988.

According to the legislation in force in Spain, the only extractive activities that can be carried out are:

Sand extraction for beach creation and regeneration (regulated by the Coastal Law);

Port dredging for the construction or maintenance of ports and waterways (regulated by the Law of economic regime and provision of services of Ports of General Interest, 2003, and also subject to the Coastal Law in relation to coastal matters);

Dredging activities carried out outside the public port domain for land reclamation in port areas (regulated by the same standards).

Regardless of the aforementioned legislation, some projects (generally depending on their magnitude and/ or their proximity to areas of special environmental protection) might be also subject to the legislation on environmental impact assessment[46], to be applied by the General Administration or Autonomous Communities, depending on the case.

The sector is closely related to beach management and recreational activities (managed by local and regional governments, respectively) and the port activities sector (managed by the Central Administration or the regional government, depending on the type of ports and activities[47]). In this sense, possible places for expression might be rather related established communication channels among different administrations, public agencies[48] and administrative levels.

Environmental management of port dredging activities has been tackled within the framework of the international conventions for the protection of the marine environment (namely OSPAR, UNEP/MAP- Barcelona Convention, London Convention), which have developed specific guidelines in this area. In Spain, in order to articulate these activities consistently with such guidelines, the "Recommendations for the management of dredged material in Spanish ports (RGMD)" were adopted in 1994, and subsequently replaced in April 2014 by the "Guidelines for the characterization of the dredged material and its relocation in waters of the public maritime-terrestrial domain", developed within the Interministerial Commission of Marine Strategies (created for the purpose of transposing the EU Marine Strategy Framework Directive – MSFD) which is to be formally adopted in the near future[49].

In relation to the extractions made to obtain sand for use in port fillings or beach nourishment, ICES elaborated its "Guidance for the management of marine sediment removals", adopted by the OSPAR Convention in 2003. In addition, there is a Spanish "Technical instruction for the environmental management of marine sand mining for beach nourishment projects" since 2010, which incorporates the environmental variable to sand extraction projects, despite that no national regulations have been formally adopted in the field[50].

45 Ley 22/1988, de 28 de julio, de Costas.

46 Ley 21/2013, de 9 de diciembre, de evaluación ambiental.

47 See the "Maritime transport and port activities" factsheet.

48 E.g. Spanish State Ports Authority, see the "Maritime transport and port activities" factsheet

49 https://www.mapama.gob.es/es/costas/temas/proteccion-medio-marino/directrices2015_tcm30-157006.pdf

50 https://www.mapama.gob.es/es/costas/publicaciones/Instruccion%20Extracciones%20Arena%20rel2_tcm30-157025.pdf

PORTUGAL

General Directorate of Natural Resources (DGRM) is presently, according to the ministry order nº 394/2012, of 29th November, the National Authority to the Sediment Immersion, having the competence of selection, georeferencing of areas to immersion of dredge sediments, as well as the follow up of environment monitoring of these areas. This entity is also responsible to report annually to OSPAR Commission of all operations of deposition offshore in Portugal, ensuring the maintenance of the good environmental status

The working group on Aggregate extraction and dredging from Portuguese MSP (PSOEM) objective is to establish the criteria to identify the areas suitable for deposition of dredge sediments and offshore strategic areas of sediments management (Figures 1 and 2). This working group is also responsible for the establishment of good practices and use rules. It counts with the participation of the following entities: General Directorate of Natural Resources, Safety and Maritime Services; Portuguese Environment Agency; General Directorate of Cultural Heritage; Portuguese Institute of the Sea and Atmosphere and Port Authorities.

In the scope of the Environment State Secretariat office nº 3839/2015 of 17 of April, a working group on sediments was established with the mission of developing the necessary steps to the nourishment in large scale to the coastal areas more exposed to sea erosion. This mission has is developed in four main tasks:

- Identification of priority areas for intervention;
- Identification of the origin and classification of sediments for the purpose of beach nourishment, considering the following options:
    - Deposits in stock on harbors coming from previous dredges;
    - Maintenance and deepening dredges planned to port areas (2015-2020);
    - Aveiro and Figueira da Foz bypass procedures with beach sediments (North to South);
    - Identification of the sediment resources of the continental shelf.
- Cost analysis and possible financial sources;
- Analysis of the bases for cooperation mechanisms between port entities and the Water National Authority.

This working group has the participation of Faculty of Science of the University of Lisbon, Portuguese Environment Agency, National Laboratory of Civil Engineering, Port Authorities, General Directorate of Natural Resources, Safety and Maritime Services, Portuguese Institute of the Sea and Atmosphere, Hydrographic Institute and the State Secretary of the Environment.

Analysis of the sector in its environment: interactions with other activities and conservation

Interactions with other sectors

The literature review shows that interactions between extractive activities at sea and other activities are poorly developed by industry representatives. Few papers deal with this topic apart from works presenting theoretical interactions between the sector and other maritime activities.

Based on the matrix of interactions between marine and coastal uses and activities, one of the results of the Transboundary European Planning Project European Atlantic Project (TPEA) (see annex 1:matrix of interactions between marine and coastal uses and activities, one of the results of the TPEA), includes the activity "Exploitation of non-living natural marine resources - sand / aggregates extraction conflicting with aquaculture, gas exploitation and wind farms etc.

The report "Maritime Spatial Planning (MSP) for Blue Growth"(EC. 2018) summarized the following risks associated to the activities:

- Shipping and ports: Additional risk of collision if extraction sites are located on shipping routes
- Tourism and recreation: Conflicts during beach nourishment and sand extraction.
- Oil and Gas: Sharing the same maritime space
- Marine aquaculture: Conflicts of use for the same maritime area.
- Offshore wind: possible sharing of the same maritime-terrestrial space.
- Fishing: During the dredging activity, there are conflicts over access to fishing grounds and the deployment of fixed fishing gear.

Based on those reports, it is possible to identify some gaps and conflicts already expressed by the sector representatives. In France, for example, the question of the relationship between material extraction activities and other activities in the maritime area seems to be relatively little discussed and untouched in the literature studied. However, some of the interviews on the topic indicate interactions that are considered reduced by the representatives : "*The co-activity with other uses at sea is considered possible, especially for the fishing activity that can continue during and after exploitation*[51]". *"I would not say there is competition. Yes, there is concurrence but it is not exacerbated and it is serene* "[52].

Interactions with conservation

Several studies analyze the potential impacts of dredging activity on the environment. In February 2018, the report "Maritime Spatial Planning (MSP) for Blue Growth" (EC. 2018) summarized these impacts as follows:

- Marine aggregate extraction has the potential to disturb sites of marine archaeological importance. Aggregates companies have agreed a voluntary code of practice, which requires archaeological assessment of licensed areas and sets a framework for the protection of remains (see archaeological exclusion zones).
- Marine mining potentially causes environmental damage to the biological diversity and ecosystems, through contamination (release of metal ions into the water column either in the benthic plume created by mining vehicles or, following dewatering on the surface vessel, in a mid-water plume), changes in siltation at the seabed, underwater noise and the extraction of species.
- Aggregates extraction may exacerbate the erosion that generates the need for nourishment in the first place. Deposited material might be of a different granulometry than the original material and biological communities might be disturbed in the places where sand is deposited.
- Dredging activity liberates the sand from the seabed; there are certain types of worms that are attracted to this and will start to form biogenic reefs, attracting more biodiversity in the dredged area (potential link between the dredging industry and building with nature).

Characterization of spatial demands and prospective on future trends

Key points:

For Portugal and France, the representatives of the sector justify the sector development highlighting the growing needs in mineral resources. These may be material requirements for construction. Indeed, the real estate pressure on the littoral territories resulting in a demand for building materials. This growing demand is correlated with the difficulties in the creation of exploitation sites on the littoral territories. In

51 Http://sablesetgraviersenmer.fr

52 Interview with Aggregate extractions representative in France

Portugal, according to the Sediment Working Group the sand resources associated with port activity, which are important in the coastal system, appear to be insufficient for nourishment of high magnitude.

For the sake of cost of marine aggregates, it is likely that the increase in the number of applications for authorizations for new extraction sites mainly concerns a near-shore limit. In Portugal, The marine sediments identified in the strategic areas of sediment management will be used to nourish the stretches of the coast identified as the ones that suffer the most with erosion. According to the final report of Littoral working group and according to the current knowledge concerning the trends of the evolution of the different costal cells, four zones were identified to carry out interventions of artificial nourishment on a large scale.

In France, as in Portugal, these needs for expansion and the creation of extraction zones are confronted with various elements contradicting the development of the activity.

In France, the professional organizations express a need for simplification of the procedures in the requests for authorizations or increase of exploitation. The cumbersome application and authorization procedures are indeed a recurring factor in the sector's expression. While taking into account the extraction potential and the growing needs for aggregates for construction and for agriculture accentuated by the growth of the population on the littoral territory, the DOGGM of the Nord Atlantique Manche Ouest basin (NAMO) which covers the administrative regions of Bretagne and Pays de la Loire, establishes a provision to limit new projects until 2031 on the entire NAMO Basin (from the coastline to the limit of the exclusive economic zone).

In Portugal, requests seem to be met with reluctance on the part of local residents or those involved in other activities. Presently, there are two concession areas for surveying and research of sand and gravel (Caminha and Viana do Castelo) and six in pre-concession phase (Porto, Aveiro, Figueira da Foz, Albufeira, Quarteira e Vila Real de Santo António), all concerning to the same company, however all processes are in dispute.

On the one hand, we observe that the sector is positioned as a developing activity looking for new spaces to access the resource. On the other hand, the professional organizations emphasize the strict nature of the regulation and the increasing difficulties to have access to terrestrial deposits. These reasons together can threaten the sector in the long term.

Due to the increasing need for marine materials for construction, the erosion control of certain coastlines or the maintenance of port activities, dredging and extraction activities are facing high demands. In the case of the extraction of marine aggregates, this demand is exacerbated by the increasing difficulty of the operators to develop mining sites on land. *“We know that the marine aggregate will probably take a larger part and so we can evaluate these things" [...] "We will not have exponential growth of materials as we could have between 2000 and 2010, but it will not be downward either. It will be stagnant because there are economic prospects and I would say the strong growth it will be moderated by the fact that we seek to consume less and less raw material "*[53].

Industry representatives believe that demand for aggregates will increase on the Atlantic coast due to “*demographic growth particularly on the coastline which will result in significant needs for buildings and housing. [...], aggregate requirements for market gardening and needs resulting from coastal erosion. [...] All these elements are important and contribute to supply this demand for aggregates”*[54]. “*We do not exploit everything today but we still keep this possibility, when tomorrow there will no longer be the exploitation of terrestrial aggregates to be able to increase the production of marine aggregates*".

Some actors, especially in France, highlight "abundant resources”. However, exploitable deposits are much smaller than these resources. The restrictive regulatory framework for obtaining exploitation rights for marine aggregates is presented as a brake on the development of the activity. "*A strictly regulated activity and an increasing difficulty to obtain the authorizations to exploit:" [..] "Although France has significant mineral resources, aggregates companies are finding it increasingly difficult to obtain operating licenses”*.

53 Interview with Maritime Aggregate extractions representative in France

54 UNICEM at ARML Pays de la Loire december 19th 2017

"I think it would be very difficult in the future to apply for permits and concessions in a protected marine area"[54].

The administrative and regulatory obstacles to obtaining new exploitation rights do not seem to be diminishing. In all three Member States the regulations are strict. The extraction of aggregates for construction is specifically prohibited in Spain, except for the creation and regeneration of beaches and are specifically regulated in France and Portugal. One of the demands of the representatives of the profession is precisely, administratively simplify the renewals of these concessions.

The sector is also facing difficulties in prospecting estimates of material needs: "*we do not set goals in the true sense, as they are set in the environmental objectives with indicators that are really indicated". [...] "It is very difficult to make long-term forecasts [beyond 2030]*"[55].

The sector is however relatively well structured and present in the MSP consultation bodies.

FRANCE

For France, several comments have been gathered on the basis of numerous publications of the sector:

If the sector has existed for several decades, the representatives place their claims in the form of a new activity because of its growth: *"This activity gradually ramped up from 1988 in a rather disconnected way with the cessation of extractions in Loire. This rise in power is explained both by the geology of coastal departments, which are relatively devoid of soft rock resources, and by coastal land pressure"*[55].

While representatives of the industry highlight the issues and needs of professionals to meet the demand for marine aggregates, they do not explicitly express spatial demands. However, the professional organizations express a need for simplification of the procedures for an increase of the authorizations of exploitations for the professionals who, they deposit their requests for access to the resource.

The position is therefore double. On the one hand, we observe that the sector is positioned as a developing activity in search of new spaces to access the resource. On the other hand, the professional organizations emphasize the strict nature of the regulation and "the increasing difficulties of access to the terrestrial deposits which could endanger the sector in the long term" [56]. In a way, the positioning is that of a modest but already well established sector that seeks access to the resource to survive.

In a 2015 "White Paper: Careers and Aggregates by 2030", the UNPG estimates that: "the production of marine aggregates, which has already more than doubled in thirty years"

During an intervention the ARML of the Pays de la Loire in December 2017, representatives of the sector believe that aggregate demand "*will increase on the Atlantic seaboard due to: demographic growth particularly on the coastline that will result in significant needs in buildings and housing. [...], aggregate requirements for market gardening and needs resulting from coastal erosion. [...] All these elements are important and contribute to supply this demand for aggregates"*.

However, the UNPG highlights *"abundant resources, but exploitable deposits more rare". [...]*

"The geological resources are abundant: the prospections on the French continental shelf made it possible to estimate "The resource to more than 30 billion m3. However, exploitable deposits are much smaller than these resources.
Indeed, access to exploitable deposits is conditioned by:

- the geotechnical nature of the materials that must be suitable for use;
- the depth of the deposit which must be accessible to hourglass vessels;
- the proximity of a port of discharge not far from the basins of consumption;
- the technical constraints of the ports (accessibility ...);
- the presence of easements (cables, shipping routes ...);

55 UNICEM at ARML Pays de la Loire december 19th 2017

56 *sablesetgraviersenmer.fr*

human activities carried out on the perimeter in question (fishing, shellfish farming, areas reserved for the French Navy, etc.);

the existence of areas recognized as essential to the ecological balance of the marine environment (spawning grounds, flora and fauna for benthic feeding of commercial species ...)".[57]

In various publications, the UNPG also puts forward a restrictive regulatory framework for obtaining rights to exploit marine aggregates. *"A strictly regulated activity and a growing difficulty to obtain operating licenses:" [...] "Although France has significant mineral resources, the aggregates industry is finding it increasingly difficult to obtain operating authorizations. In some areas, the situation is critical and the materials market can no longer be supplied locally. This is the first concern of farmers.*

- *Obstacles to the issuance of licenses to operate are at several levels.*
- The deadlines for obtaining the authorization to exploit are growing
- The authorization period is reduced
- The regulatory framework has become more complex and strict:
- The local populations express more reluctance: The population is more consulted than formerly and expresses more and more often reluctance to the establishment of quarries in its immediate environment.

As a result, areas potentially exploitable by the aggregates industry are becoming scarce.*"Faced with the growing difficulties of access to the earth's deposits, aggregates producers have diversified their resources, particularly through marine aggregates".* However, according to representatives of the sector, these regulatory and administrative difficulties are also found in the marine area. *(UNPG, 2011).*

In 2018, through the press, the UNPG estimates that the *"devolution trend of the fleet is down" Le marin. 2018.*

In the request for access to the resource that the marine aggregates extraction sector claims, the representatives put forward: "A logic of proximity, with a catchment area limited to 50 km, with suppliers of this sector who are, for the most part, local". In the Pays de la Loire, for example, the representatives of UNICEM believe that: "without these 3 million tons extracted on average every year from the Pays de Loire, it is actually an alluvial quarry of 40 hectares that it would be necessary to identify and authorize each year to compensate for these 3 million tons. It is necessary to imagine what this represents considering the land use of the littoral departments and what it means to make authorize a sand pit on land, which is far from being innocuous"[58]*.*

"Given the geographical location of the exploited deposits, marine aggregates meet the growing needs of markets close to the coast and agglomerations connected to the sea by water". (UNPG 2011)

In addition to these claims, it is important to take into account the provisions made in the DOGGM document shared between the state services and the stakeholders of the sector. While taking into account the extraction potential and the growing needs for aggregates for construction and for agriculture accentuated by the growth of the population on the littoral territory, the DOGGM of the Nord Atlantique Manche Ouest basin (NAMO) which covers the administrative regions of Bretagne and Pays de la Loire, establishes a provision to limit new projects until 2031 on the entire NAMO Basin (from the coastline to the limit of the exclusive economic zone). Indeed, the DOGGM defines that "

The needs of the construction industry and agriculture in marine aggregates of siliceous nature for the NAMO facade (Pays de la Loire and Bretagne regions) are covered until 2031 with the current authorizations granted off the Pays de la Loire and imports into France. from Nouvelle Aquitaine: No new concessions increasing the total authorized production volume will be granted for the exploitation of marine aggregates such as sands and siliceous gravels on the entire NAMO basin (from coastline to the edge of the exclusive economic zone) until 2031". [59]

57 *Http://www.unpg.fr*

58 UNICEM at ARML Pays de la Loire december 19th 2017

59 Document Stratégique de Façade Façade Nord Atlantique – Manche Ouest-Annexe 9- 9° DOGGM- September 2018

SPAIN

The surface of the North Atlantic façade affected by sand extractions according to the General Directorate of Sustainability of the Coast and the Sea is approximately 20 km^2, this inventory not being exhaustive[60].

The procedure for the authorization of the extractions is the one established in the Law 22/1988 of Coasts. Granting of authorizations for aggregate and dredged extractions depends on the evaluation of related impacts on the maritime-terrestrial public domain, which is to be conducted focusing on the extraction or dredging sites as well as on discharge sites where appropriate. The extraction of aggregates for construction is specifically prohibited, except for the creation and regeneration of beaches.

In the event that harmful effects are produced for the public domain and its use, the granting Administration may modify the initial conditions to minimize and/or correct them, or even revoke the authorization, without any right of compensation for its owner.

In cases of works carried out outside the port public domain and in order to obtain materials for port landfills, the provisions of article 131.2 of Law 48/2003, of November 26, of economic regime and service provision of Ports of General Interest, is the legal instrument that applies.

PORTUGAL

The private use of the National Maritime Space requires a use permission (TUPEM) issued by DGRM. The procedure to obtain it depends if the use and location are foreseen in the Situation Plan. If the area to use is not designated to the activity of Aggregate extraction, dredging and deposition, the promoter can propose the change of the Situation Plan upon the submission of a proposal to the elaboration of an Allocation Plan, duly substantiated, that changes automatically the Situation Plan, if approved in the resolution of the Council of Ministers. With the approval of the Allocation Plan, the conditions are met to the issue of the TUPEM, which is essential to the implementation of any use or activity in maritime space. In the case of the area to be occupied is already foreseen in the Situation Plan to the activity of Aggregate extraction, dredging and deposition, the proposal of obtaining a TUPEM is analyzed directly by DGRM and the emission of the authorization depends on the compliance of the necessary elements to the process (Jesus, J., et al., 2016) .

60 Ministry of the Environment, Marine Strategy of the North Atlantic marine district. Initial Assessment, 2012.

Reminder of the characteristics of the sector (extract C1,1,1 - Initial Assessment)

In France

Offshore wind energy: 2 commercial farms planned (976 MW commissioning in 2022/2023)

Floating offshore wind energy : 1 demonstrator (Floatgen : 2 MW); 1 pre-commercial farm planned (Eolfi : 24 MW)

In Portugal

Floating offshore wind energy

1 demonstrator (windfloat project phase 1 :2MW – decommissioned in 2016)

1 pre-commercial farm planned (Windfloat project phase 2 : 25 MW)

Wave energy

Tests of prototypes throughout the last decade

Marine renewable energies : national policies

In France

France's current multiannual energy plan proposes the development of 3GW of offshore wind capacity by 2023, with further 3GW in the pipeline post-2023. The program also calls for the approval of up to 2GW of floating wind and tidal projects in addition to the 100 MW that will be in service by 2023.

A new set of measures announced during the CIMER of 17 November 2017 to put offshore and floating wind on fast track

in 2018 : preliminary studies on the development of floating wind farms off Brittany and in the Mediterranean, as well as preliminary technical studies and public debate on the proposed wind farm off Oleron.

In Portugal

Portugal adopted the Industrial Strategy for Energy Ocean Renewables (EI-ERO), 2017, which major strategic objective is the creation of an industrial cluster to export renewable energy technologies. like floating offshore wind energy and wave energy.

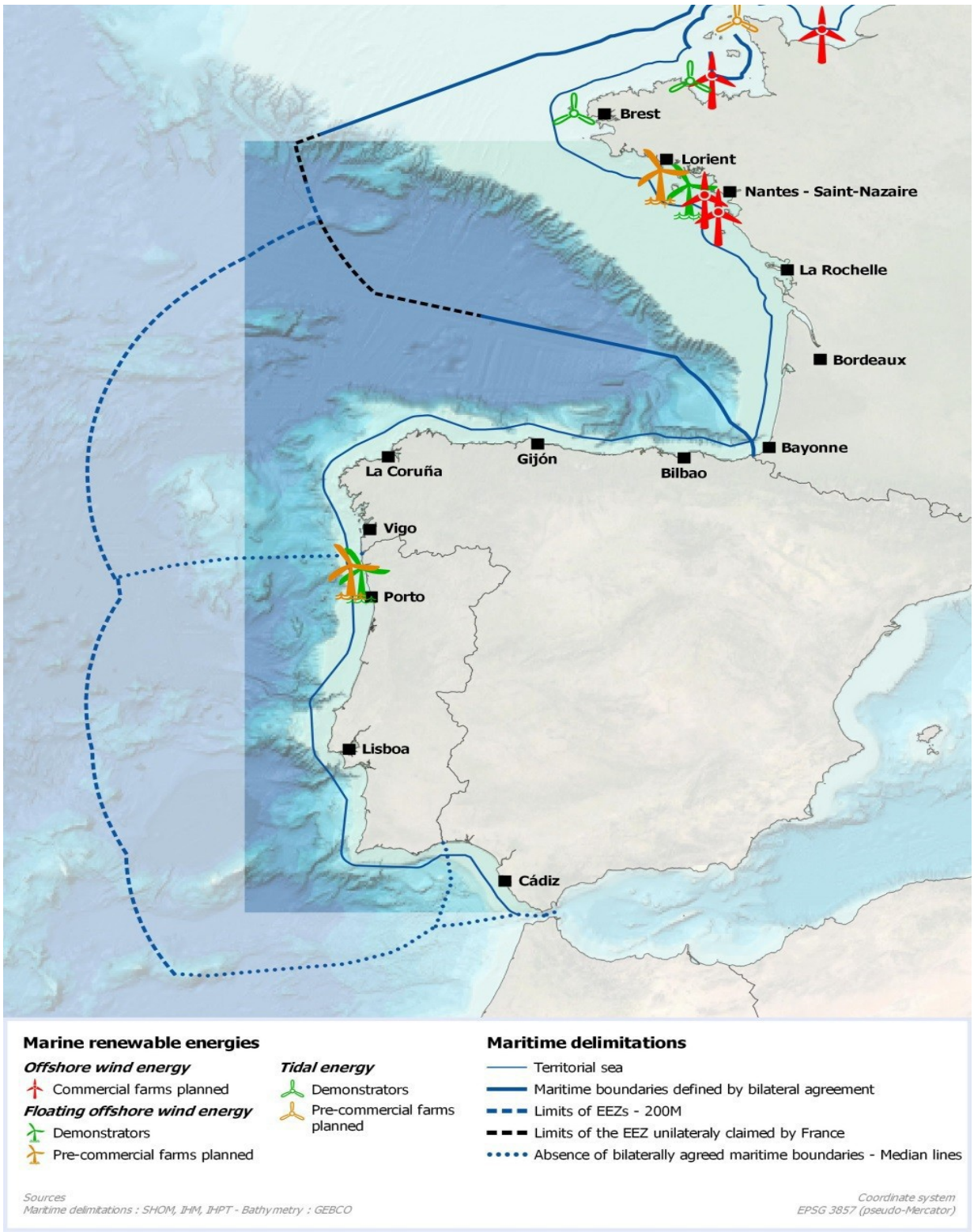

Illustration 9: Marine Renewable Energy in the OSPAR IV area

Structure of sectors and canals of expression for the spatial demands

Key points:

In Spain, France and Portugal, a large number of different bodies have been held under the promotion and development status of the MRE sector. These bodies are composed by Companies (manufacturers of wind turbines and components)

On the Atlantic coastline, the MRE sector depends on several enterprises from the large groups to small enterprises. Those companies are often members of unions. This is the case among others, in France: the French Maritime Cluster (CMF), the Union of Renewable Energies (SER) of the Group of Construction Industries and Naval Activities (GICAN); in Spain: Association of Wind Companies (AEE), Association of Spanish Maritime Clusters (CME) and Portugal of Wave Energy Center (WavEC - Offshore Renewables).

Several approaches like competitiveness clusters are implemented to support the structuring of the R&D to marketing actions. For marine industries and MRE on the French Atlantic coast, the centers are: Pôle Mer Bretagne-Atlantique, EMC2, Capénergie or France Énergies Marines (FEM). In Spain, the Spanish Technology Platform for the Maritime Sector (PMTCT) is another meeting point for exchanges and discussions between the maritime sectors and stakeholders.

In Portugal the sector benefits from the Institute of Science and Innovation in Mechanical and Industrial Engineering (INEGI) which is a collaborative interface between academia and industry, oriented towards research and development activities, innovation and technology, and contributes to the increase of the competitiveness of the national industry, through Research and Development, Technology Transfer and Training, in several fields namely in the energy sector. Other institutions like Wave Energy Centre (WavEC - Offshore Renewables) and ENERGYIN, the Competitiveness Cluster for Energy and Technology promoted the development of ocean wave energy, offshore wind and other marine forms of energy and strives to enhance the competitiveness of Portuguese companies operating in the Energy sector.

Finally, public administrations and actors have the means to support the development of the renewable marine energies sector. Central governments, in France, the Ministry of Ecology, Sustainable Development and Energy and the Ministry of Industry. In Portugal it is the Directorate General of Energy and Geology the responsible for the development and regulation of the sector. Local authorities can also set guidelines for economic development and can work to structure the sector in their territories through dedicated structures. As example, in France, the three administrative regions of the Atlantic coast indiscriminately implement: aids for the financing of cartographic studies of offshore wind development potential[61]; forums for debate and exchange on the development of the activity[62]; territorial strategies favorable to the development of the activity[63] [64].

In Portugal and France, the maritime renewable energy sector players were invited to express themselves in the framework of consultation bodies. Thus, in France, a representative of the renewable marine energy sector designated by the national union of renewable energies is a member of the college "professional activities and companies" in the composition of the “Conseil Maritime de Façade” (CMF). In this respect, the renewable marine energies sector is represented and can issue recommendations and opinions in the context of the preparation of the “Document Stratégique de Façade” (DSF) applied by facade of the national integrated maritime policy. In Portugal, the General Directorate of Energy and Geology represents the sector in the Portuguese MSP (PSOEM) in the working group "Resources and Mineral and Energy Infrastructure" This working group is responsible for identifying the most appropriate areas for renewable energy production.

61 GIP littoral Aquitain – Energies Marines Renouvelables – Potentiels en énergies marines de la façade Aquitaine – mars 2013. Pdf [online] http://www.littoral-aquitain.fr/energies-marines-renouvelables/potentiel

62 http://www.littoral-aquitain.fr/energies-marines-renouvelables/potentiel

63 https://www.bretagne.bzh/jcms/prod_426290/fr/strategie-regionale-et-emr-a-l-ordre-du-jour

64 http://www.paysdelaloire.fr/dossiers-thematiques/assemblee-regionale-mer-et-littoral/

More generally, in the three countries, the stakeholders regularly express themselves on the development of their sectors through reports or communications or the organization of events. In Spain, the AEE disseminates the stakes of wind energy industries and performs a didactic task facing society by launching events and publishing reports and studies. In this way, in conferences such as "Prospects for Offshore Wind Technologies in Spain" organized by REOLTEC, the sector is discussing topical issues such as the future of marine wind energy in Spanish offshore waters. As part of the implementation of the IMP on French maritime facades and the definition of areas conducive to the installation of offshore wind turbines, the renewable energy union proposed some contributions. Those notes reviews future trends in the development of the sector and make some recommendations to meet the needs of this sector in terms of space applications. In addition, several representatives of the sector (companies, cluster, etc.) participate in the proceedings of the Regional Councils of Bretagne and Pays de la Loire.

FRANCE

It appears that a large number of bodies are mobilized or mobilized to support the development of the renewable marine energies (RME) sector. These bodies are structured at all scales, from the European scale to the local scale and at all stages of the projects by a wide variety of public and private structures It is therefore difficult to consolidate an exhaustive vision of the structuring of the RME sector, but we can present the different types of structures, and partnerships present on the Atlantic coast.

- Companies

On the Atlantic seaboard, the RME sector is carried by both large groups and Intermediate Size Enterprises (ETI) on the one hand and Small, Medium Enterprises (SMEs) and Very Small Enterprises (TPE) on the other hand. Large industrial groups have in fact located their activities and especially research and development on the facade.
The marine energy sector is indeed the subject of growing involvement of French companies in the energy sector, offshore oil and shipbuilding (such as ALSTOM, ADWEN, DCNS, EDF, ENGIE, NEXANS , STX etc.) especially in Research and Development.

Over the last few years, RME have been the first area of collaborative research for French maritime industries. This collaboration is accompanied by support structures for the RME sector that have developed on both French Atlantic fronts. Some of them are structured at the regional or interregional level.

- Clusters

On the Atlantic coast, several clusters federate companies in the same sector of the maritime economy. In terms of innovation, they have a role of consulting and linking their members, in connection with other support structures, and themselves carry innovative collaborative projects. Some examples: Bretagne Pôle Naval, Neopolia EMR in Pays de la Loire, etc.

- Competitiveness poles

The role of the poles is to support the structuring of research on specific themes and regions between industrial and academic actors, from R & D project setup to marketing actions. For the maritime industries and RME on the French Atlantic coast, the main ones are: Pôles Mer Bretagne-Atlantique, EMC2, Capénergie or France Énergies Marines (FEM) : Energy Transition Institute dedicated to Renewable Marine Energies which receives financial support from the state to support the development of the sector by bringing together brings together a consortium of actors around this objective.

- Technopoles

Technopoles are the initiative of local actors. Their emergence results from the awareness of a necessary concerted action in favor of innovation and entrepreneurship. Technopoles are not specialized in the maritime field, but this sector represents a significant part of the activity of some of them. Atlanpole, located on the territory of the Nantes-Saint-Nazaire, is for example the territorial relay of the Pôle Mer

- Trade union

The **Cluster Maritime Français** defends the interests of all private maritime stakeholders, while the S**yndicat des énergies Renouvelable** (SER) represents in a transversal way the renewable energy stakeholders with particular

actions of accompaniment of the SMEs for onshore wind and offshore (Windustry 2.0). **GICAN**, the shipbuilding union, supports the maritime industries' efforts towards the RME sector. Other actors such as the Comité National des Pêches (CNPEM), can contribute to the integration of RMEs, in all coastal activities, and GEP-AFTP (Group of companies and professionals of hydrocarbons and related energies), for the oil and gas industry offshore.

- Institutional actors

Institutional stakeholders in the maritime economy are also involved in the development of RME. This is particularly the case of the Grands Ports Maritimes, which have the status of a public establishment. On this subject, the Nantes-Saint-Nazaire maritime port is a reference in the RME, accompanied by Bordeaux which also benefits from a strong industrial position.

- Administrations and public authorities

National administrations and local authorities are also involved in supporting the sector. At the state level, it is mainly the Ministry of Ecology and the Ministry in charge of Industry that drive national policy, particularly through partnerships with industry, via the National Council of Industry and its Strategic Committees. The Agence de l'environnement et de la maîtrise de l'énergie (ADEME) participates in the implementation of public policies in this sector and implements the Investments for the Future Program dedicated to marine renewable energies. Local authorities also have different means to support the RME sector. The “conseils régionnaux” in particular are responsible for defining the guidelines for economic development and can work to structure the sector in their territories through dedicated structures (Bretagne Développement Innovation, Aquitaine Développement Innovation).

SPAIN

In the Spanish Atlantic waters, the offshore generation of renewable energy is inexistent. Pilot projects have been proposed, but no infrastructure has been built until today.

There is neither legislation nor a strategy on the same. Only the administrative procedure for the requests of authorization of installations of electrical generation in the territorial sea has been established (through the Royal Decree 1028/2007), allowing making the reservation of areas where marine offshore installations may be built in the future. To clarify where wind farms could be set, the Ministry of Energy, Tourism and Digital Agenda published in 2009 the “Strategic Study of the Spanish Coast for the Installation of Marine Wind Farms”, conducting an analysis on the suitability of the platform for the installation of future wind farms, based on the nature of the habitats, marine protected spaces, resources and fishing activities[65] [66]. This document analyses the potential effects on the physical, biotic and socio-economic environment during the different phases of construction and the exploitation of wind farms.

Although Spain has almost 8 000 Kilometers of coastline, its waters become quickly quite deep, which is why the technology used up to now in offshore wind farms is not viable. The European Wind Association (EWEA) highlights the potential of Spanish coasts to host these parks, yet the political and economic support of the European Union and the central government appears still necessary for the development of this technology.

The Wind Business Association (AEE[67]) is the voice of the wind sector in Spain. It promotes the use of wind energy in our country, Europe and throughout the world. It represents and defends the interests of the sector.

AEE has about 200 associated companies and represents more than 90% of the sector in Spain, including promoters, manufacturers of wind turbines and components, national and regional associations, organizations linked to the sector, consultants, lawyers and financial entities and insurers, among others.

65 http://www.mapama.gob.es/es/prensa/ultimas-noticias/medio-ambiente-e-industria-aprueban-el-estudio-estrat%C3%A9gico-ambiental-del-litoral-espa%C3%B1ol/tcm:30-314617

66 http://www.mapama.gob.es/es/prensa/ultimas-noticias/medio-ambiente-e-industria-aprueban-el-estudio-estrat%C3%A9gico-ambiental-del-litoral-espa%C3%B1ol/tcm:30-314617

67 Asociación Empresarial Eólica (https://www.aeeolica.org/es/)

AEE coordinates research in the areas surrounding wind energy and serves its members by responding to their different needs. It contributes to the formulation of the normative framework with the objective that the sector develops in the best possible conditions. It disseminates the reality of wind energy and carries out a didactic task facing society. It launches high level events in which it brings together leading personalities at national and international level, and publishes reports and studies that constitute a reference.

In addition, AEE exercises the secretariat of REOLTEC, the Spanish Wind Industry Technological Platform, which coordinates with ICEX[68] the presence of Spanish companies in fairs and conferences abroad and is a member of international associations such as Wind Europe (former EWEA). REOLTEC is a non-for-profit organisation which was born in 2005 with the challenge of integrating and coordinating research, development and innovation actions aiming at answering the wind industry needs. Collaboration within REOLTEC is free and counts with members from the academic and governmental fields, technological centres and companies.

The platform is also in charge of identifying industry research and development priorities as well as of disseminating advancements. In this sense, in conferences such as 'Perspectives for offshore wind technologies in Spain' organized by REOLTEC and held in November 2017 in Madrid, the sector actively debated on current topics such as the future of marine wind energy in Spanish offshore waters.

On the other hand, the Spanish Maritime Cluster Association (CME[69]) also provides room for the association and collaboration of the varied Spanish maritime industries and players, while allows and fosters discussions on different sector needs and issues of interest. Overall, the CME targets the promotion and development of the Spanish maritime sector, to achieve a higher level of competitiveness of the entire sector and provide a general defence of its interests. The cluster has a national scope and aims to have in its bosom all associations, companies, public or private institutions and non-profit legal-private entities that are involved, directly or indirectly, in the maritime sector. The CME is integrated into the European Network of Maritime Clusters (ENMC) that brings together maritime clusters of main European countries: Belgium, Holland, France, United Kingdom, Germany, Italy, Norway, Finland and Denmark.

Within the CME there are different working groups created to improve the competitiveness of the Spanish maritime sector, depending on the different interests of (and manifested by) the CME partners. These working groups constitute a meeting-point for different (maritime) sector stakeholders with similar concerns and needs, and provide a place to discuss topics of interest and find solutions to problems in the sector, as well as to find partners to carry out business initiatives.

Through the activities of each WG, political and institutional relations are also facilitated, with the CME being the qualified voice before the administration to defend the interests of the members.

In this sense, the Working Group on Marine Wind Energy (GT EEM2[70]) was created to facilitate the reorientation of the traditional maritime sector in Spain towards a new emerging sector such as offshore wind, taking advantage of the existing infrastructure and the technological capabilities of national companies.

The objectives of this group are the following:

- Identification of business opportunities for the offshore wind energy
- Identification of business opportunities for marine energies
- Establish a structure of companies capable to provide a response to the needs of the tractors, forming consortiums able to address each element of the value chain.

The last initiatives carried out by the group are the following:

- Organization of the JERME '17 Sponsorship III Conference on the Current State and Perspectives of Marine Renewable Energies in Spain (November 22 and 23, 2017)
- Definition of the Supply Chain.
- Compilation of a database of companies with active participation in marine wind farm projects.

68 ICEX Spain Trade & Investment, a Government Body chaired by the Secretary of State for Trade of the Ministry of Economy, Industry and Competitiveness with the aim of attracting foreign direct investment (FDI) to Spain.

69 Clúster Marítimo Español (https://www.clustermaritimo.es/)

70 Grupo de Trabajo de Energías Marinas, CME, segunda fase (https://www.clustermaritimo.es/gt-energias-marinas-gt-eemm/)

- Interrelation between the CME's supply chain and the ones of the United Kingdom and Germany.
- Meetings with large companies in the sector with marine energy projects to present the capabilities of CME companies.
- Establish contacts with other sector entities at the international level, e.g. Bretagne Commerce International Association in Spain, the German Chamber of Commerce for Spain.
- Custom reports to partners.
- Elaboration of the "Study of business opportunities for marine energies" coordinated by ALTUM engineering and services (private, consultancy firm) and co-financed by MINETUR (Spanish Ministry of Industry, Trade and Tourism) under the REINDUSTRIALIZACION 2011 Program.

In addition, the Spanish Technological Platform of the Maritime Sector (PTME) constitutes another meeting-point for exchanges and discussions among maritime sectors and stakeholders. The platform was born at the beginning of 2005 at the request of the MINETUR, with the support of the Spanish Administration and in line with European initiative "Waterborne". At present, the Spanish Maritime Cluster -as the Management Committee of the Platform- assumes the direction of the PTME as well as administrative and coordination functions of the Technical Secretariat, with the collaboration of the School of Naval Engineers of Madrid.

The main goals of the PTME are:

Definition of a common perspective of the predictable evolution of the maritime sector in Spain.

Collaboration with the Administration in the design of the national and European technological policy for the preparation of:

- A strategy that helps to define the sectorial policy.
- A strategy that helps to define the R&D+i aid policy of the sector.
- Encourage companies to carry out and maintain their own research activity in Spain.

The main mechanism of the Technological Platform is to bring together the sector's stakeholders, put them in contact and facilitate the generation of multidirectional relationships and interactions for the use of the knowledge generated and the new necessary initiatives of research projects.

The Platform is developed with the intention of including the entire Spanish maritime sector, meaning all stakeholders whose activity is strongly related to the sea or aquatic means of livelihood, both public administration and private sector etc.

PORTUGAL

The challenge of availing commercial form the enormous potential of energy resource in the oceans, in order to meet the energy needs on the ground has a long history. However, the discovery of large resources (with high energy densities and relatively simple for commercial exploitation) like coal, gas, oil and nuclear elements, of which Europe is a heavily dependent importer, lead to a delay in the maturity of offshore renewable energy technologies.

Recently, the growing rise in the price of fossil fuels and the increased discussion on the use of nuclear energy, in parallel with the growth of environmental awareness, has given rise to a new breath in the sector of offshore renewable energy. In this context, the OTEO project (Observatório Tecnológico para as Energias Offshore) arises, an initiative led by the Institute of Mechanical Engineering and Industrial Management (INEGI), in partnership with the Wave Energy Center (WavEC-Offshore Renewables) and the Competitiveness and Technology Pole (ENERGYIN).

INEGI is an interface Institution between University and Industry, oriented to the activities of Research and Development, Innovation and Technology and contributes to the increase of the competitiveness of the national industry, through Research and Development, Technology Transfer and Training, in the fields of engineering design, materials, production technology, energy and environment and industrial management.

The Wave Energy Centre (WavEC - Offshore Renewables) is a non-profit organization dedicated to the promotion and development of ocean wave energy, offshore wind and other marine forms of energy (seaweed and tidal currents, salinity, thermal, etc.) through technical and strategic support to companies, R&D institutions and public entities.

The National Laboratory of Energy and Geology (LNEG) develops research and demonstration in the field of Marine renewable energies since 1983. Have been involved in more than 15 European and national projects in the scope of technological development, resource assessment and support of wave energy policies. From the LNEG activities is highlighted the studies of the wave energy pilot plants on the Island of Pico/Azores and Foz do Douro based on the Oscillating Water Column Technology (OWC), the development of floating wave energy conversion system projects to national companies, the coordination of WERATLAS – European Atlas of Wave Energy, ONDATLAS – Portuguese Atlas of Wave Energy and PEMAO - GIS database to site selection.

- **Clusters**

ENERGYIN - the Competitiveness Cluster for Energy and Technology strives to enhance the competitiveness of Portuguese companies operating in the Energy sector. The offshore energies subsector, with the current deployment of conversion technologies, the development of service providers and associated research activities, provide opportunities for a massive presence of Portuguese companies in the global markets of the future.

- **Administrations and public authorities**

The public administration responsible for the development and regulation of the sector in Portugal is the General Directorate of the Energy and Geology. The main responsibilities of this entity regarding the Marine Renewable Energy are:

  - Contribute to the definition, achievement and assessment of the enforcement of energetic policies;
  - Promote and participate in the elaboration of the adequate legal framework to the development of systems, processes and equipment's regarding to the production, transport, distribution and use of energy, having special concern with the supply safety, energetic sources diversification, energetic efficiency and environmental protection;
  - Support the Ministry of Economy and Innovation in the EC and international realm, in the field of the energy, as well as, promote the transposition of EC directives and follow their implementation:
  - Carry out action of supervision actions, accordingly to the applicable legislation to the related sector;
  - Support national government in the decision-making in crises or emergencies, in the scope of the law, and allow the necessary means to the permanent operation of the Emergency Planning Commission to the Energy.

Analysis of the sector in its environment: interactions with other activities and conservation

Interactions with other sectors

Although at present there is no commercial platform, conflicts and interactions between sectors are anticipated by several studies. For example, one of the results of the Atlantic Cross-Border Planning Project (TPEA) (See annex 1 :matrix of interactions between marine and coastal uses and activities, and studies conducted by sector representatives (such as SER in France) concludes on the following theoretical impacts:

- The presence of wind turbines at sea and in particular of buried electric cables is technically incompatible with dredging activities and seabed mining.. The constraint of underwater cables and pipelines is taken into account in the technical studies in order to define the preventive measures to be adopted during the development, construction and operation of the park.

- The interaction with multiuse platforms were considered synergistic with aquaculture, oil and gas, submarine cables, shipwrecks, artificial reefs, cultural and natural heritage.
- The installation of an offshore wind farm is not feasible or compatible within maritime routes under the Traffic Separation Scheme. Outside these areas (mainly in the English Channel), maritime traffic is a non-crippling constraint to evaluate. It will be necessary, in the definition of wind projects, to establish appropriate measures (safety distance, markup, circumvention by ships, etc.),
- Wind farms located offshore will impact fish and other marine wildlife. Some studies suggest that submerse wind structures may actually increase fish populations by acting as artificial reefs. The impact will vary from site to site, and therefore proper research and monitoring systems are needed for each offshore wind facility. The practice of trawling may be more or less restricted in the area where the wind turbines are installed depending on the type of fishing (bottom trawl, pelagic trawl, drag, etc.), the layout of the park (navigation corridors wide enough or not, inter-wind or non-wind turbine wiring, etc.) In the case of floating wind turbines, the anchoring systems may restrict fishing activities.

In the opinion of the representatives, the practice of boating is not incompatible with the operation of a wind farm at sea. However according to them "*it is necessary to define a security perimeter (where Navigation has to be excluded) that must be drawn around these areas, precisely for reasons of visibility, safety and security*"[71].

It is noted that apart from these potential interactions (positive or negative), it is difficult to characterize more precisely these interrelationships between activities. Indeed, the limited number of wind farms on the Portuguese, Spanish and French waters limits the possibilities of feedback. Some representatives of the sector such as SER in France specify that the very purpose of the phase of defining suitable areas is to identify wind turbine development sites that will be less subject to interactions with other activities. Negative interactions can therefore for the moment concern only the necessary sharing of the maritime area and the potential impacts on environments affecting other activities. "

Interactions with conservation

In the national regulatory regimes of the three Member States, project leaders must provide sufficient data for regulators to analyze the potential effects of this activity. This data and information is needed to enable renewable marine energies deployment, which typically occurs after of an Environmental Impact Assessment (EIA). Only the study of the impact of the future offshore wind farm can make it possible to establish the real stakes of the territory and to define its effects and, if necessary, the measures of avoidance, reduction or compensation necessary for the preservation of the environment. Based on the literature the systematic use of these impact studies does not seem to be considered as a constraint to the development of the activity.

In France, some of these evaluation procedures are supported by the State following a simplification of the procedures for the creation of wind farms at sea (specified in 2018). In the context of the State's maritime spatial planning and its multiannual energy program, the State has to identify areas to install RME. This identification includes the collection of additional data including the major environmental issues of the zone and a consultation of the actors in public consultation to identify the possible perimeters for tenders. (by the end of 2019).

Cross-border interactions

Since no commercial platforms nor installations are in use, at present there are no interactions with other uses in a cross-border context**. However some pilot projects can provide a first scenario about the existing possible interactions**

71 Interview with Maritime Industry/Energy representative in Portugal

Characterization of spatial demands and prospective on future trends

Key Points

The stand of renewable marine energy actors is directly related to the political support of local governments and the terms of access to the resource defined by each country.

Thus, in France, the sector, although largely represented by a panel of different organizations, is rather in a wait-and-see position regarding a favorable State which itself defines ambitious objectives, and implements studies to delimit areas with high potential. On the specific subject of space demand, stakeholders in the MRE sector seem to show that professionals are contributors in the definition of suitable areas and the launching of tenders (technical data, expression of the needs of the sector).

In Portugal, the working group "Resources and Mineral and Energy Infrastructure" is responsible for identifying the most appropriate areas for renewable energy production. To date, 3 private permits (TUPEMs) have been granted with an area of occupancy of approximately 14.6 km2 to 3 different companies (WindPlus, AW Energy OY and EDPR). All TUPEMs are pilot projects.

In Spain, the context is different. Spain has strong opportunities to develop for onshore wind power and it seems that the government is currently prioritizing support for terrestrial renewable energy. In addition, according to some representatives interviewed[72], the establishment of offshore wind farms is complex since Spanish coast has a small continental shelf. In comparison, according to WBA offshore wind energy remains more expensive than onshore wind energy. However, by 2025, offshore wind technology should already be a reality on the Spanish shores, with the increasing energy consumption and the need to respect international agreements and targets related to climate change and renewable energies. According to the EEA, "*The Basque Country and the Canaries are the two nuclei in Spain where we can bet on this floating wind technology, which can be exploited where the sea is deeper* ".

In France, for the Union of Renewable Energies (SER), France "has several thousand kilometers of coast spread over four facades. In the same way; the European Wind Association (EWEA) highlights the potential of the Spanish coasts to host these parks. In Portugal, the national reports highlight the competitive conditions that Portugal offers, such as good wind and wave resources and jurisdiction over a vast maritime area.

The development of sector´s technology is also considered an opportunity to invest. In Spain and France, industry representatives believe that the development of floating wind turbines "*will significantly increase the potential of offshore wind power, with the installation of wind farms at high water levels greater than 50 meters, the current technical-economic limit of laid-down offshore wind, and up to water depths of 200 meters. In particular, it will make it possible to exploit areas with a good wind field that are currently inaccessible to the technologies being installed*".

However, the bathymetry and swell criteria remain constraining for the development of the sector in the near future[73]. The criteria for acceptability of projects by citizens are also binding: "*Less than 10 km, we will not put wind farms at sea for acceptability issues from holidays residents and recreational activities*". Some professionals point out the difficulty of requesting other areas even though the current wind farms have not been built and it is therefore not possible to assess their impacts.

In Spain, there is no specific legislation or strategy. Only the administrative procedure for applications for the authorization of electricity production facilities in the territorial sea has been established (by Royal Decree 1028/2007), allowing for the reservation of areas where offshore marine installations could be built at sea. The sector believes that the political and economic support of the European Union and from the central government is still needed for the development of this sector . Business representatives see the MSP processes as an opportunity to add much more legal certainty and a stronger impetus for some projects.

72 Interview with Maritime Industry/Energy representative in Spain

73 Interview with Maritime Industry/Energy representative in France

On the other hand, in France, the SER believes that the development prospects are accompanied by the policy: "The bill on the energy transition proposes a target of 32% renewable energy in the final energy consumption in 2030 to achieve it, our country will have to use all forms of renewable energy. Portugal also has adequate legislation.

In Spain and France, clusters exist to support the structuring of research on specific themes and regions between industrial and academic actors, from R & D project setup to marketing actions. For maritime industries and RME on the French Atlantic coast, the main ones are: Pôles Mer Bretagne-Atlantique, EMC2, Capénergie or France Énergies Marines (FEM). In Spain, many technology centers, mainly located in the Canary Islands and the Basque Country, are setting up test benches to explore different technological systems, ranging from components to subsystems and any other element requiring validation before being brought into service. This is the case of Tecnalia, the largest private technology center in Spain and one of the largest in Europe, engaged in the development of offshore wind, and seeking solutions to reduce costs.

Another major constraint to the development of renewable marine energy in the marine areas of the three Member States is the knowledge gaps. Indeed, the interviews carried out as part of this study demonstrate some gaps in the study and analysis of the cumulative impacts resulting from the implementation of an offshore energy park"*We can occupy an area, and some kilometers ahead, probably we will divide an important space to some species, and we can not evaluate yet, because we have not enough information, and that's a problem". [...] "After the continental shelf, we do not know anything about that, and that's the biggest problem, is to realize where we can conciliate this conservation*" [74].

FRANCE

France, because of its significant potential, has a target of 6000 MW renewable marine installed capacity in 2020.

The SER, believes that the development of the floating wind turbine *"will extend very significantly the potential of offshore wind, with the establishment of parks at water depths greater than 50 meters (current technical and economic limit offshore wind) and up to water depths of 200 meters. In particular, it will make it possible to exploit areas with a good wind field that are currently inaccessible to the technologies being installed "*.

The SER specifies that France *"has several thousand kilometers of coast spread over four facades as well as overseas. This favorable geography enables it to benefit from the second development potential of offshore wind power in Europe "*.

In addition, for the SER, *"the main French ports (Brest, Cherbourg, Dunkirk, Le Havre, Marseille-Fos, Nantes/Saint-Nazaire, La Rochelle, etc.) benefit from strategic geographical positions that can be used in major European markets (the United Kingdom, Germany, Belgium and Denmark in particular). They concentrate strong historical competences in the fields of energy, mechanics, metallurgy or logistics and have access capacities (water depths) to accommodate fleet installation vessels. Most are already investing in the development of activities related to the development of marine energies, such as the ports of Brest, Cherbourg, Le Havre and Nantes-Saint Nazaire.*

The SER also believes that the development prospects are accompanied by the policy: *"The bill on the energy transition proposes a target of 32% renewable energy in the final energy consumption in 2030: to achieve it, our countries will have to use all forms of renewable energy. Large offshore wind turbines are one of the most effective ways to diversify our energy mix. Its many strengths in this area must convince France to commit to ambitious objectives, beyond the 6,000 MW in 2020 agreed in the Multiannual Investment Program 2009* (Programmation Pluriannuelle des Investissements de 2009).

In light of these various assets favorable to the development of the sector, the SER concluded in 2015 as follows: *"The professionals believe that by including the potential of our exclusive economic zone (EEZ), it is realistic to aim at a installed 15,000 MW of wind in 2030 in metropolitan France. Several pilot projects for floating wind turbines are currently under development, and professionals believe that, once it has demonstrated its technical and economic viability, floating wind turbines will be developed commercially in the course of the 2020s,*

74 Interview with Maritime Industry/Energy representative in Portugal

reaching a potential capacity of around 6,000 MW in 2030. In total, by this time, this capacity will allow the supply of nearly 15 million homes from clean energy and respect for the environment. "(SER.2015)

"*The SER recommends the achievement of the high target of the Programmation Pluriannuelle de l'Énergie (PPE) : 9 000 MW, in 2023 and 15 000 MW in 2030, awarded through tenders for annual volumes from 1 000 to 1 500 MW* "*(*SER, 2017).

At the European level, in February 2018, the European Commission published a report on MSP in blue growth. This report integrates a prospective analysis of the evolution of the RME sector by foreseeing a strong development of the sector supported by European and national public policies favorable to renewable energies and technological evolutions. This development will result in the need for new spaces at sea: *"In addition to the need for more space, the general trend is that projects are carried out in deeper waters* and further away from the shore. At the same time, the continuous energy dependency of the EU will push for the development of alternative energy sources such as offshore wind energy, and the creation of an offshore grid (hub-based), which will have technical, economic, legal and spatial implications"(EC 2018).

"Policy developments are an important stimulus for offshore wind development. Renewable energy policy with higher targets, such as the Paris agreement (global), EU energy policy as well as national policy targets will increase the demand of space for offshore energy production. More zones will be allocated for offshore wind. At the same time, policy stimulating fossil fuel production, for example by indirect taxes or low risks loans for oil companies, might be decreasing, thereby also improving the position of offshore wind and increasing the demand for sea space" (EC 2018).

"Wave and tidal projects are placement-driven and depend on the resource potential in a given location. While areas with high potential for tidal energy projects have been identified, wave energy conversion includes a broader range of technology types which are adapted to different wave conditions and assessing likely use of future areas therefore remains uncertain given the potential for technological development. Unlike wave energy, tidal resources are not widely distributed and are found in specific areas, limiting the geographical expansion of the tidal energy sector" (EC 2018).

"The ocean energy sector as a whole foresees larger-scale ,projects of up to 50MW by 2020 in preparation for full commercialization from 2025. The ambition of the sector is to install wave and tidal energy capacity over the next 35 years at such a scale that it could address up to 10% of the European Union's energy demand. While a number of barriers to the growth of the sector exist, it is anticipated that the demand for space from wave and tidal projects will increase in the coming decade"(EC 2018).

Some institutions representing the sector can sometime take the place of a contributor:

indeed, the SER consulted in 2009-2010 in the planning and definition of suitable areas made by the State (CEREMA) which then allowed the launch of the first two calls for tenders for the installed wind

Contributor in the study on the technical-economic potential of the areas that can accommodate wind turbines led by CEREMA. This step followed by local consultations, based on the technically-favorable technical zones defined by CEREMA and RTE, to draw the zones which will then be the subject of future calls for commercial offers and calls for expressions of interest for projects pilot farms.

In the position letter, which is a contribution to the definition of areas suitable for the installation of offshore wind turbines, the syndicat des énergies renouvelables expresses some needs of professionals in the definition of operating zones: *"Zones for the installed wind turbine" must also have sufficient size to allow the future owner to continue the consultation and adaptation of its project after the call for tenders [...] The feedback shows that it is absolutely necessary (especially vis-à-vis the public debates that are held later) that project owners have areas large enough to adapt the design of their project to the issues of local acceptability, technical and environmental. Based on a ratio of 1: 4, the SER proposes to retain areas of 150 to 300 km², for projects ranging from 250 to 500 MW".* (SER.2015)

The European Commission distinguished in a study (EC 2018) the two types of process of creating a field at sea. The "call for tenders" method and the "open door policy *". "Using the 'call for tenders' method, is a valuable tool for large-scale deployment of offshore wind farms in the short term. This method allows the government to make use of their timetable, thereby reaching their renewable energy goals. The 'open door policy' method, providing*

larger search zones for industry to develop their own business cases, fosters innovation and can facilitate wishes by the industry. Using both methods in a MSP-context will foster both large scale deployment"

In France, the procedure for creating a wind farm offshore is similar to the call for tenders method and has been clarified by a simplification law of 2018. This procedure is based on the spatial planning of the State (façade strategies) defining areas intended to accommodate EMRs. This first step, which is then specified on the RME Objectives by the Multiannual Energy Program (PPE), is then presented to the consultation and public debate with the stakeholders on the identification of suitable perimeters for calls for tender. This model therefore largely conditions the spatial demand modalities of the RME sector.

About the process of delimitation of calls for projects of offshore wind farms on the French sea: *"For the Regional Committee of Fisheries these zones are not the fruit of a real consultation process"* (CRPEM de Bretagne. 2017)

In a positioning letter presented at the Conférence Régionale Mer et Littoral de Bretagne, ENGIE Green contributes to the definition of suitable areas By approving the preselection of macro zones and proposes to extend some of them. "*If the call for tenders of the State concern parks of 500 MW, the surface of the zones of study could be about 300 km². These areas, which will be presented in Public Debate, must be sufficiently broad, taking into account first of all the probability that they will be reduced after the debate, but also of the uncertainty to date on the bathymetry and the nature of funds especially in North Brittany. It is therefore essential that geophysical measurements be conducted as far upstream as possible from the launching of Public Debates "*(ENGIE Green.2017).

SPAIN

Until recently, marine wind turbines marketed were limited to a maximum depth of 50 meters. Recent technological developments have made possible the location of these structures in deeper areas, allowing taking advantage of the Atlantic and the Baltic potential, and especially of the Mediterranean, through the installation of floating turbines.

Numerous technological centers, mainly located in the Canary Islands and in the Basque Country, are installing test benches to explore different technological systems, ranging from components to subsystems and any other element in need for validation before being taken to the high seas. This is the case of Tecnalia, the largest private technology center in Spain and one of the largest in Europe, committed to developing offshore wind through the Nautilus system, and aiming at searching solutions allowing reducing costs.

By 2025, the offshore wind technology is expected to be already a reality on Spanish coasts, with the deployment of 8 MW wind turbines (under a BAU scenario) that could raise up to 13-15 MW if technology is improved (Source: wind business association (WBA).

At the European level, according to the approved capacity, the outlook for 2020 consists of a total of 24.8 GW planned, out of which, 78.1% (19 393 MW) will be deployed in the North Sea, 41% (1 025 MW) in the Atlantic, 14.1% (3 490 MW) in the Baltic Sea, 2.6% (657 MW) in the Irish Sea, and a small portion, 1.1% (272 MW) in the Mediterranean (WindEurope).

The BiMEP Platform

The Biscay Marine Energy Platform, S.A. (BiMEP), located in the North Atlantic maritime waters, is an innovative project providing two offshore infrastructure sites under real sea conditions connected to the grid in order to foster research, testing and exploitation of marine energies (i.e. wave and wind energies).

BIMEP is a public company created in 2011 for the development, construction, operation, maintenance and management of the offshore test platform BiMEP, and is made up of two partners: the Basque Energy Agency (EVE) and the Institute for Energy Saving and Diversification (IDAE).

As illustrated by the figure below, BiMEP carries out activities in two different locations:

- BiMEP Area:

Located off the coast of Armintza, the BiMEP Area offers an infrastructure for the testing of prototypes of marine energy collectors and auxiliary equipment in the open sea. Operating since June 2015, it offers technology developers an area with an adequate wave and wind resource to demonstrate the technical and economic feasibility of the different concepts, as well as their safety before moving to a commercial state in real scale.

- Mutriku Area:

The Mutriku area is destined to wave energy: it consists of a wave power plant allowing testing of new air turbine concepts, control strategies and auxiliary equipment for Oscillating Water Column devices. This plant, built in the breakwater of the port of Mutriku, has a total power of 296 kW and supplies electricity to the grid since 2011.

Illustration 10: Pilot sites made available at the BiMEP experimental platform

Government and European support are necessary for the sector's development in the coming years. However, increasing power consumption and the need to meet international agreements and objectives regarding Climate Change and renewable energies might involve the installation of offshore wind turbines in the mid-term. A renewed strategic studies might need to be conducted again to provide most updated zoning in the national jurisdictional waters. Indeed, consensus will be required in decision-making at the inter-sectorial level, particularly (as seen) among the different administrative levels (national, regional, local), conservation, and key sectors such as ports and maritime transportation, fishermen, and the tourism and recreational activities.

PORTUGAL

The Portuguese MSP set of good practice measures to develop in research, demonstration and exploration marine renewable energy projects that must be considered, in all stages (conception, licensing, installation and exploration and decommissioning).

As guidelines, in each of the stages, should be considered protection of environmental sustainability, cost of the non-use mitigation, ensure the safety of operator or others and ensure the technical and scientific feedback. In this sense and in general terms, consideration shall be given to the following:

- The process of technological development must comply with international standards of good practice;
- A characterization of the marine area must be undertaken: biodiversity, physical-chemical characteristics and assessment of the main impacts resulting from the activity, namely those likely to affect conservation of habitats and species. Where appropriate, develop measures to avoid, minimize or compensate the identified negative effects;
- Ensure that in each project the underwater archeologic heritage identified or found is protected;
- Must be taken in consideration the seascape protection and the impact assessment of the wave resource, when applicable, proceeding to the consultation of Turismo de Portugal in the stage of TUPEM requirement;

- The best practices should be adopted regarding maritime signalization, in each project, having in consideration the existence of other projects and uses in the area;
- Update the emergency/contingency plans whenever the circumstances change;
- Prepare the decommissioning stage, ensuring that all infrastructures and equipment's are taken out, except if needed for a new project, or if the allocation ecological system, meanwhile established, is superior than the costs of maintenance (cartography, navigation safety and maritime signalization);
- Implement monitoring programs (marine environment);

The installation of offshore floating platforms to the wind energy is expected to crate synergies with the sector of aquaculture. This sector will benefit from the creation of areas protected by these platforms in order to expand their activity offshore. This synergy rely on the fact that the use of the same technological platform will allow the optimization of the space to the production of energy and seafood, and therefore, reduce the operation cost inherent to these offshore technological platforms.

National reports highlight the competitive conditions Portugal offers, like good wind and wave resources and the jurisdiction over a huge maritime space which may be used as a complement to its inland territory, almost saturated with wind turbines. But they also emphasize the very wide, interconnected grid by the coast, where 75% of the population lives and good ports and shipyards are available. Portugal also has adequate legislation and several scientific institutions specialized in this sector. Nonetheless, Portugal does not have a true economic sector focused on the exploitation of marine renewable energies.

Wind energy

Analyzing the chain value of offshore wind technology, is concluded that Portugal does not presents, in a short-medium term, a productive structure capable of influencing the course of technological development, opposite to what happens in countries like UK and Germany where structural investments have been made in this activity.

The Roadmap Portugal 2050 report on new energy technologies, 2010 considers that Portugal can play an important role in terms of development and production of components. Specifically, wind towers adapted to the specific technological needs of offshore wind systems, electronic components, electrical substations e information and management systems capable of remotely monitor the operational conditions of wind parks to mitigate the need of repairs and optimize the maintenance process, which is a critical aspect of technological chain of value.

Wave Energy

Accordingly with the best existing predictions, the wave energy potential along the Portuguese coast, is between 3,5-4 GW, a very low value if compared, for example, with UK (65 GW). Nevertheless, the existent potential of the resource and the creation of a pilot area with infrastructures aiming the installation of 250 MW of wave energy conversion devices in a pre-commercial stage until 2020, lead to the assumption that Portugal does not hold, for now, the technology capable of reaching the potential of production in this field.

Co-funded by the European Union

Reminder of the characteristics of the sector (extract C1.1.1 - Initial Assessment)

Only minor oil and gas activities take place in OSPAR Region IV

2 operational offshore installations

"Gaviota" in the bay of Biscay : converted to natural gas storage

"Poseidon" in the gulf of Cadiz

Some oil & gas resources potentials, which remains to be confirmed

Exploration an exploitation licenses in Portugal

Applications for exploration licenses in Spain

Structure of sectors and canals of expression for the spatial demands

Key points

Oil and gas sector structuring is mainly tailored by international institutions and companies.

International oil and gas institutions

Global economic and geopolitical panorama pave the way the sector activity. Producer and consumer countries have set up international institutions dedicated to energy, trade and climate issues, which require concerted responses from States. This is the case of OPEC (Organization of Petroleum Exporting Countries) or the International Energy Agency (IEA).

In addition to OPEC and IEA, other international organizations indirectly deal with topics related to the hydrocarbon trade such as: WTO (World Trade Organization), UNFCCC (United Nations Framework Convention on climate changes); UNCTAD (United Nations Conference on Trade and Development); IPCC (Intergovernmental Panel on Climate Change) IMO (International Maritime Organization).

On the other hand the European Union, or the States themselves have also set up dedicated energy institutions, particularly for hydrocarbons, to coordinate or implement decisions arising from international agreements.

Most of the other European institutions (European Parliament, Council of the Union, Economic and Social Committee, Committee of the Regions, European Investment Bank) have also set up commissions or sections devoted to energy issues, notably those related to hydrocarbons and climate.

At the national level, the sectors have been organized into federations integrating most companies developing exploration and production activities. For example, in Spain, the "Asociación Española de Compañías de Investigación, Exploración y Producción de Hidrocarburos y Almacenamiento Subterráneo" (ACIEP); in France, EVOLEN and the Union Française des Industries Pétrolières (UFIP); and in Portugal, the Associação Portuguesa de Empresas Petrolíferas (APETRO), are examples of associations of representatives of the hydrocarbon exploration and production sector.

Right of use

The topic of the means of expression of the stakeholders makes it possible to highlight a difference of representation between France and Spain on the one hand and Portugal on the other. In fact, contrary to in Portugal where the sector is represented in the PSOEM working group "Resources and Mineral and Energy Infrastructure" by the General Directorate of Energy and Geology (DGEG) and the National Entity for the fuel market (ENMC)in France no representative of the oil industries is included in the composition of the two maritime boards of facades of “South Atlantic” and “North Atlantic - Western Channel”.

However, sectors are involved in the discussions and negotiations related to the development of new exploration and research permits. In this sense, in July 2017, the Spanish Ministry of or Ecologic Transition opened a public consultation process on the future law on climate change and energy transition, with the aim of promoting maximum participation of all stakeholders. This law is a commitment by the government to achieve the EU’s energy and climate goals, especially those stemming from the Paris agreement. In the three countries, industry representatives also express their demands and the needs and challenges of the sector via their own publications.

FRANCE

In France, the law of December 2017 ending research and exploitation of hydrocarbons and the reform of the mining code imply in principle the impossibility for the sector to claim new space at sea[75].

Regional organizations of States, such as the European Union, or the States themselves have also set up institutions dedicated to energy, especially hydrocarbons, to coordinate with each other or to apply the decisions arising from international agreements:

National and regional institutions dealing with fossil fuel issues

At the country level, there are specific administrations dealing with hydrocarbon issues:

- In France, the "Direction générale de l'énergie et du climat" monitors the organization of the energy market, oversees the exploitation of hydrocarbon deposits on its territory, manages strategic stocks of oil and gas, establishes partnerships with the oil producing countries;

In addition, national, regional or local agencies inform industry and consumers about the optimal use of hydrocarbons and the reduction of their environmental impact. As examples:

- ADEME (French Agency for the Environment and Energy Management) created in 1991, participates in the implementation of public policies in the fields of environment, energy and sustainable development. It puts its expertise at the disposal of companies, local authorities, public authorities and the general public and also helps to finance projects;

The Union Française des Industries Pétrolières is a trade union that brings together companies operating in France in one of the three main sectors of the oil industry: exploration and production of oil and natural gas, refining and logistics / distribution. From the "well at the pump", the UFIP represents and expresses the professional and industrial points of view of some thirty member companies.

EVOLEN is an association that aims to promote the French industry of hydrocarbons and new energies in the world and to promote the development of interprofessional networks

Interlocutor of the French government and the administration, the UFIP is consulted on bills and regulations concerning the oil industry. It sets out her point of view and proposes the modifications and additions appearing desirable on this text. IUFP expresses therefore itself through different types of publications: free white, press releases, press conferences.

No representative of the oil industries is included in the composition of the two Conseils Maritimes de Façades of Sud Atlantique and Nord Atlantique Manche Ouest.

SPAIN

The exploitation phase of hydrocarbon resources is carried out once the exploratory phase has been completed and results indicate that the existence of deposits (as well as conditions for their exploitation) is considered optimal in terms of quantity, quality and profitability.

As a starting point, the exploitation of any hydrocarbon deposit takes advantage of the well already excavated for research purposes, over the exploration phase, although there is the possibility of drilling additional wells in the reservoir.

In Spanish North Atlantic waters three hydrocarbon exploitation concessions have been issued, Albatros and Gaviota I and II (Spanish Industry and Commerce Ministry).

75 http://www.assemblee-nationale.fr/15/projets/pl0155.asp

The Spanish Council of Ministers recently approved a Royal Decree-law (Real Decreto- ley 16/2017[76]) transposing Directive 2013/30/EU[77] on the safety of offshore oil and gas operations. Its aim is to guarantee the safety of hydrocarbon research and exploitation activities in the marine environment, in both their design and operational phases.

RD 16/2017 establishes a number of different obligations for operators targeting the systematic reduction of risks, including the provision of an updated report on major accident hazards, for the preparation of which workers representatives shall be consulted. Likewise, it is required that an independent third party to the operator verifies any critical element to operator safety.

In addition, the regulation requested the creation of the Competent Authority for Safety in Sea Operations in the field of hydrocarbons (ACSOM[78]), the primary function of which is to ensure that hydrocarbon exploitation is carried out under optimal safety conditions. Among its duties, the following stand out: supervision and inspection tasks, cooperation in investigations, preparation of sanction procedures, and validation of the report on major accident hazards.

The Royal Decree-law vests ACSOM major powers to be able to effectively fulfil its mission and thus it may paralyze or suspend works if the safety measures proposed by the operator with regard to the facilities or the operations are considered insufficient. ACSOM can also oppose the granting of a research permit or exploitation concession if the applicant is considered to not meet the pertinent technical and economic capabilities required. On its side, the Ministry of Development, in cooperation with all the agents and administrations involved, is responsible for drawing up an external emergency plan applying to the set of facilities in the marine environment, in which the role and financial obligations of the concessionaires and operators must be specified. In addition, exercises and simulations of emergency situations are to be regularly organized.

Finally, the publication of reports and information on the development of these activities, which need to be publicly available, is established by the RD, in line with the government's transparency policies.

In the national context, the Spanish Association of Hydrocarbon Research, Exploration and Production Companies (ACIEP[79]), constituted as a non-for-profit civil association, aims at representing the interests of the hydrocarbon exploration and production sector vis-à-vis the public administrations and other organisms and institutions. ACIEP is integrated by most of the companies that develop exploration and production activities within the Spanish State. All members of the ACIEP are committed to exercising their activity in compliance with the legal framework, via the application of best available environmental practices.

On the other hand, in July 2017, the Spanish Ministry of Environment opened a public consultation process for the future Law of Climate Change and Energy Transition, with the objective of promoting maximum participation of all related stakeholders and sectors within the Spanish society. This Law aims to be a Government commitment to achieve the EU targets in energy and climate matters, especially the ones arising from the Paris Agreement. At the same time the Council of Ministers has adopted the establishment of an Expert Commission to draft a report including different scenarios of energy transition in order to analyze different approaches to drawing and adopting a pertinent energy policy framework, including environmental and economic impacts.

PORTUGAL

At the country level, there are specific administrations dealing with hydrocarbon issues:

In Portugal the General Directorate of Energy and Geology (DGEG) is the public administrative entity responsible to contribute to the design, promotion and assessment of policies related with energy and geologic resources, regarding the sustainable development and insurance of supply safety. It is also responsible for make citizens aware of the importance of this policies, in the framework of economic and social development of Portugal,

76 Real Decreto-ley 16/2017, de 17 de noviembre, por el que se establecen disposiciones de seguridad en la investigación y explotación de hidrocarburos en el medio marino.

77 Directive 2013/30/EU of the European Parliament and of the Council on safety of offshore oil and gas operations and amending Directive 2004/35/EC.

78 In Spanish, "Autoridad Competente para la Seguridad en las Operaciones Marinas en materia de hidrocarburos"

79 In Spanish, "Asociación Española de Compañías de Investigación, Exploración y Producción de Hidrocarburos y Almacenamiento Subterráneo"

informing them about the available tools to put in practice the political decisions and informing citizens of results of their follow up and implementation.

National Entity for the Fuels Market (ENMC) is a public corporation whose mission is to ensure compliance with the obligations adopted by Portugal within the European Union and the International Energy Agency, with respect to oil and petroleum products emergency reserves, as stipulated in national legislation. ENMC's mission also includes fuels and biofuels market monitoring and the prospection, research, oil resources development and exploitation, as well as consumer protection.

The National Laboratory of Energy and Geology (LNEG) is also an important research institution that collaborates as a consultant to the public policies in the field of energy and geology, environment, sustainability, normalization, quality and certification.

The sector is represented in the working group “Mineral and energetic resources and infrastructures” by the Directorate general of energy and geology (DGEG) and the National Entity for the Fuels Market (ENMC) of the Portuguese MSP (PSOEM). This working group has the responsibility of provide information regarding Oil and Gas production.

Analysis of the sector in its environment: interactions with other activities and conservation

Interactions with other sectors

In France, the low number of exploration permits suggests that interactions with other maritime activities are very weak. In addition, following the recent declarations of the Ministry of Ecological and Solidarity Transition on the ban on issuing new exploratory hydrocarbon permits, it is becoming clear that the activity is destined to disappear in France. (Projet de DSF Annexe n°1 Fiches activités et usages de l’espace maritime).

For Spain, where offshore hydrocarbon exploration and exploitation exist, the Desk analysis did not reveal any expressions of the industry about negative interactions with other maritime activities. It is possible, however, that this type of interaction exists. The modest number of exploration and exploitation sites may partly explain this lack of demand. In addition, the areas chosen for these sites generally result from previous consultation processes. The study only develops some results from studies that show interactions between research, oil & gas exploitation and tourism, fishing and sustainable development. It is possible to refer to the theoretical interaction matrices proposed to illustrate the possible relations between activities (Annex 1: matrix of interactions between marine and coastal uses and activities, one of the results of the Transboundary European Planning Project European Atlantic Project (TPEA).

Interactions with conservation

The interactions between offshore hydrocarbon exploration and exploitation and conservation activities are twofold:

On the one hand, it is notable that representatives of conservation activities, particularly environmental NGOs, oppose the development of Offshore hydrocarbon exploitation. This is for example the case in Portugal where a local association, the ASMAA (Algarve Association for the Development of Surfing and Sea-related Activities), concerned about the environmental and economic impact that this petroleum search might entail, opposes projects and publishes petitions and initiates actions in court. According to representatives of the oil business the main tensions encountered are those with the conservation sector[80] and are due to a bad perception of society. There is no social acceptability for this sector. This perception is transmitted to the tourism sectors, the tourism industry and the hotel industry, which perceive an incompatibility with hydrocarbon extraction activity. In the energy sector, opposition has been growing for the last ten years.

Moreover, in France, the law of December 2017 putting an end to research and exploitation of hydrocarbons aims to respect the commitment of carbon neutrality by 2050 presented in the "Climate Plan" of July 6 2017. It is

80 Interview with Maritime Industry/Energy representative in Spain

part of France's energy policy, which aims to promote renewable energies and reduce the consumption of fossil fuels, and is therefore in itself a conservation action that constrains the development of the oil & gas sector.

Cross-border interactions

Although in Spain one of the areas with a hydrocarbon potential exploration license is bordering the French EEZ, the bibliographic research did not reveal the expression of actors about a cross-border interaction.

Characterization of spatial demands and prospective on future trends

Key points:

Stands adopted by representatives of the hydrocarbon production sector are therefore very different depending on the regulatory contexts developed above. In February 2018, an EASME report defined Gas and Oil's operation as a "*mature and declining*" activity, stating that more than 80% of European oil and gas production takes place in abroad and that most of the European extraction fields are mature, with declining production and rising costs (EC.2018).

This description is in line with French situation since in the framework of the law putt an end on the research as well as to the new exploitation of the hydrocarbons and the reform of the mining code, the UFIP had marked its opposition by defending the interests of the sector via press releases. *"France will need all energies in the years to come and it would be regrettable to prevent, without real debate, the development of available resources, whose research and production generate global economic activities, investments, jobs and expertise, for the benefit of the country and the territories. Attractiveness of the mining sector and investor confidence: here are the objectives that should prevail to reform the mining code, serving the country". (*UFIP. 2017a). In 2016 in a "white paper" published before the bill ending research and exploitation of hydrocarbons, UFIP already defends the future of the oil and gas sector in the future of the French energy mix: *"Oil and natural gas still have a central role to play, alongside other energies, in the global energy transition that commits itself "* (UFIP. 2016) "However, in this same white paper the UFIP announces prospects for offshore exploitation downward. "*In France, sedimentary basins suitable for oil and natural gas exploration cover an area of more than 200 000 km2 at sea. Exploration activity over the past two decades has so far been less successful than in the past. But the recent technological progress renews the interest of these basins in the possible presence of conventional hydrocarbons ".[…] "Off the coast of metropolitan France, the Iroise Sea basin or the Gulf of Lion are currently experiencing little activity, particularly because of the challenge to the Rhône Maritime permit. In the Bay of Biscay, the research undertaken by Vermilion has also not met the expected success"*. (UFIP. 2016)

In Portugal, 3 contracts were signed with ENI and GALP as part of an oil and gas survey. Finally after the first public consultation, all these contracts were canceled. Up to date Portugal has not oil extraction and the dedicated zone for oil exploration were taken out from the Portuguese MSP.

On the other hand, in Spain, while offshore oil extraction remains modest, requests for authorization of research areas are increasing. According to the professional's opinion, planning is essential for the development of the activity in order to define "*clear rules of the game*". The definition of authorization zones for the exploration and exploitation of hydrocarbons, the installation of gas pipelines is a strong expectation of the by Spanish representatives of the activity [81].

For oil and gas research, the environmental impact assessment prepared by the Spanish Ministry of or Ecologic Transition was favorable to the study areas Fulmar and Geminis, located respectively 15 and 20 km from the Biscay coast. In addition, an authorization was requested for the Culebre I and II research areas, located in Asturias, and for the Basucos region in Cantabria. Finally, Capricorn Spain LTD holds

81 Interview with Maritime Industry/Energy representative in Spain

exploration permits for the marine subsoil in five different areas of the North Atlantic called Mesana (4,586 km2) and 12 in other areas.

In Spanish waters of the North Atlantic, three hydrocarbon exploitation concessions were created, Albatros and Gaviota I and II (Spanish Ministry of Industry, Trade and tourism).

In fact, in all three states, the prospects for offshore farms appear to be decreasing. In France, the law of December 2017 ending research and exploitation of hydrocarbons should accelerate the decline of this activity despite the possibility of exemption. The availability of the resource is also involved in this decline in holdings. Indeed in France for example, in the Bay of Biscay, the research undertaken by Vermilon did not meet the expected success (UFIP. 2016).

In Spain, more than 700 wells have been drilled, more than 250 wells in offshore waters and 150 wells in the Atlantic maritime area. It should be noted that only 20 of the 700 wells have been economically viable.

It is worth noting that as a sign of a potential decline in activity, some industry representatives are talking about the possibility of reconverting activity in the renewable energy sector. These mentions are not always specific to the offshore sector but in several publications, representatives of the sector mentioning the prospects for renewing the sector in terms of energy transition as in France: "Our technologies and expertise both in the knowledge of the basement for deep geothermal energy than the sea, its depths, its tides and currents for marine energies renewables will be assets to make our country a pioneer of the energy transition "[...]" We are resolutely committed to the energy transition. These changes take time. We are preparing for it and taking action. But even if the consumption of hydrocarbons will decrease, our country will still need for many years of natural gas and oil (UFIP. 2017b). *"Half of France's oil and gas services companies are also involved in the field of renewable energies, mainly marine and terrestrial wind energy and marine energy"(UFIP. 2016)*.

FRANCE

In a white paper published in 2016, the UFIP defends the future of the oil and gas sector in the future of the French energy mix: *"Oil and natural gas still have a central role to play, alongside other energies, in the global energy transition that commits itself"* (UFIP. White Paper 2016). However, in this same white paper the UFIP announces declining prospects for offshore exploitation. *"In France, sedimentary basins suitable for oil and natural gas exploration cover an area of more than 200 000 km2 at sea. Exploration activity over the past two decades has so far been less successful than in the past. But the recent technological progress renews the interest of these basins in the possible presence of conventional hydrocarbons ".* [...]"*Off the coast of France, the Iroise Sea basin or the Gulf of Lion are currently experiencing little activity. In the Bay of Biscay, the research undertaken by Vermilion has also not met the expected success (UFIP. 2016).*

In several publications, representatives of the sector mention the prospects for renewing the sector in terms of energy transition: "*Our technologies and expertise both in the knowledge of the basement for deep geothermal energy than the sea, its depths, its tides and currents for marine energies renewables will be assets to make our country a pioneer of the energy transition* ".For UFIP: "*The excellence of our industry is recognized around the world. It is already a major player in the energy transition. In the coming years it is ready to fully assume its role in the production and transport of energies, in security of supply, to maintain its rank in the world. She expects to be listened to and supported." [...] "We are resolutely committed to the energy transition. These changes take time. We are preparing for it and taking action. But even if the consumption of hydrocarbons will decrease, our country will still need for many years of natural gas and oil"*(UFIP, 2017b).

"Half of France's oil and gas services companies are also involved in the field of renewable energies, mainly marine and terrestrial wind energy and marine energy". (UFIP. 2016)

In France, the law of December 2017 ending research and exploitation of hydrocarbons and the reform of the mining code imply in principle the impossibility for the industry to claim new space at sea. UFIP has indicated its disaccord in January 2017: *"France will need all energies in the coming years and it would be unfortunate to*

prevent, without real debate, the development of available resources, including research and development. production generate economic activities, investments, jobs and expertise valued at the global level for the benefit of the country and the territories. Attractiveness of the mining sector and investor confidence: here are the objectives that should prevail to reform the mining code, serving the country"(UFIP. 2017a).

In 2017 in a press release the UFIP advocated "to valorize the maritime resources"(UFIP. 2017c).

SPAIN

National oil and gas production showed decreasing figures over the last years; production in 2015 amounted to 232 000 oil Tons, while almost 65 000 million oil Tons were imported for national consumption. Similar figures are found for gas, the national production of which rises to half the oil data. Over the last two centuries, 700 wells have been drilled in Spain, over 250 wells in offshore waters and 150 wells in the Atlantic maritime area. It is of note that only 20 out of the 700 wells have been economically viable.

However, national and international companies show increasing interest in the fossil energy resources that can be found in the sea subsoil of a country that is considered as little explored and with potential for discoveries. From 2008 to 2013 the number of requests for research permits in national and coastal territory grew by 80%, according to data from the Ministry of Industry. Technological advances, which have made "accessible" areas that were not previously, and the current price of crude, have increased the options of doing business extracting fossil fuels in Spain.

In any case, Spain is a little explored country and, without exploration, it is not possible to exactly know the real potential of the resources. This phase, which lasts between 5 and 6 years, is the only way to determine the technical, economic and environmental viability of future production. This is precisely the objective of the exploration projects that are underway.

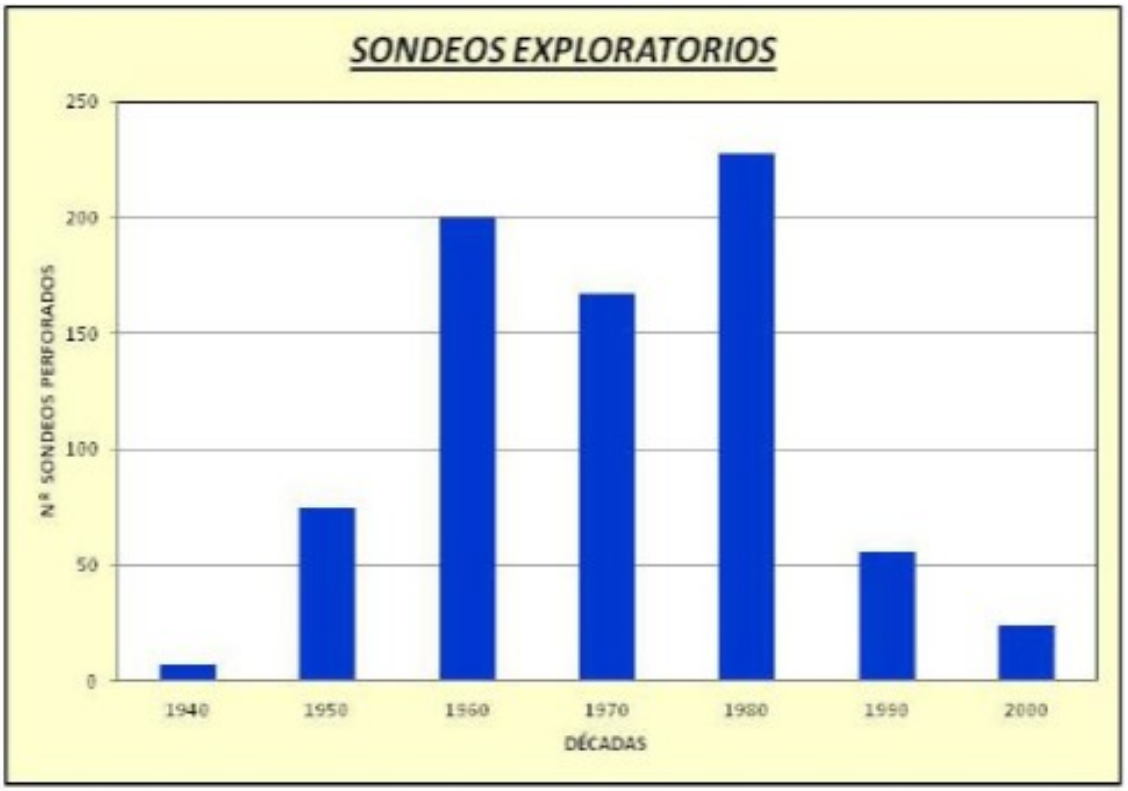

Illustration 11: Number of exploratory wells drilled in Spain, by decade

A study carried out by Deloitte and ACIEP aimed to demonstrate, based on geological prospections and analysis, a potentially vast hydrocarbon resource, as well as the interest of carrying out exploration activities for both gas and oil.

Co-funded by the European Union

Reminder of the characteristics of the sector (extract C1.1.1 - Initial Assessment)

Strategic National Plans are part of the Common Fisheries Policy (CFP) and the European Maritime and Fisheries Fund (EMFF)

In Spain, 4 strategic objectives :

- Simplify and homogenize the legal and administrative framework and strengthen the representativeness of the sector
- Increase Spanish aquaculture production, based on the improvement of sectoral planning and the selection of new areas of aquaculture interest
- Reinforce the competitiveness of the sector trough R&D, closer relations between the scientific community and the sector, health management and well-being
- Strengthen the aspects related to the transformation and commercialization of aquaculture products trough innovation, promotion and support to producer organizations

In France, 5 strategic objectives

- Improve the governance of the interfaces between administrations and professionals
- Strengthen the role of aquaculture in the territories and develop employment
- Develop the sustainability of aquaculture production activities
- Increase the value of products throughout the value chain
- Increase and better share skills, knowledge and innovation for aquaculture development

In Portugal, the main strategic objective is to increase and diversify the supply of national aquaculture products, based on principles of sustainability, quality and food safety, to meet consumption needs and contribute to local development and employment promotion

Future trends

Aquaculture is an axis of development of European blue growth.

Within the European Union, and particularly for aquatic products, food consumption is moving towards higher quality products, which is increasingly seen as a competitive advantage for European Union aquaculture.

Offshore aquaculture is a development track within the three countries. However, it requires the introduction of new techniques to adapt to marine conditions.

Main challenges

Aquaculture of the three country faces the same challenges : sustainability of resources and ecosystems, competition for space and resources, respect for the environment, health of aquaculture farms, quality and safety of products, food for the population, companies´ profitability, diversification of activities, valuation and markets, renewal of generations, spatial planning and social development.

Aquaculture depends on the quality of water that can be impacted by anthropic terrestrial pollution and climate change. It is therefore necessary to ensure that the achievement or maintenance of a good condition of the water masses (in quantity and quality). In France, the profession must also deal with the excess mortality observed since several years. Research programs and monitoring networks have been put in place to understand and reduce this phenomenon.

The practice of aquaculture can also have an impact on the environment. A sustainable development of this activity is therefore indispensable in particular to the waste (recycling and recovery), energy savings, maintenance of the public domain and reclamation after exploitation. The health of the consumer is inevitably one of the strong stakes of aquaculture. Finally, the aquaculture activity needs to develop its attractiveness in order to perpetuate the profession and more generally to improve the image of this sector to the general public by the valuation of aquaculture products.

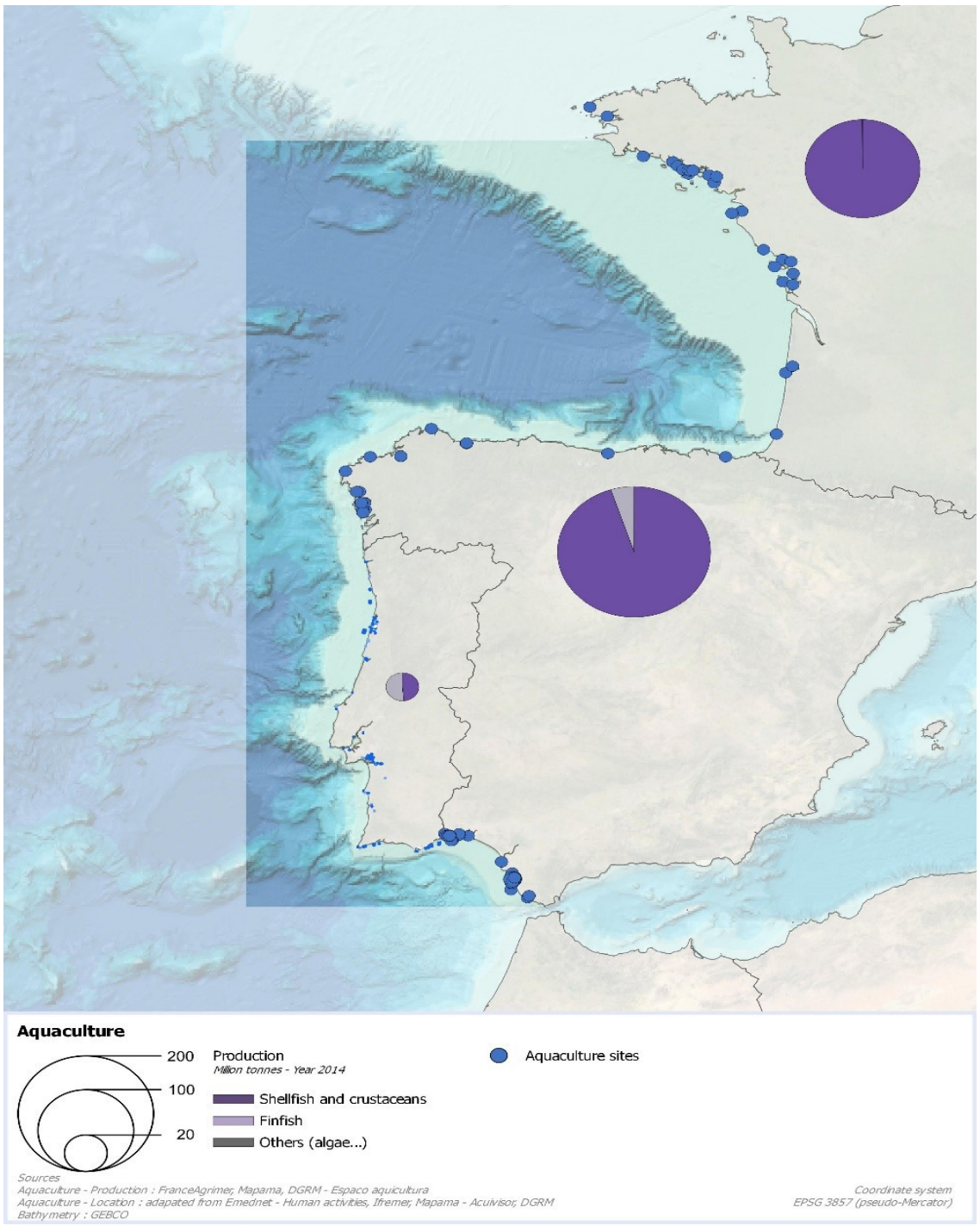

Illustration 12: Aquaculture activity in the OSPAR IV area

Structure of sectors and canals of expression for the spatial demands

Key Points:

In France as in Portugal, the terrestrial and marine aquaculture sectors are split up between numerous structures and inter-professions.

The shellfish industry is represented by the « Comité national de la conchyliculture » (CNC) and the « Comités régionaux de la conchyliculture » (CRC). Composed of 8 committees: 1 national committee and 7 regional committees, the professional organization of shellfish culture ensures the representation of all breeders, processors and shellfish distributors and defends their general interests. They propose, participate in or lead actions relating among others, to the representation and promotion of the general interests of these activities; participation in the organization of a balanced management of resources.

In France, marine fish farming and seaweed farming are represented by National and Regional Committees of Fisheries and Marine Aquaculture (CNPEM and CRPEM). A union of algae producers (macroalgae only) also represents the marine algae industry.

In 2015, however, in a "National Strategic Plan: Sustainable Aquaculture Development 2020", the Ministry of Ecology, Sustainable Development and Energy drew up an analysis of the representation of fish farmers and seaweed farmers in professional bodies. : "They are represented within the Marine Cultures Commissions (CCM) by professional organizations set up by the fishermen (National or Regional Committee of Maritime Fisheries and Marine Farms CNPMEM or CRPMEM) where the representation of the new sector of the seaweed farming is poorly assured, and is, in fact, not represented in these Marine Cultures Commissions. (MEDDE 2015).

The National Federation of Spirulina Producers, the Interprofessional Committee for Aquaculture Products (CIPA) represents the various aquaculture production sectors as well as food manufacturers and processors. It includes: the French Federation of Aquaculture, the Trout Processors Association, the Union of Aquaculture Feed Producers Professionals.

In Portugal, it is reported that aquaculture production is small and dispersed, which limits the ability to negotiate with donors. This could be mitigated by a stronger organizational structure of the sector. (Plano Estratégico Aquacultura, 2014 - 2020). The Associação Portuguesa de Aquacultores (APA), which represents about 90% of the producers, is a non-profit association that aims to defend the interests of its members, representing them in all the organisms and entities public and private. This association represents the Portuguese aquaculture sector in the Atlantic Strategy.

In Spain, the coordinating body in the field of marine aquaculture between the central administration and the autonomous communities is the "JACUMAR" - for its initials in Spanish (Juntas Nacionales Asesoras de Cultivos). It is a structure of the former Ministry of the Environment, Rural Affairs and the Sea composed of the General Secretariat of the Sea and the bodies responsible for the management of aquaculture in the autonomous communities.

APROMAR, by its acronym in Spanish (Asociación Empresarial de Acuicultura de España) is recognized by a Ministerial Order of December 30, 1986 as Organization of Producers (OP-30) for national and European Union purposes.

In Portugal, the DGRM of the Ministry of the Sea is the coordinating entity for the establishment and operation of aquaculture establishments in marine waters, including transitional waters and related institutions. It is part of Working Group 2: Marine Cultures of Organisms and Biotechnology on MSP.

In France, the CRPEM and the CRC are members of the “Conseils Maritimes de Façade” for the North Atlantic-West Channel (NAMO) and South Atlantic (SA) Facade. They can therefore make recommendations and opinions in the context of the preparation of the DSF and the Regional Development Plans for Marine Aquaculture (SRDAM). As part of the development of the DSF NAMO, the

CRCs of the “Pays de la Loire” and “Bretagne Sud”, in 2016, decided on the situation and needs of the shellfish industry in a status report (CRC BS et PDL 2015).

Representatives of aquaculture and fisheries are also consulted through local and regional approaches. This is the case, for example, in Bretagne and Pays de la Loire, which respectively set up consultative bodies to develop regional sea and coastal strategies (CRML and ARML). These strategies are not devoted to maritime spatial planning but allow sector representatives to express the needs of the sector (especially in terms of space).

In 2016, the (national and regional) Marine Fisheries and Marine Cultures Committees, in consultation with the different CRC’s, formulated a position report in the framework of the implementation of planning of the Marine Area on the French Atlantic coast.

In Spain, the Order of 10 June 1998 created the Consultative Committee of the Fishing Sector as a body for consultation, deliberation and advice of the former Ministry of Agriculture, Fisheries and Food in matters within its competence relating to maritime fishing, the management of the fishing sector, management of the marketing of fishery products, fisheries research and aquaculture. Two Members representing the aquaculture sector in this consultative committee. APROMAR also represents its members before the general administration of the state, the autonomous communities, union organizations, other national institutions and before the European Union. Among its objectives is to promote the elaboration and promulgation of adequate legal provisions for the development of marine crops in Spain. It maintains a permanent presence in the media and specialized magazines by writing articles and issuing press releases.

For the development of the Strategic Plan for Spanish Aquaculture 2014-2020, bilateral meetings were held with the Autonomous Regions and the main producer organizations, in which the needs and challenges of the sector were analyzed in terms of Autonomies and sub-sectors, specific meetings were held too with JACUMAR and JACUCON (analogous to JACUMAR but dedicated to continental aquaculture).

FRANCE

The terrestrial and marine aquaculture sectors are fragmented between numerous structures and inter-professions:

Fish farming, seaweeds are notably represented on Comité(s) national and régionaux des Pêches et des Elevages Marins (**CNPEM** and **CRPEM**). A **syndicate of algae producers** (macroalgae only ...) is also a representative of the seaweeds industry,

The Interprofessional Committee for Aquaculture Products (**CIPA**) represents the various aquaculture production sectors as well as food manufacturers and processors. It regroup :

- the French Federation of Aquaculture,
- the Trout Processors Association,
- the Union of Aquaculture Food Producers Professionals.

The shellfish industry is represented by the Comité national de la conchyliculture **(CNC)** and the comités régionaux de la conchyliculture **(CRC)**. Composed of 8 committees: 1 national committee and 7 regional committees, the professional organization of the shellfish culture ensures the representation of all breeders, processors and shellfish distributors and defends their general interests. They propose, participate in or lead actions related to, among others:

- The representation and promotion of the general interests of these activities;
- Participation in the organization of a balanced management of resources;

The comités régionaux des Pêches et des Elevages Marins (**CRPEM**) and the comités régionaux de la conchyliculture (**CRC**) are members of **conseils maritimes de façade Nord-Atlantique-Manche-Ouest (NAMO) and Sud-Atlantique (SA)**. They can therefore make recommendations and opinions in the context of the

preparation of documents stratégiques de façade (DSF) and Schémas Régionaux de Développement de l'Aquaculture Marine (SRDAM).

Representatives of aquaculture and fisheries are also consulted through local and regional approaches. This is the case, for example, in Bretagne and Pays de la Loire, which respectively set up consultative bodies to develop regional sea and coastal strategies (**CRML and ARML**). These strategies are not devoted to maritime spatial planning but allow sector representatives to express the needs of the sector (notably in terms of space).

As part of the development of the DSF NAMO, in 2016, the CRCs of Bretagne and Pays De la Loire, gave their views on the situation and needs of the shellfish industry in a **situation report** (cf. References).

In 2016, the Comité(s) national and region aux de la conchyliculture formulated in consultation with the Regional Committees for Shellfish Culture of Bretagne Sud, bretagne Nord and Pays de Loire, a **position report** in the framework of the implementation of marine spatial planing on the French Atlantic coast (CNPEM/CRC 2016),

SPAIN

The Spanish Constitution of 1978, gives to the **Autonomous Communities** (regions) the management competences in fisheries activities in interior waters, **aquaculture and seafood fishing.** The documents issued by the national government on the regulation of marine and continental aquaculture are of a supplementary and general nature, since the Autonomous Communities apply their own regulation although the autonomic legislation regulates the shellfish and marine culture activity in line with the State. Some Autonomous Communities have developed specific regulations for aquaculture, and most have integrated aquaculture into the regulatory development of the fishing sector. Domestic trade is also competence of the Autonomous Communities.

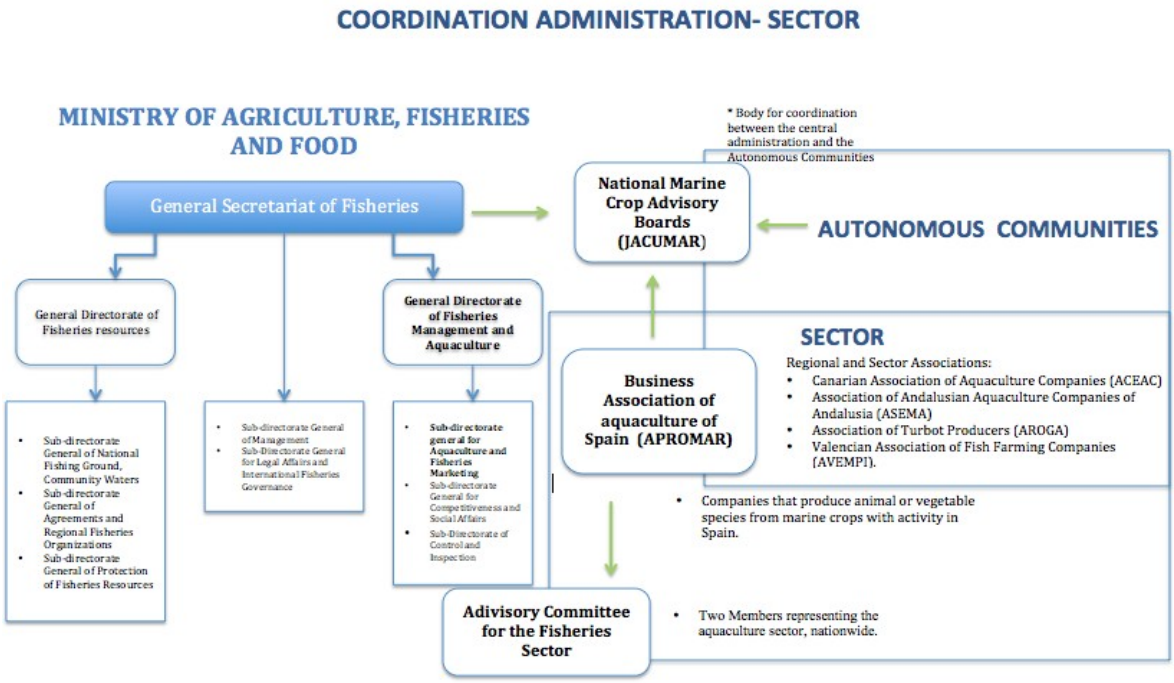

Illustration 13: Coordination between Spanish ministry of Agriculture, Fisheries and Food and Aquaculture sector

JACUMAR- for its initials in Spanish (Juntas Nacionales Asesoras de Cultivos) is the body of the former Ministry of Environment, Rural and Marine Environment constituted by the General Secretariat of the Sea and the bodies managing aquaculture in the Autonomous Communities, and whose main mission is to facilitate coordination and cooperation in the field of marine aquaculture between the Central Administration and the Autonomous administrations.

According to the **Maritime Fisheries Law**, the General Administration of the State will maintain a permanent electronic communication with the autonomous communities, which are obliged to incorporate into the General

Register of the Fishing Fleet the data of the vessels that work exclusively in inland waters and the auxiliary vessels of aquaculture facilities, of whose registration or census are competent.

The definition of marine aquaculture is developed in **Law 23/1984 on Marine Crops,** which provides that "marine cultures are understood as the carrying out of appropriate actions and tasks for the reproduction or growth of one or more species of marine fauna and flora or associated with them ". The main objective of this Law is "*the regulation and management of marine crops in the national territory, maritime-terrestrial zone, estuaries, lagoons and lagoons in permanent or temporary communication with the sea, territorial sea and exclusive economic zone, both in public property and private property, all without detriment to the powers and faculties assumed by the Autonomous Communities.* "

The Order of 10 June 1998 created the **Consultative Committee of the Fishing Sector** as a body for consultation, deliberation and advice of the former Ministry of Agriculture, Fisheries and Food in matters within its competence relating to maritime fishing, the management of the fishing sector, management of the marketing of fishery products, fisheries research and **aquaculture.**

The Consultative Committee of the Fishing Sector will have the following composition:

- The President, who will be the General Secretary of Maritime Fishing.
- Four Members representing the General Secretariat of Maritime Fishing, which will be appointed by the President among the officials of the same.
- Four Members representing the public law corporations of the fishing sector, nationwide.
- Four Members representing the business sector to the extractive fishing industry, nationwide.
- Four Members representing the trade union organizations of the national fishing sector.
- Four Members representing the transformation and marketing sector, nationwide.
- Two Members representing the aquaculture sector, nationwide.
- Two Members with free appointment of the President, chosen from professionals of recognized prestige.

A Secretary, who will be the Deputy Director General of Support and Coordination of the General Secretariat of Maritime Fishing.

PORTUGAL

The professional organization of this sector is based on micro and small companies (1438 companies with less than 5 workers), the majority in a familiar background. The aquaculture production is small and disperse, which limits the negotiable capability with byers. This fact could be mitigated through a stronger organizational structure of the sector. (Plano Estratégico Aquacultura, 2014 - 2020).

The National Aquaculture Association, representing about 90% of producers, is a non-profit association that aims to defend the interests of its members, representing them in all public and private bodies and entities. This association represents the Portuguese aquaculture sector in the Atlantic Strategy.

The Directorate-General of Natural Resources, Safety and Maritime Services (DGRM), from the Ministry of the Sea is the coordinating entity for the installation and operation of aquaculture establishments in marine waters, including transitional waters and related establishments.

The right to participate in the preparation of the Situation Plan was made possible through the provision of the Situation Plan website[82] in June 2016, where, in addition to related information with the legal aspects of the elaboration and approval of the plan**.** The interested parties were thus able to follow the various stages of the preparation of the plan, in addition to being given the possibility of requesting clarifications or suggestions still intervene in the public discussion phase that precedes the approval of the plan.

82 http://www.psoem.pt/

Analysis of the sector in its environment: interactions with other activities and conservation

Interactions with other sectors

The CRCs of Bretagne-Sud and Pays de la Loire identify spatial competitions with other uses: *"The place of shellfish culture is on the coast, space on which the space competition is reinforced. The maintenance of shellfish farming and its development are now strongly challenged by real estate pressure, yachting, tourism and other maritime activities"*.(CRC BS et PDL 2015)

Competitions internal to the profession (theft) and recreational fishing activities are also mentioned. Representatives of the shellfish industry make recommendations to limit these competitions: "*Strengthen the professional rules against theft and set up guards. Hardening of interprofessional rules that can lead to the withdrawal of concessions from the culprits. Adequate management of natural deposits: consideration of conflicts of use with beach fishing; maintaining the equilibrium between farmed stocks and natural shellfish beds (mussels, oysters and others such as crepidulae)* " (CRC BS and PDL 2015).

In really touristic places, the vision of the aquaculture installations could be considered a conflict with the development of the sector of tourism although is a fact difficult to measure.

Another kind of conflict could occur with the maritime transport when there is an oil spill and it reaches the aquaculture installations.

Possible synergies are admitted by some of the representatives of the activity. Opportunities for the implementation of aquaculture sites in the middle of offshore wind farms are evoked "*as occupy the space, we can put in the middle*". No type of such synergies has yet been implemented on the territorial seas of the three Member States[83].

Interactions with conservation

Aquaculture take place on a sensitive area, conducive to environmental hazards (marine submersion, erosion of the coastline, telluric pollution, climatic changes, etc.) .

However, sanitary requirements have an impact on agricultural yields and the development of the activity. "Downstream shellfish growers are both victims and witnesses to this phenomenon, and they are subject to increasing regulatory requirements for food safety that underline the importance of this issue." Given its sensitivity, the environment is monitored regularly. (in water and in shellfish) Several territories of the study area are concerned by a health classification of shellfish growing areas in constant decline for 10 years: This is particularly the case, in France, in the French administrative regions of Bretagne and Pays de la Loire (CRC BS and PDL 2015) Thus, in all the aquaculture areas of the three Member States, the future of shellfish production is conditional on the restoration of the quality of water and environments.

These health requirements directly related to the capacities of the environments are reflected in public policies.

In Portugal, for example, the PSOEM promotes a *"multiple use of maritime space, given its different components (sea floor, water column and surface)" based on the sustainability principle*. It is not a question of concentrating the activities in one space, in order to reduce the environmental effects of their dispersion. "*It is a question of trying to understand which activities can, because they are closer, benefit the environmental quality of marine waters, either by relieving spatial occupation, or by profitability and use equipment and infrastructure than another could be underutilized.* " (PSOEM Vol III A[84]).

In Spain, inside the Strategic Objective of the Plan there is an action regarding the interaction between aquaculture and the environment and it is: "*Reinforcement of the positive interactions of aquaculture in the Natura 2000 Network*". In Strategic Objective 3, there is a Strategic Line dedicated to the reinforcement of

83 Interview with Fisheries representative in France

84 Plano de Situação do Ordenamento do Espaço Marítimo (PSOEM) (2018) http://www.psoem.pt/discussao_publica/

environmental aspects, which includes actions as: monitoring of exotic species, promotion of ecological aquaculture, environmental measures, existence of innovation lines oriented to the environmental improvement of technologies and processes in aquaculture companies, prevention and management of escapes plan.

Overall, the interviews and contributions of the bibliography show a good acceptance of environmental standards by professionals for the majority aware of the dependence of their profession on the good ecological status of the sites. This recognition the need to preserve the quality of environments to ensure the production of existing sites is widely shared in the expression of stakeholders. However, in some cases, environmental standards can be perceived as obstacles to the development of this activity and notably the establishment of new production sites: "*It is something that adds and does not completely simplify the process*". Some representatives pointed out inconsistencies between environmental standards and public policy objectives that encourage business development. It is thus a question here of finding a balance between the principle of sustainability of the activity conditioned by a reasoned use of the space and the politically shared will to perpetuate the uses or to develop the site of aquaculture.

Cross-border interactions

Nowadays aquaculture is developed in a very coastal area, therefore interactions in a cross-border context might only exist near terrestrial frontiers.

Characterization of spatial demands and prospective on future trends

Key points :

There are strong structural differences between Portugal and the other two states in the number, type of exploitation and production. Spain and France are the two largest tonnage producers in Europe. Portuguese production is much more moderate.

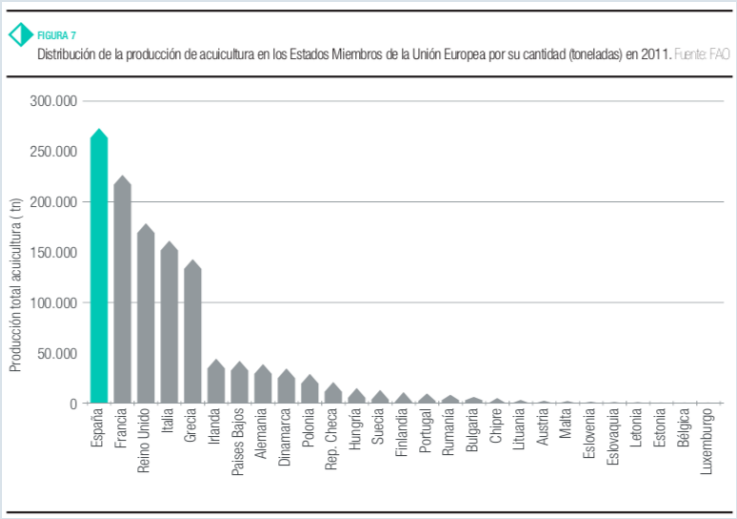

Illustration 14: Distribution of aquaculture production in the member states of the European union in 2011. Source: Strategic Plan for Spanish Aquaculture

These structural differences explain, in part, the differences in demands in the expression of the representatives of the sector between the three countries. In Portugal, with a relatively recent activity status, the representatives of the activity stress the need to stabilize existing areas by protecting and preserving them.(APA,2014).

This concern for the preservation of existing sites is also reflected in the French representatives' expression in their demands for the creation of new sites: "It is now necessary for the aquaculture sector to secure existing sites and to create new sites including all onshore infrastructure necessary for their exploitation, in order to increase the production of French marine fish farming. (CNPEM / CRC 2016)

The aquaculture planning tools of these three states establish actions to promote the production of national aquaculture. This is particularly the case in France in the context of the development of Document Stratégique de Façade "Nord Atlantique Manche Ouest" (NAMO) facade that Recommend "*To develop and sustain a sustainable aquaculture by reserving the maritime and terrestrial spaces necessary to the activity* ". And for the "Sud Atlantique "Basin (SA), to "*Diversify production and anticipate the sharing of space*". In Spain, the Strategic Plan for Spanish Aquaculture 2014-2020, approved at the sectoral fisheries conference of 16 April 2015[85], aims to increase Spanish aquaculture production, based on productive investments and improvement of sectoral planning in the context of integrated coastal zone management and the selection of new areas of aquatic interest. In Portugal, according to the National Aquaculture Strategy 2014-2020, the prospect of aquaculture growth, production requires "space for the establishment of new production areas, especially in the coastal zone.

As a result, the sector is likely to increase its spatial requirements in the coming years, including moving to more offshore areas. Indeed, in addition to land competition, space sharing with other activities and environmental issues (see below), some aquaculturists are facing mortality problems for many years that "*professionals have begun to look further out"*. [86]

For the three Member States, the need to define dedicated areas is highlighted as an essential factor for the development of the aquaculture sector. "I*n addition, land-based areas must be dedicated, mapped and identified*"[87]. "*The definition of spaces dedicated to aquaculture is undoubtedly a precondition for going further"*.

In this respect, the three states are taking steps to the implementation of a sectoral plan in which the current areas in which aquaculture is located are protected, as well as their expansion zones and future zones. occupation of new units. This plan will structure all the information contained in the different plans in force". (APA 2014). In Spain in the context of Integrated Coastal Zone Management (IZCM), areas for aquaculture (AZA) have been proposed as a necessary and useful tool for the sector to promote its orderly growth. In France, the management of the Maritime Public Areas is applied by the pointing of the existing, the development of vocation maps and the definition of the potentialities through schemes of structures or development of marine aquaculture, and the Document Stratégique de façade.

Spatial demands are also on the ground stressing the need for access to the coast for professionals in a general context of space competition with other activities and real estate pressure. "*Necessary for the immediate proximity of the sea, the place of shellfish culture is on the coast, space on which the space competition is reinforced. The maintenance of shellfish farming and its development are now strongly challenged by real estate pressure, yachting, tourism and other maritime activities* " *(*CRC BS et PDL 2015).

Given the very different situations of the three countries (Portugal in one side, France and Spain in the other side), the expression of the potential for evolution is significantly different by the representatives of the aquaculture industry and emphasizes factors specific to the stakes of each country.

In Spain and France, the representatives of the activity focus on conflicts of use on the coast. Indeed, requiring the immediate proximity of the sea, the place of shellfish farming is on the coast, space on which the space competition is reinforced. The maintenance of shellfish farming and its development are now strongly challenged by real estate pressure, yachting, tourism and other maritime activities. "*The development today will be done mainly offshore, with probably new techniques that we know. For the professionals, it will be new techniques, new economic means to put in place*".

85 (https://www.mapa.gob.es/es/pesca/temas/acuicultura/estrategia_desarrollo_sostenible_marcadores_tcm30-77602.pdf) Sustainable development Strategy for the Spanish Aquaculture

86 Interview with Fisheries representative in France

87 Comités régionaux conchylicoles ARML january 16 th 2018

The social acceptability of aquaculture development projects is also a key question in the expression of the representatives of the activity. These factors, combined with the sector's exposure to environmental hazards and the effects of climate change (marine submersion, erosion of the coastline) and administrative blockages (CRC Bretagne Sud) in the past years partly explain, according to professionals, the slow development of the activity. However, the representatives of the activity see several ways of evolution. Indeed, in the 2016 Positioning Report, the representatives of the fish industry highlight a favorable context (in particular political) for the future development of the sector: "*These impulses for growth are accompanied by a political will both at national level and European*.

In Portugal where the situation and development of the aquaculture sector are significantly different. The number of active establishments located at sea is still low. There is significant growth potential resulting from recent technological developments However, these new opportunities are weighted by part of the interprofession. Indeed, some representatives believe that the lack of maturity of new technologies in this area and the significant investments needed for their implementation should ensure the sustainability of existing activities.

In all cases, the representatives of the activity emphasize high expectations for studies that make it possible to identify the availability of areas of potential development of aquaculture sites. In the three countries, the recent political support highlighted by the profession starts besides analyzes for the definition of the potentialities of development (Strategic Plan for Spanish Aquaculture 2014-2020in Spain, SRDAM in France, Strategic Plan for the Portuguese Aquaculture 2014-2020 in Portugal,).

FRANCE

As part of a joint positioning report between the CRCs of Bretagne Sud, Bretagne Nord, and Pays de la Loire, CNPEM and CRPEM (s), representatives of the aquaculture sector, express a request for extension of the activity by the occupation of new sites: *"It is now necessary for the aquaculture sector **to secure existing sites** and to create new sites including all onshore infrastructure necessary for their exploitation, in order to increase production of French marine fish farming"* (CNPEM / CRC 2016).

This desire for spatial development of the aquaculture sector is confirmed more specifically for shellfish farming by a demand for the **preservation and development** of production tools in the immediate proximity of the sea: *"The future of shellfish farming is also played out through the renewal of companies, the attractiveness of the profession and the maintenance of production tools. Requiring the immediate proximity of the sea, the place of shellfish farming is on the coast, space on which the space competition is reinforced. The maintenance of shellfish farming and its development are now strongly challenged by the pressure of real estate, pleasure craft, tourism and other maritime activities".*

<u>Maintaining production space on land as well as at sea</u>

- To defend shellfish growing areas ashore:
  - Guarantee access to the coast.
  - Reinforce the place of professional structures in planning documents of the territory.
  - Strengthen and affirm the strategy of shellfish culture in coastal development policies.
  - Halting changes in the destination of shellfish farming establishments (**demands for maintaining the shellfish growing area)**
- To guarantee a good management of the zones conceded on the Public Maritime Domain:
  - Define the development potential of shellfish culture (SRDAM) and include these potentialities in territorial planning documents
  - Ensure that the shellfish activity is taken into account in the development projects of existing or new activities in the maritime area (offshore wind, for example).

- Assist in the installation (request for extension of the shellfish area)

SPAIN

As it has been already mentioned, the competences in aquaculture management are primarily of the Autonomous Communities, in the next image it could be seen that some have their own Strategic Plans while others have embraced the National Strategic Plan:

Illustration 15: Strategic Plan for Spanish Aquaculture 2014-2020

Spain it is already the major producer of aquaculture products in tonnage in Europe. Marine aquaculture represents around the 97% of the total.

The **Strategic Plan for Spanish Aquaculture 2014-2020**[3], approved at the Fisheries Sectoral Conference on April 16, 2015, establishes actions aimed at promoting the competitiveness of Spanish aquaculture. Therefore its likely that the sector expands its spatial demands in the coming years including the movement to more offshore areas.

Indeed the Plan concludes that there will be an increment in aquaculture production:

Within the Multiannual Strategic Plan of the Spanish Aquaculture 2014-2020 is found the objective of the improvement in spatial management of aquaculture. Thanks to ACUIVISOR[2] it is possible to consult the distribution of aquaculture activity throughout Spain, access information on their establishments or perform online spatial analysis for the study of potential areas.

This plan also includes four strategic objectives, among them, the Strategic Objective 2: *"Increase Spanish aquaculture production, based on productive investments and the improvement of sectoral planning within the framework of integrated management of coastal zones and the selection of new Zones of Aquatic Interest and to support and promote continental aquaculture in the national hydrological planning."* Therefore, demands of space.

In this regard, and in the context of the Integrated Management of Coastal Zones (IZCM), there are the Allocated Zones for Aquaculture (AZA) that have been proposed as a necessary and useful tool for the sector to favour its orderly growth.[4]

Accordingly with the trend that aquaculture seems to follow in demands of space and everyday farer from the coast, it is logical to think that could increase the competition for space with other uses, that exist in the present, as fisheries, or might exist in the future, as wind-farms.

PORTUGAL

The number of active establishments located in the open sea is still small. However, there is significant growth potential resulting from recent technological developments that allow the construction of structures that are more resistant to atmospheric conditions and undulation, the development of characterization studies of the various components of the environment (current modeling, physical-chemical parameters and biological characteristics of the water column, characterization of the type of fund and the organisms that live in it), the development strategy of the sector, included in the Strategic Plan for Portuguese Aquaculture 2014-2020, simplifying licensing procedures through the publication of Decree -Law No. 40/2017, of April 4 and also of the allocation of community funds through the Operational Program Mar 2020, actions that together, reflect the strategic vision for this sector in the coming years.

In the open sea, thirteen establishments are currently in production; one off Peniche and twelve off the Algarve coast. Of these, three are involved in catching and rearing Bluefin tuna and other ancillary species (one located in the APPA of Armona, occupying 10 lots, and two located in the vicinity of that APPA, one to the east and one to the west) and nine are producing bivalves (five located in the APPA of Armona and four located in the zone of Sagres). The establishment located on the west coast, off Peniche, also produces bivalves. In addition to the establishments in production, seven lots are assigned and under construction at Armona's APPA and 32 lots are still in the licensing phase at the APA of Monte Gordo and, off the Sagres area, not included in any production area aquaculture, three establishments are under construction or licensing. There are also 40 lots available in the APA of the Center and 11 lots in APPA of Armona. The locations of these two aquaculture production zones will be maintained as potential zones, but further away from the coastline.

According to the National Strategy for Aquaculture 2014-2020, the prospect of growing aquaculture, production requires space for the establishment of new production areas, particularly in the coastal zone. These spaces must be adequate for the development of the activity, there being a vast set of conditions that must be met, with very significant impacts in terms of investment effort, production costs and security of the facilities.

Yachting

Co-funded by the European Union

Reminder of the characteristics of the sector (extract C1.1.1 - Initial Assessment)

Coastal tourism and maritime tourism

- Beach-based activities:
- more than 1,600 bathing sites
- Sailing activities :
- ~ 500 marinas
- 125,000 moorings
- Nautical activities : surfing..
- Recreational fishing

Interactions

- Aquaculture : a competition for space
- A concentration of activities in the coastal strip which may leads to local conflicts : tourism, sailing and nautical activities, small-scale fisheries, aquaculture and recreational fishing…
- An emerging issue : marine renewable energies

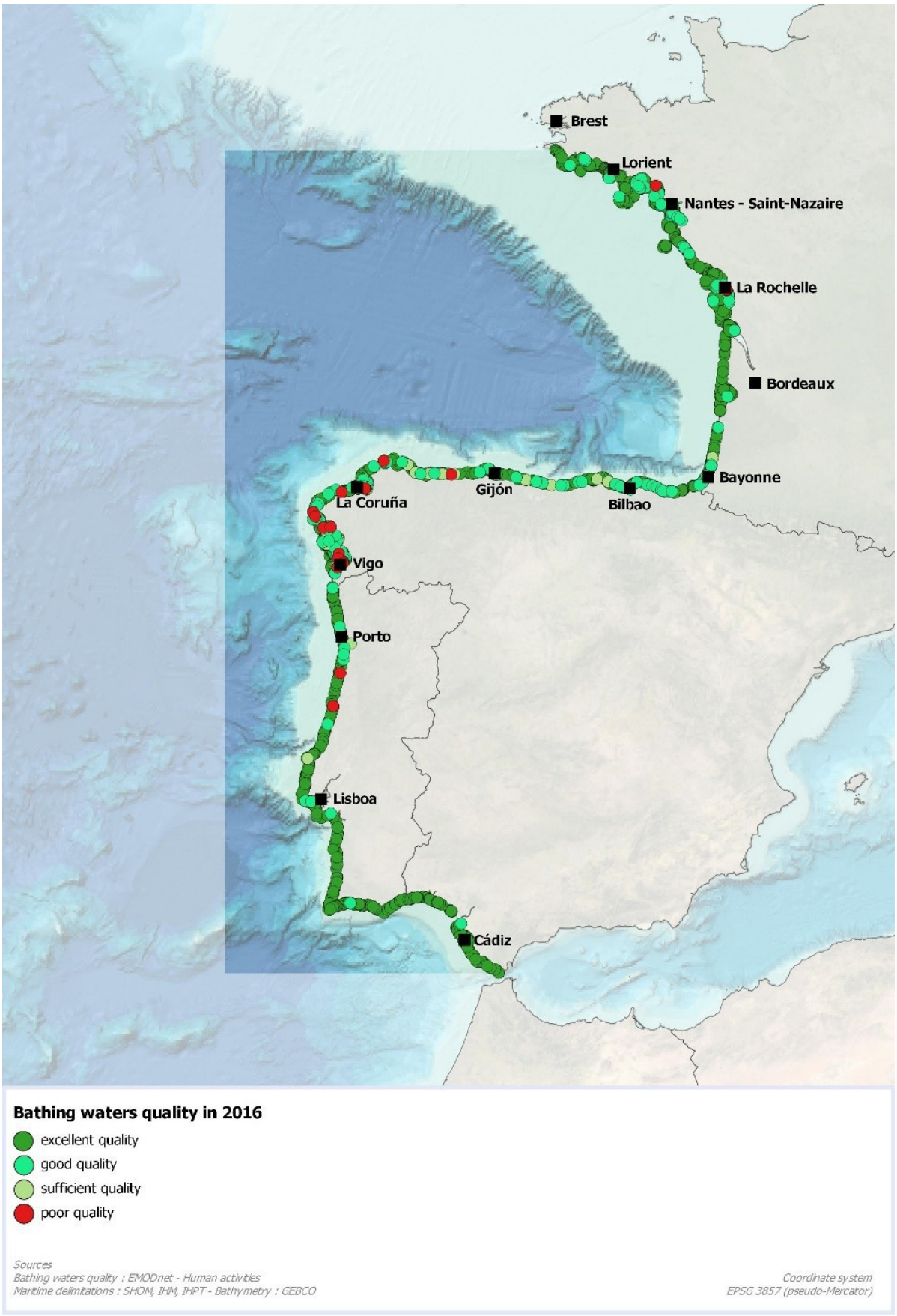

Illustration 16: Boating water quality in the OSPAR IV area

Structure of sectors and canals of expression for the spatial demands

Key points:

According to the practices, marine and coastal tourism is both linear and zonal. In most cases, marine activities take place along the coasts and between the coastal and water tourist activity areas, while diving, snorkeling and underwater cultural heritage are local activities. The distance to the coast is generally between zero and a few kilometers. The depth of the water can be a crucial element for certain activities (such as boating, boating, water sports) (EC.2018).

Regulations play a role in the definition of spaces occupied by recreational boaters since 75% of recreational craft in France are not allowed to exceed 5 nautical miles and only 9% of vessels (from first to third category) are authorized to exceed 20 miles. In fact, there are few boaters who leave the territorial sea where all the navigation basins are inscribed. They are therefore subject to the full authority of the State, especially since the exercise of the police right may be exercised up to 24 miles from the coast (Sonnic 2008).

The nautical sector is composed of a range of interdependent sectors: sale and rental of ships and specialized equipment, services such as insurance and conveyance. An infinite variety of productive structures with various statuses, of medium or small size: association, public groups, companies or independent workers. The diversification of these structures is due to the different sporting practices but there is also an important diversity in the forms of practices, such as the competition, the animation, the educational activity, the leisure, the hike and the hiring.

A multitude of sports federations and associations of users or professionals exist according to the practices. Boaters are sometimes represented by :

Special federations such as the Portuguese Association of Schools of Recreational Navigators; the National Union of Navigator Associations (UNAN), the French Sailing Federation (FFV) or the sailing league in France.

Groups of representatives of marinas such as: Chambers of Commerce and Industries (owners of certain marinas in France), the French Federation of Marinas (FFPP), "Federación Española de Asociaciones de Puertos Deportivos y Turísticos "(FEAPDT) or the Portuguese Association of Recreational Ports.

In addition, to these federations for each activity, there are confederations bringing together the different professional actors concerned with sports and water sports. As examples, in France, the Federation of Nautical Industries (FIN), or the French Martial Cluster (CMF). In Spain, the "Asociación Nacional de Empresas Náuticas" (ANEN), the Confederación Española or the "Clúster Marítimo Español (CME)", and in Portugal, from the Portuguese Association of Industry and Commerce of Nautical Activities.

In France, in 2015 was created a Confédération du Nautisme et de la Plaisance in order to bring a transversal dimension to the representation of the sector. In Spain exists the Confederación Española de Clubs Náuticos. The objective of this confederation is represent the Spanish nautical clubs for general sport-nautical aspects and administrative concession.

Local authorities also have an important role in the management of boating activities. In Spain, the State is competent to regulate activities in external waters, while in inland waters this competence is exercised by the autonomous communities. The nautical license must be approved by the Ministerio de Fomento (Marina Mercante), but the autonomous communities carry out the examinations[88]. In France, some communities put in place specific strategies and financial support for the development of boating and nautical activities and can therefore be considered as actors in the sector in their own right. Municipalities

88 https://www.fomento.gob.es/marina-mercante/nautica-de-recreo/competencias-administrativas/competencias-administrativas-en-materia-de-embarcaciones-de-recreo

also participate in the management of water sports and recreation, through the police power available to the mayor on the territory of his municipality and at sea. Thus, municipalities can establish rules of practice for certain activities

This multitude of structures is sometimes considered as a "weakness" for the development of these activities as the sector lacks structuring. The sector is, in fact, mainly made up of small companies that are not very connected and competing. For some, *"This situation weakens companies and prevents a greater development by a lack of structuring of a vertical industry and federation around a common goal."* (Conseil Départemental de loire Atlantique, 2017).

However, other actors believe that: "*This diversity could have appeared as a handicap due to an excessive "atomization", it is nevertheless the condition of a successful adaptation to the geographical conditions and to the various publics expected. Indeed, according to the places and the practices, the approaches are different* " (FIN 2017).

In Portugal, the Nautical Leisure Board is the consultative body of the Ministry of the Sea. It is responsible for advising, whenever requested, questions relating to pleasure boating. It is composed of representatives of various ministries, some nautical federations, and the Portuguese Association of Recreational Ports; Portuguese Association of Industry and Commerce of Nautical Activities; Portuguese Association of Schools of Recreational Navigators.

In France, in addition to the elected representatives of the local authorities, representatives of the federations of different practices (sailing, underwater spells, surfing, recreational fishing, navigation) can sit on the maritime facade councils of the two French Atlantic administrative facades. (South Atlantic and North Atlantic West channel).

The leisure represents are also called to express themselves in the framework of consultations for the development of regional strategies on the sea and the littoral (ARML in Pays de la Loire and CRML in Bretagne).

Structures of representation presented above are themselves vectors of communications carrying messages of promotion or defense of their activities. In each country, several federations participate in the public debate or implement their own strategies. In France, for example, press releases or positioning reports have been identified (published in particular by UNAN) relating to the exploitation of tidal energy. In 2015, a petition "Call of the free sea" was published by nine nautical federations.

FRANCE

The French nautical sector is composed of a range of interdependent sectors: sale and rental of ships and specialized equipment, offer of related services such as insurance and conveyance

An infinite variety of productive structures with various statuses, of medium or small size: association, public groups, companies or independent workers. [...] The diversification of these structures is due to the different sports practices: rowing, sailing, yachting, etc. But there is also a great diversity in the forms of practice, such as competition, animation, educational activity, leisure, hiking, rentals.

This multitude can be considered as a *"weakness for the development of these activities insofar as the sector lacks structuring. The sector is, in fact, mainly made up of small companies that are not very connected and competing. This situation weakens the companies and prevents a greater development by a lack of structuring of a vertical sector and federation around a common objective* ". (Conseil Départemental de Loire-Atlantique, 2017).

For the ligue de voile: "*This diversity could have appeared as a handicap due to excessive atomization, but it is nevertheless a prerequisite for a successful adaptation to the geographical conditions and the different audiences expected. Indeed, according to the places and the practices, the approaches are different".*

The various federations (rowing, canoeing, surfing, water skiing, diving sports, sand yachting, etc.) are coordinated by the regional committee of water sports. This structure, has for missions to coordinate the practices, to represent the branches of the yachting activity, to assume part of the promotion in collaboration

with the regional committee of the tourism and the Conseil Régional council of the Pays de la Loire, and finally bring the advice in the evolutions of the sector[89].

Representatives of practitioners and sports clubs

Multitudes of sports federations or user associations exist according to the practices: below some examples

- Fédération Française des Sociétés d'Aviron (FFSA)
- Fédération Française de Canoë-kayak (FFCK)
- Fédération Française d'Etudes et Sports Sous-Marins (FFESSM)
- Fédération Française Motonautique (FFM)
- Fédération Française des Pêcheurs en Mer (FFPM)
- Fédération Française de Ski Nautique (FFSN)
- Fédération Française de Surf (FFS)
- Fédération Française de Voile (FFV)
- Fédération Française de Vol Libre (FFVL)
- Union Nationale des Associations de Navigateurs (UNAN)
- Fédération Française des Pêcheurs en Mer (FFPM)
- Yacht Club de France (YCF)
- Fédération de Chasse Sous-Marine Passion (FCSMP)

The **Fédération des Industries Nautiques (FIN)** brings together the various stakeholders involved in water sports and leisure activities. It now has nearly 800 members, grouped into 8 "professions": manufacturers, maritime and river charter companies, engine manufacturers, large yachting, equipment manufacturers, trade and maintenance, service providers, sliding and outdoor sports. FIN is a privileged interlocutor of public authorities at national, regional and European level, assisting and advising companies in many fields. It also plays an informative role for the general public and the media, particularly with regard to changing market trends and regulations.

Le Cluster Martime Français (CMF) made up of companies of all sizes, competitiveness clusters, federations and associations is also a representative of the boating and yachting industries.

State services

In France, the representative of the State at sea is the Maritime Prefect who exercises his authority from the low water mark, except in the ports within their administrative boundaries and in the estuaries below the transversal limits of the sea.

Within the Ministry of Ecology, the **Affaires Maritimes** are responsible for the protection of the users of the sea as well as the marine environment, through including the administrative framework of nautical competitions.

Located in the ministries responsible for the sea and waterways, sports and tourism, the **Conseil Supérieur de la Navigation de Plaisance et des Sports Nautiques (CSNPSN)** is an institution of proposal and consultation.

Local authorities

89 Presentation of the "Ligue de voile » at Assemblée régionale Mer et Littoral (ARML) Pays de la Loire. december 2017

Municipalities, departments and regions are the main financiers of sport in France. The Conseil Départemental benefits from special competences. It acts for the development, the management and the promotion of the sites of practice. Some communities set up specific strategies for the development of boating and nautical activities and can therefore be considered as actors in the sector in their own right. Municipalities also participate in the management of water sports and recreation, through the police power available to the mayor on the territory of his commune, and at sea on the 300-meter strip. Thus, the mayor may, if necessary, make by-laws to set rules of practice for certain activities.

Marina managers: private actors, communities, Chambres de commerces et d'industries (CCI) and groups of representatives of marinas can also represent the interests of pleasure boaters: Association des Ports de Plaisance de l'Atlantique (APPA) Association des Ports de Plaisance de Bretagne (APPB) Fédération Française des Ports de Plaisance (FFPP).

Private stakeholders :

These are the service providers, organizers of sports or water sports activities, boat and equipment rental companies, etc. *"Private actors support an important part of water sport and leisure activities, the majority of the practitioners being not federated. Their consideration is therefore necessary to apprehend the economic stakes of recreational water activities on a territory"*. (AAMP tome 1 sports et loisirs en mer 2009)

In addition to elected representatives of local authorities (regional and departmental councils) representatives of federations of different practices (sailing, underwater sports, surfing, recreational fishing, navigation) can sit on the Conseils Maritimes de Façade of the two French Atlantic administrative basins (Sud Atlantique and Nord Atlantique manche Ouest).

The actors of yachting are also called to express themselves in the framework of consultations for the development of Stratégies regionales sur la mer et le littoral (ARML in Pays de la Loire and CRML in Bretagne).

Many federations participate in the public debate or implement their own strategies (this is for example the case of the fédération des industries nautiques). However, because of the large number and the diversity of the actors, presented above, it is impossible to reach the exausitivities of the expression of the representatives of these channels.

Press releases or positioning reports have been identified (published in particular by Union Nationale des Associations de Navigateurs (UNAN) relating to the exploitation of tidal energy. In 2015, a petition "Appel de la mer libre" was published by nine nautical federations.

SPAIN

In Spain, the nautical sector is of great importance. This sector contributes around 5 700 million euros each season to the national economy, around 0,5% of the Spanish GDP. In relation to employment, it creates more than 115 000 total (direct and indirect) jobs, most of them located in coastal urban areas.

According to the "Annual Report on Pleasure Harbours and Marinas 2015" (Spanish Federation of Associations of Tourist Marinas (FEAPDT, 2016), in Spain there are currently 457 sport / nautical concessions. The number of moorings exceeds 134 000.

The concentration of marinas is uneven along the Spanish coast and archipelagos. Indeed, 60% of the ports are located in the Mediterranean, while the remaining 40% are distributed among the Atlantic coast, the Bay of Biscay and the Canary Islands. Therefore, it is not surprising that the greatest number of moorings are concentrated in Catalonia, the Balearic Islands and Andalusia. However, in terms of number of (recreational) ports, the winning podium is occupied by the Balearic Islands, Galicia and Andalusia.

Autonomous Region	Moorings	Marinas	Docks	Interior marina	Exterior marina
Asturias	2 555	17	0	8	9
Cantabria	3 693	11	3	7	2
Galicia	12 356	53	12	13	28
País Vasco	5 664	20	4	11	5
TOTAL	24268	101	19	39	44

Illustration 17: Number of marinas and moorings in the Autonomous Communities of the Spanish North Atlantic district

Each unit of the main port network is managed by one Port Authority (PA); in some cases, one PA might manage a set of ports. Port Authorities are public institutions and own port infrastructures, i.e. channels, breakwaters, locks, docks, dykes, internal routes of terrestrial circulation, etc. However, services are provided by private companies to which ports are leased -through competition authorization or concession- which provide the integral elements of the superstructure (warehouses, administrative buildings, workshops, etc.) and equipment (e.g. cranes). Port Authorities are coordinated by the entity "State Ports Public Authority", under the Ministry of Development.

At present, the Spanish State Port Authority System (SPTE[90]) is composed of 28 Port Administrations, which manage 46 Ports of General Interest. Law 27/1992, of November 24, of the State Port Authority and of the Merchant Marine (modified by Law 62/1997, of December 26), differentiate between ports of autonomous ownership (fishing, sports and leisure, and refuge ports), the powers of which rest with the Government of the corresponding Autonomous Community (CA); and ports of general interest that are State-owned.

It is estimated that 80% of moorings are currently operated by private companies through concession contracts, while the remaining 20% are managed directly by regional public entities and Port Authorities. Private management is especially present in the communities of Catalonia, Galicia and Murcia.

The location of the marinas on the Spanish North Atlantic coastland is shown in the following figure:

The following figure shows the amount and distribution of moorings in marinas available in the Spanish North Atlantic coasts:

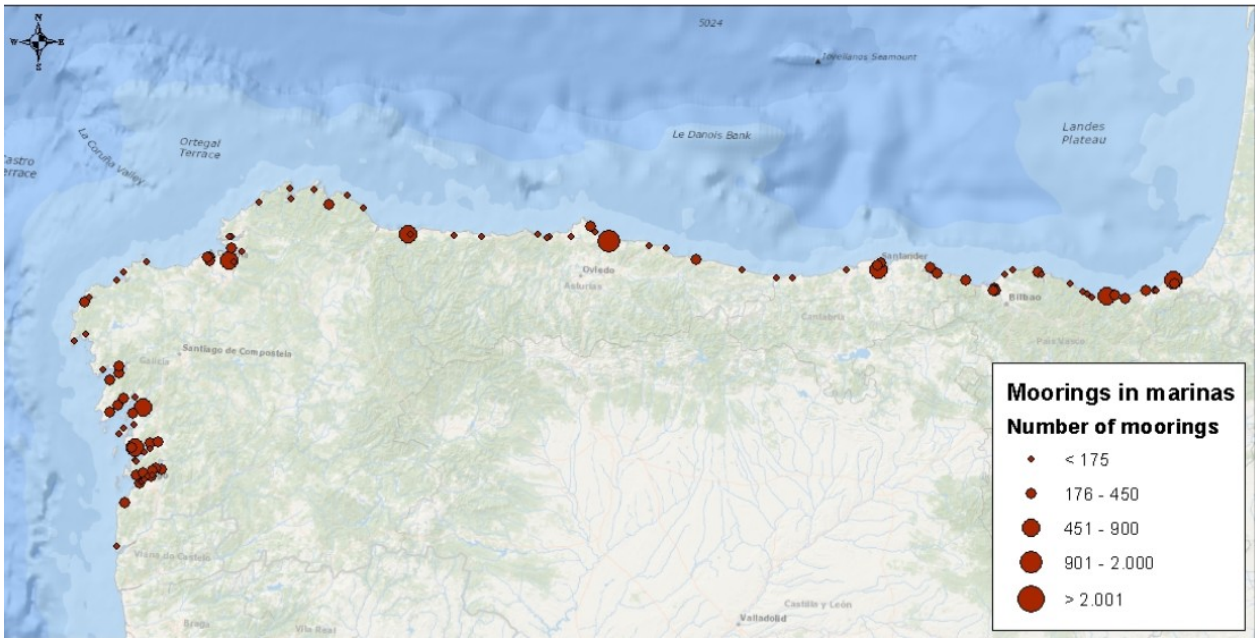

Illustration 18: Moorings in marinas for the North of Spain

90 In Spanish, "Sistema Portuario de Titularidad Estatal, SPTE"

ANEN (National Association of Nautical Companies[91]) is the representative organization of the nautical sector in Spain. It currently integrates more than 90% of the industrial and business manufacturing of national recreational boating, and also includes various regional associations.

ANEN's role is to defend the rights and the interests of the associates and of the sector as a whole before the public administrations in order to achieve an optimal legal, fiscal, labour and administrative environment for its development.

In Spain, the Association is a full member of the Spanish Confederation of Business Organizations (CEOE[92]); of the Sea Council of the CEOE; of the Spanish Maritime Cluster (CME[93]); and of the INNOVAMAR foundation. In the international arena, ANEN is integrated into EBI (European Boating Industry) and ICOMIA (International Council of Marine Industry Associations), the most representative organizations of recreational boating in Europe and in the world.

On the other hand, Spanish Federation of Sports and Tourist Port Associations (FEAPDT[94]) is the Employer Organisation of the port-sports sector and has, as partners, all the employer's associations of the communities of Andalusia, Balearic Islands, Catalonia, Galicia, Asturias, Cantabria, Murcia and Valencia.

FEAPDT represents the general interests of the sector before all public and private organizations, one of its major objectives being boosting the development and improvement of marinas, sports and marine docks in all the activities that make up the sector, in its nautical, tourist aspects, environmental, training and management.

The FEAPDT annually draws up an updated report on the current situation of the number of marinas and moorings in Spain, on the follow-up on master plans and port laws of each CA and on planned new constructions and expansion projects.

In the North Atlantic area, the FEAPDT has registered the following associations:

- GALICIA: Association of Concessionary Companies of Ports of Galicia (comprising over 100 Galician marinas);
- ASTURIAS: Asturias Association of Ports and Sports;
- CANTABRIA: Association of Sports and Tourist Ports of Cantabria.

There are other associations such as:

- FAPPYNDE: which is the Federation of Associations of Ports, Fishing and Water sports of the Principality of Asturias;
- ASNAUGA: Association of nautical boats of Galicia.

In the other hand, regarding diving activities, there are different initiatives for the awareness of novice divers, who have started mainly from diving clubs (such as the Ecosub project). These initiatives promote different activities such as:

- Free educational talks in diving centers conducting sustainable diving;
- Free dives aimed at raising awareness and promoting impact evaluation of diving activities;
- Preparation of diving guidelines that will be distributed amongst the diving centers.

PORTUGAL

The nautical recreation includes activities related to practice, leisure, water sports (e.g., sailing, kite surfing, bodyboarding, surfing, windsurfing, skimboarding, paddle surfing, longboarding, kneeboarding, diving, rowing, canoeing, kayaking, fishing sports, motor boating, among others) (PSOEM, 2018).

91 In Spanish, "Asociación Nacional de Empresas Náuticas"

92 In Spanish, "Confederación Española de Organizaciones Empresariales (CEOE)"

93 In Spanish, "Clúster Marítimo Español (CME)"

94 In Spanish, "Federación Española de Asociaciones de Puertos Deportivos y Turísticos"

Nautical leisure assumes an increasing economic and social importance in Portugal, since it is associated with the tourism industry. The Portuguese coast, with an extension of about 2,830 km, plus 620 square kilometers of interior basins, has adequate conditions for the practice of nautical activities. In the tourism industry, the largest industry in the world, nautical tourism which includes recreational boating is the one with the highest growth rates. In Portugal, nautical tourism accounts for about 1.2% of the industry. In this context, the nautical leisure contributes significantly to the economic development and development of a maritime culture (DGRM, 2018)

The development of the sea economy depends on the training and qualification of human capital. Due to the increasing number of boats and nautical sportsmen, the growth of nautical recreation, justifies the need for permanent adjustment of the legal regime in force in order to maintain the level of safety demanded by vessels and their speed and flexibility in the vessel registration process and certification of recreational.

The Nautical leisure Board is the consultation body of the Minister of the Sea, and it is responsible for advising, whenever requested, on matters relating to recreational boating.

In Portugal, The Nautical Leisure represents 1.2% of the motivations of tourists.

Portugal has the potential to be one of the best countries on Nautical Tourism - quality beaches and a vast coastline - but the country's infrastructure for nautical tourism is still inadequate.

As far as cruise ports are concerned, Lisbon represents the 6th Iberian port, with a 5.2% share of passengers, but it has one of the best growth rates in Europe. (AEP, 2015)

Analysis of the sector in its environment: interactions with other activities and conservation

The bibliographical review notes that cohabitation between recreational activities and other activities (at sea and on the coast) could lead to conflicts of use (Conseil Départemental de loire Atlantique , 2017). The matrix of interactions between marine and coastal uses and activities, produced within the framework of the European project Transboundary Planning European Atlantic Project (TPEA) (Annex 1), reveals negative theoretical interactions between recreational activities and in particular fishing activities, aquaculture and offshore wind energy exploitation.

Interactions with other sectors

In addition, after the interviews, particularly in Spain, with the different sectors, a new interaction was raised - not reflected in this matrix - to take into account: the interaction between the maritime transport sector and the recreational craft sector. In fact, the representatives of the maritime transport sector report that they can sometimes have problems with recreational craft or activities in the event that they do not respect the rules of navigation established. This case is a real example of negative interaction. However this negative interaction results, according to actors of the maritime transport, of the non-compliance of the regulations by the boaters. Moreover, it does not appear that this interaction interferes with the development of recreational nautical practices.

Offshore wind energy exploitation can also limit recreational activities around the structures. These tensions are indeed translated by the different oppositions of the associations of the recreational craft (as mention in the open letter written by the UNAN in France as part of a project to install a fleet of renewable marine energy exploitation in the Gulf of Morbihan). It was also found in interviews with representatives of the activity: "*If a huge wind farm is built (offshore), then it can be a problem. I already have huge offshore wind farms, and a petroleum and gas, is a problem*"[95]. It is noteworthy, that not all the stakeholders share this concern about the development of marine energy farms. Some representatives consider that the installation of an offshore wind farm can be done in close consultation with stakeholders in the water sports [96].

95 Interview with yachting activity representative in Portugal

96 Interview with yachting activity representative in France

These negative interactions can also occur between different recreational practices (Conseil Départemental de Loire-Atlantique, 2017). Interviews reveal practices that are diversifying but generally occupy the same spaces as older practices. This situation develops competitions especially in the most restricted spaces and during favorable conditions or on the occasion of major nautical events.

Interactions with conservation

Possible impacts of the sector are diverse: marine litter discharges; polluting gas emissions; impact on seabed communities when anchoring boats; Impacts on marine life, including behavioral changes; Modification of sand dynamics, modification of flows and developments with the construction of new marinas; Abandonment of fishing gear (recreational fishing) such as fishing rods, pellets, etc. (CEPYC.CEDEX, 2012). With the exception of certain areas forbidden to navigation, most often for the purpose of preserving bird populations from disturbance, it is not possible to define that the provisions of conservation of the environment like the MPAs represent for the actors of recreational craft sector, a constraint for the activity.

Characterization of spatial demands and prospective on future trends

Key points:

The analysis of the spatial demands for recreational and water sports is complex. Indeed this element is mainly based on multiple practices carried out by individual boaters. Thus, the concept of navigation basins is complex and takes different forms depending on the practices and regions. In addition, a large part of the claims of the sector's representations are more related to port development policies (number of places, services adapted to changes in practices, etc.), the development of access to water or the interactions between them. In addition, the data of the sports federations, which regroup the licensees and the occasional practitioners (within the framework of the federations), bring only a partial light on the analysis of the practice of the nautical activities.

The spatial demands of the representatives of the various nautical and recreational practices are expressed, for the most part, in the form of the defense of the freedom of navigation. The sea is presented as a space of freedom to preserve. This is evidenced by an extract from an open letter written by the National Union of Navigator Associations (UNAN) in France as part of a project to install a fleet of renewable marine energy exploitation in the Gulf of Morbihan : "*The prospect of installing many large-scale structures in the channels is of paramount importance in terms of the consequences that it would generate against the freedom to sail* "(UNAN 2017a). In general, the definition of an exclusive use area by an activity is rejected by the boating sector: "*I do not see anywhere in the world for example creating an exclusive zone for recreation"*[97].

These claims can also be those of a need for valorization of good practices to facilitate the interaction between uses on the marine space: "Spaces and shared sites. This is the need to enforce rules of good practice by applying the regulations, the natural constraints that are Natura 2000 areas and natural parks, to preserve the harmony of practices[98]. (Ligue de Voile ARML PDL dec 2017)

Current trends in the industry in the three Member States are leading to an increase in the number of vessels on the coastlines. Forecasts indicate a significant increase in recreational boating associated to the growth of coastal tourism where tourism associated with nautical activities is expected to increase significantly over the next few years . However from the point of view of the occupation of the maritime area, if the technical evolutions (power of the engines, GPS, safety equipment) make that the basins of navigations grow for recreational activities, the practice of the light leisure activities remains limited to

97 Interview with yachting activity representative in Portugal

98 Presentation of the "Ligue de voile » at Assemblée régionale Mer et Littoral (ARML) Pays de la Loire. december 2017

areas closest to the shore. In fact, there are few boaters who leave the territorial sea where all the navigation basins are registered (Sonnic, 2008).

Finally, activities focus on few spaces favorable to the practice of water sports in their diversity, so sheltered areas, bays, or harbors. These practices develop on the coast but in different ways depending on the sites of practice and the supports of practices[99].

Like many studies on the subject, the representatives of the nautical sector express a diversification of the uses: Going from the great diversity of the ships of the beautiful pleasure to the sailing ship of competition. Activities are numerous: kayaks, kitesurfing, surfing, stand-up paddling, water skiing including wakeboarding or jet skiing. The development of its activities on sites already occupied by other leisure practices should continue to develop the impressions of saturation of the practice sites. This diversification of practices has increased the pressure on ports and mooring areas. The size of mooring areas has increased according to the size of the vessels. Nevertheless, the general trend is rather to a new organization of moorings than to the creation of new sites (FEAPDT 2016). "*The saturation of the ports is certain and their extensions tend to decrease these last years. We can also note the development of dry ports* ".

However, new forms of practice are probably marking the end of the current model. "*There is a mutation that exists because the type of yachting that was created in the 1970s when everyone bought a boat, maintained it, etc., are things that change very quickly*". Indeed the practices are oriented more and more towards the use without the possession of ships with the development of the hiring. These developments are reflected in particular by the reduction in the demand for rings, which could lead to a gradual release of the port spaces currently occupied by "*stationary boats*". Filling rate down, decline in ship purchases. (Conseil Départemental de Loire-Atlantique, 2017).

To conclude, it should be noted that, whatever the new models of changes in yachting, trends generally expressed are evolutionary trends for the different practices: "yachting will continue, that is to say that there will always be boats on the water. [...] manufacturers or port managers are not worried about the future. It is a profession that is healthy "[100].

Prospective estimation of the evolution of the spatial demand

The development of recreational water activities is constant and continues without direct links to the maritime spatial planning. However, if the new forms of practices going towards a sort of "uberisation" of marine recreational uses, the needs of valorization of the good practices will increase with new groups of users less sensitized with the interactions between the uses and the environmental issues.

Similarly, if those new practices may unfreeze certain anchor points in the ports, the evolutions of the frequentations facilitated by the improvement of the accessibility of the practices should have the effect of increasing the occupation of the marine space and the need for places in ports.

The technical evolutions (power of the engines, GPS, safety equipment) are susceptible to enlarge the basins of navigation by ensuring a better security to the boaters. However, it appears that in addition to the role of regulation in the definition of spaces occupied by boaters, the practice of light recreation remains limited to the areas closest to the shores.

FRANCE

Like many studies on the subject, representatives of the nautical sector express a diversification of practices:

"There is a steady increase in the number of pleasure boats on our entire coastline. The saturation of the ports is certain and their extensions tend to decrease these last years. We can also note the development of dry ports " (Ligue de Voile ARML PDL Dec 2017).

99 Interview with yachting activity representative in France

100 Interview with yachting activity representative in France

"In addition, nautical activities are becoming more diversified. On the port, we find sailing boats very diverse, from beautiful sailing to competition sailing. Activities are numerous: kayaks, diving, kitesurfing, surfing, stand-up paddling, including wakeboarding"[101].

This analysis is fully shared by the State and in particular the DIRM NAMO which, in the work of the DSF project, resumes similar trends for the NAMO sea front:

"NAMO facade trends

- A steady increase in the number of pleasure boats on the French coast since the 1960s, but a decrease in the number of first registrations observed since 2006
- A saturation of the ports and their extensions
- A strong diversification of practiced activities (kite surfing, kayaking, stand up paddle, jet ski ...) "(Projet de DSF. Annexen°1- fiches activités et usages de l'espace maritime)

"The evolution of practices (from possession to use,"uberisation ") probably mark the end of the current model. In particular, this is reflected in the reduction of requests for anchoring Rings , which could lead to a gradual release of the port areas currently occupied, in particular by "cupping vessels". Filling rate down lower ship purchases. [...] The potential for growth is numerous, the sector having a large pool of customers, (Conseil Départemental de Loire-Atlantique, 2017).

The diversity of boating practices justifies a multi-scale approach to pleasure boating, from the navigation basin, an area of sailing never exceeding the day, to the field of ocean cruising that can cover the world ocean. *"However, sailing cruisers are rare and the majority of boaters are limited to the scale of navigation basins and cruising basins. Few boaters sail beyond 10 or 20 nautical miles"* (Sonnic 2008).

Depending on the sub-sector, maritime and coastal tourism is both a linear and area based activity. In most cases maritime activities take place along the coastline as well as between the shore and on-water tourism activity areas8, while for instance diving, snorkeling and underwater cultural heritage are place-based activities. The distance to shore is typically between zero and few km. Water depth depends on sub-sector needs and might be a crucial element for certain activities (e.g. water-based activities such as boating, yachting, nautical sports)(EC. 2018).

Regulations also play a role in the definition of the spaces occupied by pleasure boaters since *"75% of pleasure craft in France are not allowed to go beyond 5 nautical miles and only 9% of the vessels (from the first to the third category) are allowed to exceed 20 miles"*. If the technical evolutions (power of the engines, GPS, safety equipment) make that the basins of navigations grow for pleasure, the practice of the light leisure activities remains limited to the nearest spaces of the shores. *"In fact, there are few boaters who leave the territorial sea where all the navigation basins are inscribed. They are therefore subject to the full authority of the State, especially since the exercise of the police right may be exercised up to 24 miles from the coast"* (Sonnic 2008).

The analysis of the spatial demand for yachting and water sports is complex. Indeed this element is mainly based on multiple practices carried out by individual boaters. Thus, the concept of navigation basins is complex and takes different forms depending on the practices and regions. Moreover, a large part of the demands from the representatives of the sector are related to port planning policies (number of places, services adaptation to changes in practices, etc.), the development of access to water, or interactions between activities on land. However, some spatial demands for water bodies can be expressed.

These demands can be those of a **need to valorize good practices to facilitate the interaction between the activities** on the marine space: "*Spaces and shared sites. This is the need to enforce rules of good practice by applying the regulations, natural constraints that are Natura 2000 areas and natural parks, to preserve the harmony of practices"*[102].

"Organize the nautical practices in the band of 300 meters. [...] Organize a harmonious management of the maritime area, including intelligent marking and adequate zoning [...] Support local authorities in the development of spaces to develop the practice of light boating and beachside "(FIN. 2017).

101 Presentation of the "Ligue de voile » at Assemblée régionale Mer et Littoral (ARML) Pays de la Loire. december 2017

102 Presentation of the "Ligue de voile » at Assemblée régionale Mer et Littoral (ARML) Pays de la Loire. december 2017

Other claims concern the **preservation of "freedom of navigation"**. This is particularly the case of positioning letters published by UNAN about a tidal turbine project in the Gulf of Morbihan: "T*he prospect of the installation of numerous large-scale structures in the channels of the Gulf of Morbihan is of the utmost importance because of the consequences it would have for the freedom of navigation, recreational fishing and fishing"* (UNAN. 2017a). *"How to imagine the realization of the installation work then maintenance interventions, planned or impromptu, while maintaining the freedom of navigation in satisfactory safety conditions in spaces of such a small size*?" (UNAN. 2017b).

In 2015, nine nautical federations published a "call for the sea to remain free[103]" facing the proposal for the creation of a fee for moorings carried out in the perimeter of marine protected areas: *"Unacceptable taxation threatens the freedom of anchorage in marine protected areas. Our intimate conviction is that the sea is, and must remain, this space open to individual and collective initiatives, the only limits of which are those of good citizenship and respect for the environment. We oppose any other restrictions and especially the discrimination by money".*

To summarize, in the marine areas near the shore, the demand is that of an organization of activities to facilitate their cohabitation. On the rest of the marine areas, the demand is that of the preservation of the freedom of navigation

SPAIN

Over the last 30 years, the increase in the number of moorings has been constant, estimated at over 250%. Mooring sizes have also increased as well as the average length of the registered vessels. However, as it shown in the number of marinas remained stable. The general trend is towards remodeling and improving existing facilities rather than building new ones, due to their high environmental impacts (FEAPDT, 2016).

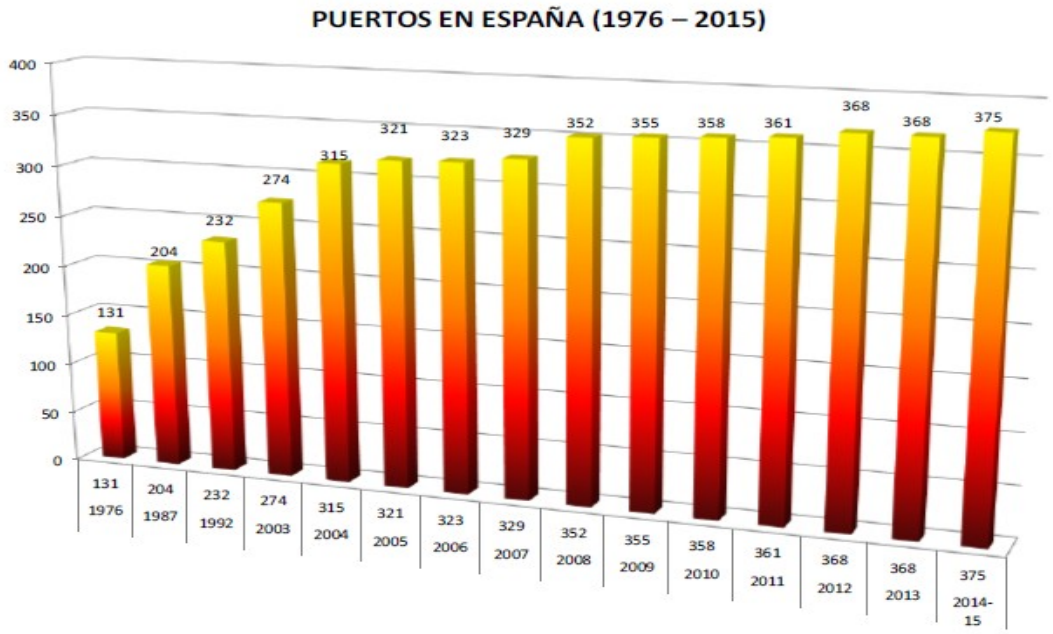

Illustration 19: Evolution of the number of Spanish ports between 1976 and 2015

103 In French :"Appel pour la mer libre "

PORTUGAL

The forecasts point to a significant increase in recreational boating once it is expected that the tourism associated with nautical activities may have a very strong increase in the next years, being essential to create the necessary support infrastructures, such as marinas and nautical centers among others.

The Situation Plan, in the Mainland subdivision, defines a protection zone for common uses intended primarily to safeguard recreation, sport and tourism as well as a potential area for the development of these activities when they require space reservation, defined throughout the coast up to 6 miles.

Underwater cables

Reminder of the characteristics of the sector (extract C1.1.1 - Initial Assessment)

Submarine cables : telecommunication

In OSPAR Region IV, the bulk of submarine cables consist principally of telecommunication cables

Land connection infrastructures are concentrated in Lisbon and Cadiz areas

The "Marea" cable commissioned in 2017 between Virginia Beach in United States and Bilbao : powered by Facebook and Microsoft, it's the most powerful "Internet pipe" ever

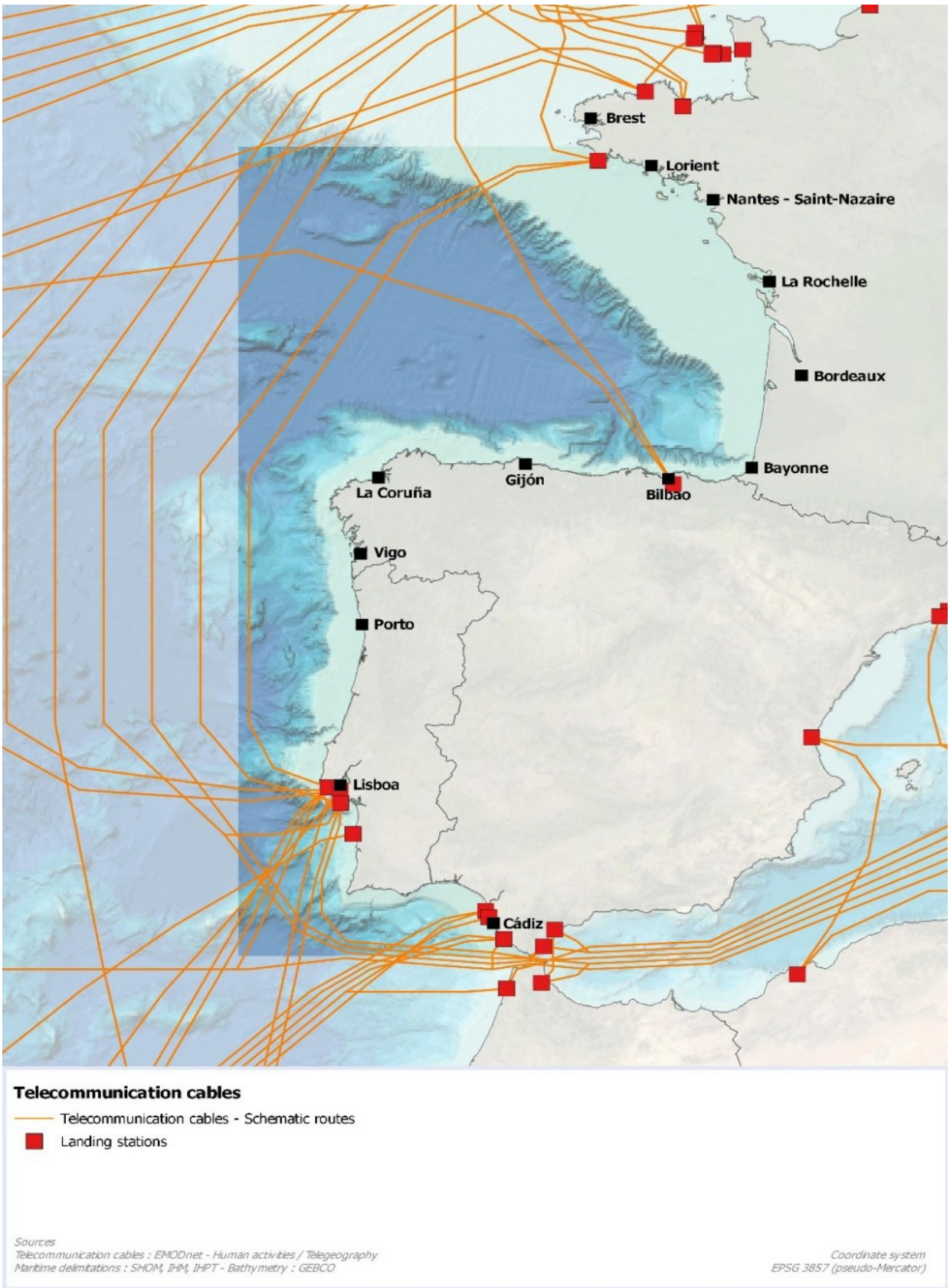

Illustration 20: Telecommunication cables in the OSPAR IV area

Submarine cables : electricity

An electricity interconnection project, estimated at 1 750 M€, that will link the Cubnezais substation near Bordeaux to the Gatika substation near Bilbao with a capacity of 2 000 MW.

It is expected to bring the total interconnection capacity between France and Spain to 5 000 MW.

The 370 km route, 70% of which is in French territory, includes a maritime section of 280 km with the crossing of Cape Breton.

The works are expected to extend from 2020 to 2024, for a commissioning of the line in 2025.

Illustration 21: Electricity interconnection project in the OSPAR IV area

General introduction on the sector

Underwater cables are installed at the sea bottom to transmit electricity and carry telecommunication signals over long distances. Very often, submarine cables provide communication and energy connection between the shores of different countries. The submarine cable markets are international and the cable laying and maintenance service activity is provided by a small number of operators worldwide. Some of them are vertically integrated with cable manufacturing companies, others with telecommunications companies, and some have been set up as independent companies. They can be specialized in installation and maintenance or be diversified on a large number of offshore services (oil installations, naval vessels, offshore energy installations, etc.). Cable systems are owned by consortia of four to thirty private companies or, in some cases, a single company. . With regard to telecommunication cables, it is therefore difficult to obtain the expression of the representatives of the sector relating exclusively to the OSPAR IV zone or the Atlantic coast.

Regulation

In France, the state representative at the local level (the Maritime prefect) is the competent authority to authorize the construction, operation and use of artificial islands, installations, structures and related facilities and to approve the layout of submarine cables established outside territorial waters and landing on the territory and pipelines on the continental shelf beyond territorial waters[104].

Similarly, in Portugal, the Ministry of Foreign Affairs authorizes the installation of submarine cables in the Portuguese maritime area after the submission of a request by the promoter. The promoter must submit a request to the Foreign Ministry of his own country which, through the diplomatic channel, will be forwarded to the embassies of each country concerned by the cable, which in turn will forward the process to his own Ministry of Foreign Affairs. The Ministry of Foreign Affairs will request an opinion from the competent authorities. In the specific case of Portugal, in addition to the provisions of UNCLOS, the process follows the legal provisions relating to maritime safety, public domain management and telecommunications management (PSOEM, volume III, 2018).

In Spain, the organizations taking part in the management and implementation of this type of infrastructure are: the Directorate General for Energy Policy and Mines from Secretary of State for Energy and the Directorate General for Quality and Environmental Assessment and Natural Environment both belonging to the Ministry for the Ecological Transition; and as concessionary companies: Telefónica, Red Eléctrica de España o Telxius.

Structure of sectors and canals of expression for the spatial demands

Key points

About 99% of international telecommunication cables are owned by non-governmental entities (ICPC. 2016). With regard to telecommunication cables, it is therefore difficult to obtain the expression of the representatives of the sector relating exclusively to the OSPAR IV zone or the French Atlantic seaboard. At the international level federations exist to represent the stakes of the sector. This is notably the case of the International Cable Protection Committee (ICPC).

For telecommunication cables in these three members states, there is no specific national strategy or policy.

The activity and installation of submarine cables can however be taken into account in energy policies (as in Spain with the “Electricity Transmission Development Plan for 2015-2020” which includes all underwater cables in activity and future connection inside Spain, Spanish Islands and other countries).The

104 https://www.legifrance.gouv.fr/eli/decret/2013/7/10/DEVL1204202D/jo/texte

planning competence of energy transfer cable laying is a matter of national energy policy. Jurisdiction is then retained by the state and its delegations.

However, for offshore renewable energy fields, in some cases, the offshore promotion companies manage the installation of the cables and the connection to the electricity network (PSOEM, volume III, 2018).

In Spain, The Law 24/2013 of Energy Sector of Spain indicates in articles 3 and 4 the following arguments of energy planning:

- Article 3: " Correspond to the General State Administration, in terms established in the present law: To exercise the power of electrical planning in the terms established in the next article".
- Article 4: "*The electrical planning will aim to anticipate the needs of the electrical system to guarantee the long-term energy supply, as well as to define the needs of investment in new electricity transmission facilities, all under the principles of transparency and minimum cost for the whole system. Only the planning of the transport network with the technical characteristics that are defined in it*.

In the field of energy transmission, French law has entrusted RTE with the management of France's public electricity transmission network for high and very high voltage (through a public service contract). This is the case of the electrical connection projects for wind farms at sea (RTE. 2015).

Means of expression

Although if representatives of cable distributors participate in forums to represent the interests of the industry, it seems that they do not participate in the MSP process. As an example, no representative of the telecommunication cable activity is part of the governance of French MSP within the "Conseils Maritimes de Façades".

Nevertheless, these organizations publish reports presenting and valorizing the sector, addressing, as appropriate, sector development trends, interactions with other marine activities and the potential impacts of submarine cables on the environment. It should be noted that no specific publications for OSPAR IV or any of its subregions were found for this study. The publications listed below relate to the entire activity worldwide.

In France the company RTE participates in the consultations in the context of the regional strategies (in Bretagne and Pays de la Loire), especially concerning the electrical connections of the MRE fleets.

FRANCE

Submarine cables : Telecom

While the above-mentioned representative organizations of the cable television community participate in forums to represent the interests of the industry, they do not participate in the governance of the French facades within the Conseils Maritimes de Façade.

Nevertheless, these organizations publish reports presenting and valorizing the sector, addressing, as appropriate, sector development trends, interactions with other marine activities and the potential impacts of submarine cables on the environment. It should be noted that no specific publications for OSPAR IV or any of its subregions were found for this study. The publications listed below relate to the entire worldwide activity.

Submarine cables : electricity (MRE)

As part of the consultations associated with offshore wind farm projects, RTE and project leaders (such as EOLFI) develop publications and reports of presentations to be used in decision support for the definition of routes for the electrical connection ashore from these parks.

RTE is responsible for the management of the French public electricity transmission network in the field of energy transmission (through a public service contract). As a result, the company does not express spatial demand directly. The demands of the sectors on this point are therefore affiliated with those of the EMR sector.

Submarine cables : electricity interconnection

As part of the consultation prior to the electricity interconnection project, "Bay of Biscay", connecting France and Spain, INELFE and RTE, on the French side, publish consultation reports, press kits, public information brochures . RTE also brings this project to the Conseils Maritimes de Façade Sud Atlantique)[105].

RTE is responsible for the management of the French public electricity transmission network in the field of energy transmission (through a public service contract). As a result, the company does not express spatial demand directly. The demands of the sectors on this point are therefore affiliated with those of the EMR sector.

SPAIN

The interests of the sector are the transference of energy and telecommunications. The geographical position of Spain implies that it is crossed by some important connections infrastructures:

- From the Iberian Peninsula to Balearic Islands, Canary Islands and the Cities of Ceuta and Melilla.
- Between Spain and other countries: as France, Italy, United Kingdom, Morocco or United States of America.

In Spain exists the following connections nearly or across the two cases studio that Spain is implicated in:

- Africa Coast to Europe (ACE) (2012)
- MAREA (2018)
- Tata TGN-Western Europe (2002)
- SeaMeWe-3 (1996)
- FLAG Europe-Asia (FEA) (1997)
- TAGIDE (decommissioned)
- SEA ME WE3-S9 (1999)
- EURAFRICA E1 (1992)

PORTUGAL

This sector is regulated by the UNCLOS ratified by Portugal by the Decree-law nº 67-A/97, of 14th October. Within the Continental shelf the submarine cables setting is regulated by the 79º article which establishes that the line drawing and the cable installation depends on the coastal State consent

The Foreign Affairs Ministry gives the authorization for the installation of submarine cables within Portuguese maritime space after a submission of a request by the promoter. The promoter has to submit a request to the Foreign Affairs Ministry of his own country, which via diplomatic channels will be, transmitted to the embassies of each country involved i the cable route, which in turn will transmit the process to its own Foreign affairs ministry. The Foreign Affairs Ministry will ask for opinion to competent authorities.

In the specific case of Portugal, in addition to UNCLOS provisions, process follows the legal provisions related with maritime safety, public domain management and telecommunications management, and, in addition, the Decree-law 38/2015 of 12th march provisions, which mention the need of a Private use title of maritime space with ensures that the area occupied by the cable in exclusive for this activity.

International companies manage the submarine cables sector for communications. The States only approve or not the installation in its own maritime space. Concerning submarine cables for electricity distribution, the offshore promoting companies manage the cables installation and the connection to the electricity grid (PSOEM, volume III, 2018).

Submarine cables for communications

105 RTE. Presentation at Conseil Maritime de Façade (NAMO), 28 May 2015

The Portuguese maritime space it is crossed by several telecommunications cables linking the mainland to the archipelagos and the European continent to Africa and America.

The Situation Plan foresee exclusion areas to submarine cables installation (PSOEM, Volume II, 2018).

In the north part of Portugal the cables continue to Spanish marine waters and in the south of Portugal the cables continue through Spanish and morocco waters.

There are about 6830km of submarine cables (communication cables) laid in the Mainland subdivision linking the north of Europe, Mediterranean, Africa and American continent. The cables have about 20cm diameter and are laid in sand bottom and slime. In mainland subdivision there are about 3390km of cables laid in the marine bottom which 99,1% are in mobile substrate.

Electric cables

The installation of submarine power cables counts on the involvement of various infrastructures, namely substations and other electrical components, mooring lines, anchorage systems to the seabed, boats to support the installation, operation and removal of devices and signaling systems and support for navigation safety.

With the evolution of the construction of offshore parks and support technology, potential opportunities in the medium and long term for the international construction of high voltage submarine electric networks located in international waters have been emerging. In Portugal, the installation of platforms for the exploitation of the energy of the waves or wind is located near the coast, reason why the respective cable is in Territorial Sea. A submerged cable of 930 m (buried along 270 m) is currently installed in the beach area of Almagreira / Peniche, under the project "Ondas Peniche", for connection to the transformation station located on land. In north of Portugal a cable of transport with about 6 km in the area of Aguçadoura / Póvoa de Varzim, have been installed under the "Windfloat" project and for use in the future offshore wind demonstration project "DEMOGRAVI3" (PSOEM, volume III, 2018).

Analysis of the sector in its environment: interactions with other activities and conservation

Interactions with other sectors

With regard to the offshore connection of marine renewable energy parks, the representatives of the sectors express the incompatibility of the activity with other uses. For the Renewable Energies Union: "*the presence of offshore wind turbines and particularly of buried electric cables is technically incompatible with dredging activities and underground mining as carried out by marine aggregates extractors. The areas reserved for these extractions and being exploited are therefore incompatible with the presence of a wind farm at sea (*SER. 2015). The Portuguese MSP has identified compatibility or incompatibility between sectors. Activities such as the extraction of metallic, non-metallic and fossil resources, artificial reefs can not be developed in the submarine cable environment. There are conflicts between fishing activity and the installation of cables, which hinder the use of certain fishing gear. (PSOEM, Volume III, 2018).

In the same way in the electricity interconnection project between France and Spain, RTE identifies negative interactions between the activity and the practice of professional fishing (RTE, 2017a).

However, these negative interactions do not seem to call into question the implementation of these projects and the general development of the sector. And the project leaders communicate on the practices developed to ensure compatibility of uses (RTE, 2017a; ICPC, 2009).

Interactions with conservation

There are no references to environmental considerations that constrain the overall development of the cable business. However, under the OSPAR Convention, the Best Environmental Practices Guidance Document (BEP) for the laying and operation of cables(OSPAR commission. 2012) establishes general guidelines for best practice laying and exploitation of submarine cables.

Cross-border interactions

The laying of submarine telecommunication cables is essentially cross-border (except in the case of connection of islands in territorial waters). It should be noted that these phase look at the general activity of submarine cable laying at the international level. No mention at the OSPAR IV scale was noted.

Various ICPC publications present the fishery as the activity with the most interrelationships with underwater cables. These relationships are mostly negative since they most often result in cable damage or the loss of fishing gear for fishermen. "*Unlike the high seas, in national waters, the most significant major cause of faults-about 72-86% -comes from bottom trawl and similar aggressive fishing activities and contact with ship anchors*". (ICPC. 2016). "*The most common threat to cables and other human activities, especially bottom fishing*" (ICPC / UNEP. 2009).

Those interactions do not represent a constraint to the overall development of the cables sector but have led to the drafting of good practice guides in order to reduce incidents at sea. "*On a global scale, the main cause of defects on submarine cables is fishing with towed gear, such as bottom trawls, beam trawls and dredges. Some static gear, such as longlines, gillnets and FADs also caused flaws. Fishing gear, such as trawl nets using large anchors, can pose extreme risks to the cables. Sometimes it is not the fishing gear itself that causes the problem, but the hooks that fishermen use to recover the lost gear".* (ICPC. 2009)

Characterization of spatial demands and prospective on future trends

Key points

With regard to submarine cables and pipelines, under the United Nations Convention on the Law of the Sea, all States enjoy the freedom to place them in the exclusive economic zone, on the continental shelf or in the high sea. On the continental shelf, line drawing and cable installation depend on the consent of the coastal State. Thus, the layout of cables lay outside territorial waters and landing on national territory as well as that of pipelines on the continental shelf must be approved by the coastal State.

Telecommunication cables

It is difficult to identify a spatial demand for this activity as the development of submarine telecommunication cables is conditioned by the needs and decisions of non-governmental entities. The positions of the representatives of the sector concern on this point the preservation of international maritime law UNCLOS. *"The most pressing concern for the cable community is the potential for existing UNCLOS provisions for submarine cables to be modified or canceled by a new environmental regulatory regime implemented as part of the BBNJ process. The submarine cable community believes, given the critical importance of telecommunication cables, that the UNCLOS submarine cable provisions should not be changed or subject to a new regulatory burden associated with any new agreement of implementation "*(ICPC. 2016). This concern is similar to a defense of a right of use.

The connection needs for global telecommunication are increasing and the cable business continues to grow. However, it is difficult to identify a spatial demand for this activity as the development of submarine telecommunication cables is conditioned by the needs and decisions of non-governmental entities. In 2011, as part of a thesis, De Cacqueray declared: *"The planning of this activity seems very limited. Old cables are rarely removed and their location is gradually lost. The installation is done as and when, without a real integrated strategic planning, nor spatial "* (De Cacqueray, 2011). Subsea cable development projects for communications are underway. This is the case of the "Ellalink" project that will link the American continent to Europe. This 10000 km long submarine cable will be installed in the ZILS Business Center - Sines Logistics and Industrial Zone. (PSOEM, volume III, 2018).

Connection to the energy network

RTE is responsible for the management of the French public electricity transmission network in the field of energy transmission (through a public service contract). As a result, the company does not express spatial demand directly. The claims of the industry on this point are therefore affiliated with those of the MRE sector. The SER asks "t*hat the issues related to the connection of projects are sufficiently anticipated, particularly the question of the passage of cables in remarkable areas of the coast, especially for cables operated by private operators in the case of pilot farms*" (SER. 2014).

Cross border energy project

Regarding, the interconnection between Spain and France crossing Bay of Biscay, this project is carried out by Red Eléctrica de España (REE) in Spain and Réseau de transport Electrique (RTE) in France. It also is included in the "Electricity Transmission Development Plan for 2015-2020" in Spain, to cover future energy demands.

The energy interconnection projects are led by the State, which is the competent authority to approve the route of the underwater cables.

Bay of Biscay Project: Interconnection France - Spain between Aquitaine (France) and the Basque Country (Spain): After analyzing different reinforcement alternatives along the entire border between Spain and France, joint analysis between RTE and Red Eléctrica de España concluded that the most appropriate project to reinforce the border was a new interconnection between the Basque Country and the Aquitaine region in France, consisting of a 2x1,000 MW direct current link which will run mostly underwater. This project, called Bay of Biscay, will allow the exchange capacity between Spain and France to be increased up to 5,000 MW. Currently the project is in the public participation stage, and is expected to be commissioned in the horizon 2024-2025.This project was included in the European Projects of Common Interest (PCI), where the European Community legislation promotes the interconnection of electricity grids This is still a one-time projects and there are no other projects in the OSPAR IV Zone at this stage.

At the international level, the representatives of the cable industry emphasize the interest of defending the agreements ensured by international maritime law. "*The success of the global submarine cable systems would not have happened without the crucial support it has been sent by UNCLOS, which comprehensively addresses the rights and obligations of submarine cables in all maritime areas established by UNCLOS. Under the United Nations Convention on the Law of the Sea, the freedom to lay cables includes operations associated with that freedom, such as investigations and cable repairs.* "(ICPC / UNEP. 2009). More than a protection, the ICPC even considers that the objectives of UNCLOS tend to encourage the development of the sector: *"More generally, UNCLOS, in its preamble, recognizes the opportunity of establishing a legal order of seas and oceans that will facilitate international communication and encourage the peaceful uses of oceans and seas, as well as the equitable and efficient use of their resources. , the conservation of their biological resources and the study, protection and preservation of the marine environment* ".

In addition to this favorable context regarding the international maritime law, the ICPC considers that the support of the States is growing with regard to the critical stakes which its means of communication represent: «*An emergent tendency is that the States treat the cables in the national maritime areas, as an essential infrastructure that deserves strong protection, in addition to traditional international cable law"* (ICPC / UNEP. 2009).

However, it should be remembered that the planning of this activity is very limited and therefore makes it difficult to estimate any future evolution and spatial demand for this sector. At this stage, and depending on the energy planning strategies there is no future project of underwater cable.

The ICPC estimates in various publications that the development of submarine cables combined with existing activities and the development of new activities will lead to increasing interrelations with other users of the seabed, especially the fishing and shipping industries (ICPC / UNEP. 2009). (again, these statements are not specific to the OSPAR IV region)"

SPAIN

According to the "Electricity Transmission Development Plan for 2015-2020", the sector plans the use of marine space for electrical and telecommunications necessities.

In this plan are detailed all active infrastructures (terrestrial and underwater), future trends and it plans the objectives to guarantee power supply to the demand at the lower possible cost. It also has to predict energy future demand and consumer behavior, resources required to cover them and environmental criteria to protect Spanish environment.

It means that current plan has passed an environmental assessment that includes all environmental criteria needed in the energy and telecommunications infrastructures in Spain for 2015-2020.

Regarding, the interconnection between Spain and France crossing Bay of Biscay, this project is carried out by Red Eléctrica de España (REE) in Spain and Electricity Transmission Network (ETN) in France. It also is included in the "Electricity Transmission Development Plan for 2015-2020" in Spain, to cover future energy demands.

This project cross case study 1 - Bay of Biscay.

This connection will cross Bay of Biscay by an underwater cable between Gatica (País Vasco) and Cubnezais (near Burdeos in France), it takes 370km long.

This project was included in the European Projects of Common Interest (PCI), where the European Community legislation promotes the interconnection of electricity grids:

Bay of Biscay Project (PCI Project 2.7): Interconnection France - Spain between Aquitaine (France) and the Basque Country (Spain): After analyzing different reinforcement alternatives along the entire border between Spain and France, joint analysis between RTE and Red Eléctrica de España concluded that the most appropriate project to reinforce the border was a new interconnection between the Basque Country and the Aquitaine region in France, consisting of a 2x1,000 MW direct current link which will run mostly underwater. This project, called Bay of Biscay, will allow the exchange capacity between Spain and France to be increased up to 5,000 MW. Currently the project is in the public participation stage, and is expected to be commissioned in the 2024-2025 horizon.

In addition to having the PCI classification, it has a double classification as it also catalogued under the 'electricity highways' concept, which means it has a long-term strategic value.

For Case Study 2, Galicia Bank - Vigo and Vasco da Gama Seamount, due to the fact that Bank of Galicia was declared Site of Community Importance (Habitat's Directive) and a Special Protection Area for Birds (Bird's Directive), there is not future plan of a new cable crossing this area.

For the new Spanish and French interconnection, it has been done an Environmental Impact Assessment of the occupancy of the marine space to the underwater cable, the analysis of the environmental pressures and affections. The document is called "*Initial document of the project: Occidental Interconnection Spain-France crossing Bay of Biscay-Gascogne*"[106].

For Case Study 2, until the approval of the SAC Management Plan in 2020 by the Ministry for Ecology Transition, there is a Guideline for the Management Plan of the SCI which indicates that any activity in the protected area will require an Environmental Impact Activity and the approval of the Ministry for Ecology Transition.

PORTUGAL

Regarding energy (electricity) production it is foreseen the installation of renewable energy devices offshore, namely in the north and central part of Portugal and the enlargement of the project First of a Kind/FOAK place. In these areas will be placed submarine cables linking these structures to mainland. It is also expected the development of some international projects and joint ventures for the installation of floating, eolic and/or multiuse structures in international waters which implies the connection to mainland by submarine cables.

106 https://www.ree.es/sites/default/files/04_SOSTENIBILIDAD/Documentos/tramitacion_ambiental/DI/DI_GolfoBizkaia_v1.pdf

Concerning the installation of submarine cables for communications it is foreseen a new project – Ellalink- which will link the American continent to Europe. This submarine cable with a length of 10000km, will be installed in the ZILS Business Centre – Sines Logistics and industrial zone (PSOEM, volume III, 2018).

In the Portuguese maritime space there are some exclusion areas for submarine cables installation e.g. seamounts. All the remaining space is considered potential places to lay a cable (PSOEM, 2018).

Part III – conclusions

1. The links between the use / access to the resource and the appropriation of space

According to Brunet (Brunet et al. 1993), the notion of « use » has two meanings :

- "The main uses of space, which are the basis for geographical areas, are appropriation, exploitation, housing, communication and management."
- "The importance of the complexity of space practices has led societies to establish very early on land uses, laws of use and user rights that have long been applied in agrarian and pastoral societies."

The two definitions have in common the fact that a usage appears as "the spatial manifestation of a function" (Corlay, 2001 in Le Tixerant, 2004). It constitutes a mode of use of the territory which generates a space resulting from a project of exploitation and / or management of the resources of the environment. For example, the exploitation of mineral resources is one of the uses of the coastal sea. As well as the establishment of areas dedicated to conservation can be considered as such.

Thus, the notion of appropriation of space, right of use and right of access to the resource is directly linked to the notion of “territorialisation” of marine space. In fact, the notion of space, understood in the sense of international law, is distinct from that of the territory. According to Curtil, (Curtil, O. 2012) of these two "geophysical dependencies of the world", one is held under the jurisdictional and coercive power of a State (the territory) while the other escapes it. With regard to territory, the State exercising sovereignty itself determines the legal regime to which its various elements will be subject. It is in a way the owner of the "useful" domain for which it would exercise exclusive and transmissible exploitation rights.

In this sense, the fact that the marine resource, or the conflict that concerns it, is located in territorial waters, in zones of economic exclusivity, on the high seas or otherwise, modifies the reasoning and the treatment of the sharing of resource (Florence Galletti, 2015). The different legal regimes that accompany the regulation and particularly in the case of the exploitation of living resources, and the phenomena of zonation of activities (notably illustrated by certain maritime spatial planning approaches) still highlight the close links between the appropriation space and how to access the resource. They are major factors in the analysis of the spatial demand at sea.

Indeed, the analysis of activities shows a great diversity of involvement in the claim for spatial demand, from the wait-and-see posture to a pro-active posture of demand for "dedicated areas".

This diversity of posture according to the sectors of activity and within an activity, between the 3 countries, is explained in part by the different legal regimes that accompany the regulation of the activities, the level of appropriation of the space the conditions of access to the resource and the "historical" use rights for certain activities. Their spatial characteristics (eg location, water depth, mobility, land-sea interactions) and their planning horizons also play a role in this.

In this work, the analysis of the structuring of the sectors could highlight the weight that it can has in the consultations about the MSP. A structured and organized sector is a factor facilitating the expression of demands and spatial demand.

The analysis of the vision of the activity representatives on the evolution trends of their sectors could provide elements of context to the expression of this or that spatial demand and to identify obstacles or opportunities conditioning its evolution (e.g. technological evolution, strong political will, regulatory framework etc.).

2. Characterization of positioning strategies in terms of spatial demand

With regard to the elements analyzed and the results achieved, we detect five main trends in spatial 's demand strategies :

2.1 Defense strategy for « Historically used » space

This strategy mainly concerns the fishing and yachting sector and is explained by the historic use right of the maritime area associated with these sectors of activity.

Equal access to waters and resources and management of fishing capacity

The Common Fisheries Policy establishes the principle of equal access for all vessels flying the flag of a Member State to the Community fishing zone (all waters under the sovereignty and jurisdiction of the Member States). In accordance with the principle of non-discrimination on grounds of nationality, all fishing vessels flying the flag of a Member State of the European Union shall exercise the same equality of access to maritime areas and to the exploitation of resources in the Member States. However, this principle is qualified by the introduction of a derogatory and transitional regime authorizing each Member State to reserve access to its coastal strip for its own vessels.

In spite of the exclusive competence of the European Union, Member States are thus authorized to limit fishing to vessels operating in waters within 12 nautical miles of the baselines. This important derogation from the principle of equal access to two objectives: to guarantee the economic stability of small-scale coastal fishing activities and to reduce fishing pressure in particularly sensitive maritime areas.

Moreover, in addition to these measures which directly concern the management of fisheries resources, the marine area is also governed by various regulatory measures related to navigation and safety at sea, military activities, the presence of communication networks and aquaculture areas. These measures obviously involve prohibitions or restrictions for fishing activities (Tixerant 2004) and must therefore be taken into account when describing their progress.

Thus, in addition to the measures adopted at European level (Total Allowable Catches - TACs), each Member State may develop conservation measures compatible with the objectives of the CFP, applicable only to vessels flying its flag. These measures may be technical in nature, aimed primarily at limiting the harvest of juveniles: measures relating to the selectivity of fishing gear (net mesh size, for example), minimum catch size, but also periods and areas of fishing closures, fixation of fishing gear, a ceiling for the total allowable catch etc., (Cudennec and Curtil 2015). Other measures concern the individual access of the professionals to the resource. the aim here is to allocate the limited resource available to users as the productive and reproductive capacity of the stocks. Selection of operators authorized to exploit a stock and determination of the share to which each operator can claim on this holding (Boncoeur, J. 2006).

The freedom of navigation applied to yachting

Freedom of movement is a fundamental principle of international law, applying in international waters and within exclusive economic zones (EEZ). Thus, within the EEZ, the State can not prohibit the navigation of ships coming from the high seas, whatever their flag and their function. In fact, in the case of yachting, there are few boaters leaving the territorial sea where all the navigation basins are fully integrated. They are therefore subject to the full authority of the State, especially since the exercise of the police right may be exercised up to 24 miles from the coast. Within these basins, restrictions exist to ensure safety at sea (defense, marine renewable energy park facilities) or to preserve the marine environment. Thus, in certain cases of Marine Protected Areas, navigation bans may be decided in order, for example, to avoid the disturbance of endangered species.

2.2 Spatial expansion strategy

This strategy mainly concerns the marine renewable energy sector and applies in particular to the northern area of the OSPAR IV Marine Region.

Renewable marine energies production is characterized by the fact that the public person is the source of an economic activity for an operator. “It thus based on several elements: the public initiative of a project, a link of collaboration between the administration and the operator and, finally, the economic character of the object of the collaboration”(Michalak, 2016). Since offshore wind turbines are located on the ground and subsoil of the territorial sea, which are part of the public maritime domain, the owners must obtain a concession for the use of the public domain. The goal is to control the compatibility of the implementation with the assignment and conservation of this space.

Like the energy market of which it is a part, the Renewable marine energies market is subject to regulation. The aim is for the State to ensure competition in a market previously held by one or more incumbent operators and to ensure the long-term satisfaction of the country's energy needs. This regulation results from the creation of an open and competitive European energy market. The various directives adopted stipulate that electricity production and supply activities are fully open to competition while transmission and distribution remain under the control of the network operators in charge of public service missions. Openness to competition is therefore closely regulated by the public authorities (Boillet & Gueguen-Hallouet, 2015).

In this context, States may choose some options to organize regulated access to renewable marine energy markets.
There are two types of processes for creating a marine field at sea: the "tendering" method and the "open door policy" method. "The use of the tendering method is a valuable tool for the large-scale deployment of offshore wind farms in the short term. This method allows the government to use their schedule, thus meeting their renewable energy targets. The "open door policy" method, providing larger areas of research for the industry to develop their own business cases, promotes innovation and can facilitate the industry's wishes. (EC. 2018) This model therefore largely conditions the spatial demand modalities of the MRE sector.

In France, the procedure for creating a wind farm offshore is similar to the tender method and has been clarified by a simplification law of 2018. This procedure is based on the spatial planning of the State (facade strategies) defining areas intended to host Renewable marine energies. This first step, which is then specified on the MRE Objectives by the Multiannual Energy Program (PPE), is then presented to public consultation and debate with stakeholders on the identification of suitable perimeters for calls for tender.

In Spain, there is no specific legislation or strategy. Only the administrative procedure for applications for the authorization of electricity production facilities in the territorial sea has been established (by Royal Decree 1028/2007), allowing for the reservation of areas where offshore marine installations could be built at sea.

2.3 Strategy for maintaining authorized areas

This strategy mainly concerns the fields of shellfish farming and marine aggregates extraction.

Access rights to the public maritime domain (shellfish farming area)

The mechanisms for regulating access to the public maritime domain for marine crops and the current system for the transmission of concessions is a result from the dynamics of the shellfish farming sector and the regulatory adaptations of the public authorities. Shellfish concessions are by nature precarious exploitation rights of the public maritime domain which are granted by the public administration. They are part of the factors of

production of companies and, consequently, they are likely to generate economic rents. The control of the land represents considerable challenges on an individual level for each shellfish company but also on a collective level by the management of the shellfish growing basins, the sectoral policies, the integrated management policies of the coastal zones, etc. (Mongruel et al, 2006). Shellfish farming companies are subject to a special regime for authorizing the exploitation of marine crops. The specificities of this system can be explained by the situation of shellfish farming concessions at the border of the public maritime domain and the private domain.

Exploration / exploitation of the soil of the territorial sea (use concession schemes)

Apart from the specific prohibitions for the development of certain activities in different countries (some industrial aggregate extractions In Spain[107]), any use of the continental shelf is subject to prior authorization. Exclusive research licenses are granted by the competent authority after a call for competition. When applying for an exclusive research permit, the application for authorization to open the works is submitted at the same time.

The exploitation is the subject of a concession (sometimes sanctioned of a royalty due to the State). In France, for example, material extraction activities are particularly tightly controlled. In particular, they are only allowed in legally determined areas. To be able to exploit, the contractor must obtain, a mining title, a public authorization and a stat decree. In Portugal, the private use of the national maritime area requires an authorization of use (TUPEM) issued by the DGRM. The procedure for obtaining it depends on whether the use and location are provided for in the situation plan.

2.4 Activities whose spatial influence is not influenced by the MSP

This strategy concerns the areas of maritime transport and submarine cables

Freedom of navigation and international trade

Mainly governed by conventions and international maritime law, the organization of commercial shipping should be relatively unaffected by the actions of MSP. Commercial maritime transport (freight and passenger transport, including ocean cruises), given its economic importance highlighted in the context of the sea economy, is, in fact, generally considered a priority over other activities.

The principle of freedom of navigation, which is widely promoted in terms of the spatial footprint of the maritime transport and leisure craft sectors, is today faced with various limitations. On the one hand, the space supporting these freedoms was narrowed by the 1982 Convention on the Law of the Sea signed in Montego Bay: the expansion of marine areas in which the sovereign rights of coastal States territorial and exclusive economic zone) correspondingly decreases the surface of the high seas. On the other hand, there is a development of special international conventions which tend to regulate (and therefore limit) navigation. These are essentially the rules of international law, but also of domestic law, which define the legal regime of the sea, which is divided into different zones on the basis of the various sovereignty rights exercised by the coastal State, as well as their limits.
Whether to prevent accidents, prevent marine pollution or even combat the disappearance of certain animal species, these regulations of international, community and national law are as much an infringement of the classical principle of freedom (EC. 2018).

Underwater cables

107 Industrial exploitation of seabed resources has been expressly prohibited in Spain since the entry into force of the Coastal Act1 in 1988. According to the legislation in force in Spain, the only extractive activities that can be carried out are: Sand extraction for the creation and regeneration of beaches (regulated by the Coastal Law); Port dredging for the construction or maintenance of ports and waterways; Dredging activities outside the public port area for land reclamation in port areas.

Today, submarine telecommunication cables enjoy specific legal protection conferred by the United Nations Convention on the Law of the Sea, for example with regard to laying, maintenance and repair (Savadogo, 2013). However, regulations exist and the complexity of a file is not only technical, as relations with states can become essential to obtain the necessary authorizations. Apart from all the technical characteristics, which require an accurate assessment of the risks and constraints, the most diplomatic elements to take into account to define a route are the landing points, the territorial waters - up to 12 miles from the coast - , contiguous zones - up to 24 miles from the coast - exclusive economic zones (EEZs) (Boullier, 2014).

Indeed, with respect to submarine cables and pipelines, all States are free under the United Nations Convention on the Law of the Sea to place them in the exclusive economic zone on the continental shelf or on the high seas. On the continental shelf, lines and cable installations depend on the consent of the coastal State. For example, the layout of cables laid outside territorial waters and landing on the national territory as well as those of the pipelines on the continental shelf must be approved by the coastal State.

Apart from this necessary consent of the coastal State, planning for this activity seems very limited (De Cacqueray, 2011). The installation is done as and when, without any integrated strategic planning, neither spatial.

2.5 Activities in decline due to the decarbonation of European countries

This strategy concerns the exploitation of submarine hydrocarbons.

Mainly envisaged by concessions for the use of marine areas by research permits and exploitation permits, the exploitation of hydrocarbons is either non-existent or in decline in the three member states of the SIMNORAT project. Several factors combine to explain this situation. The new environmental objectives of decarbonation of the European Member States, perceptibly illustrated by the commitments of the Paris Agreement, have been accompanied in some countries by bills prohibiting the development of new research sites and agricultural holdings (as in France). In addition, recent Portuguese examples show that public opinion is increasingly negative about these fossil record exploitation activities and ends up limiting the development of new sites. These explanations, combined with the low potential for the availability of fossil resources in the marine areas of these three Member States, explain the absence of such projects in the MSP processes in France and Portugal.

3. Interactions between activities and their environment: constraints or opportunities for spatial development of a sector?

The MSP aims to establish an organization and use of maritime space that both balances the demand for development with the protection needs of marine ecosystems and also manages interactions between uses.

These interactions are traditionally mainly approached from the angle of incompatibilities and thus recognized as factors constraining the spatial development of an activity.

The analysis of the sectors in their spatial environment (interaction with the other activities and the environmental component) carried out within the framework of SIMNORAT makes it possible to qualify this postulate.

3.1 The supposedly negative interactions are not always real

The analysis of the compatibility between the activities can not be limited to a cartography of the superposition of these last ones on the marine space if we integrate the multiple spatial and temporal dimensions of the marine space. Indeed, the various mapping of offshore activities show strong overlays without taking into account the specificities of maritime activities which are for many mobile and dynamic. These activities can succeed one another at the same place at different times of the day, month and year or depending on the weather, using different dimensions of the maritime space simultaneously (De Cacqueray, 2011). Thus, some activities can be superimposed without conflicts.

Various studies have already undertaken to classify activities in compatibility grids according to the size of the maritime space they use (subsoil, bottom, water column, surface, and air). This is particularly the case for the thesis work conducted by Mathilde De Cacqueray in 2011 or the Cross-border European Planning Project European Atlantic Project (TPEA) between 2012 and 2014 (see Appendix 1).

3.2 Negative interactions are often linked to a lack of knowledge of the practices and rules of use of each activity.

This study demonstrates that a number of negative interactions between activities in the study area are, in fact, apprehension of a supposed interaction that is not yet existing. In this study, these potential interactions are most often related to the development of marine renewable energy parks. This is explained by the strong forecasts of development and the spatial implication of this activity. Note that in this case of marine renewable energies, despite the absence of real examples on the French, Spanish and Portuguese marine areas, it is possible for the other stakeholders to refer to feedback from abroad, especially from Northern Europe.

Thus, two activities that are common to be mobile and ancient, express misgiving about the development of offshore renewable energy marine parks off the coast of France and Portugal: fishing and yachting. In the Member States, examples of consultation (notably in France in the case of the drafting of the Documents Stratégiques de Façade and the Regional Sea and Coastal Assemblies) **show good results to facilitate the appropriation of this subject by the different parties. stakeholders. This underlines the importance of providing time for consultation on these issues for the resolution of tensions.**

Difficulties may also occur before the occurrence of a real conflict due to the absence or difficulty for **planning** the development of an activity. Thus, in some cases for example, the difficulty of planning the needs for marine sediments and thus to anticipate the projections of marine sediment extraction have the effect of making difficult the discussions between the professionals. This example is pointed out by certain expressions of the fishing representatives. Note that in France, for this case this finding was sometimes shared with the stakeholders in the offshore mining sector and that the recent Documents d'Orientation et de Gestion des Granulats Marins (DOGGM) could provide some answers to professionals from both sectors.

Respect for the rules can still be cited as a major source of negative interactions between the various activities surveyed. Thus, this study reveals problems of cohabitation due to non-compliance with good practices, or infractions. The practice of boating and recreational water activities are often cited in several cases as conflicting because of this non-respect of the rules. This is noticeably sometimes the case with fishing activities, shipping (especially near the coast) and sometimes involving pleasure activities between them.

It is also necessary to report the particular case of infringement of the law which is mentioned by the aquaculture sector which is the victim of theft especially in highly used areas.

Finally, some bad practices affect the environmental quality of the marine areas on which many activities depend including aquaculture. Thus, this study reminds again the strong dependence of these activities with regard to pollution of various origins:

- Pollution from marine sources via the disposal of hydrocarbons from maritime transport, fishing and pleasure craft
- Pollution from terrestrial origins, especially in areas with high coastal use.

These interactions, generated by bad practices, point to the major need to raise awareness and promote good practices for sea professionals as well as for people and practitioners of nautical activities.

3.3 There are many positive interactions that can generate synergies and opportunities for co-development

Potential synergies are mentioned between certain activities. These include positive interactions between offshore wind farms and other activities such as aquaculture activities. In this case, these interactions are made possible by the construction of multi-purpose platforms. The interaction with multi-use platforms was considered synergistic with aquaculture, oil and gas, submarine cables. As long as there are no real examples of off-shore wind farms and the use of such multi-purpose platforms, it is difficult to assess the real synergies between these sectors. It is therefore important to develop concrete examples of positive interactions so that these examples do not remain merely elements of communication to facilitate acceptability with other activities.

3.4 Transboundary interactions may involve border land facilities or resource competition (fishing)

In this study, it appears that the main causes of cross-border interactions between activities concern competition over the resource between fishing activities. On the other hand, other factors, such as political news concerning Brexit, can accentuate these cross-border interactions, notably through a transfer of the fishing effort. The mobile nature of the fishing activity and the possibility for the fishermen to exploit the EEZs of the other Member States makes possible this phenomenon of postponement of fishing on other areas. This does not apply to other sectors, especially fixed activities. Other cross-border interactions exist in particular with the case of pollution spreads in border waters. These other examples, however, did not crystallize the attention of the stakeholders during our surveys.

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Annexe 1 : Matrix of interactions between marine and coastal uses and activities.

results of the Transboundary European Planning Project European Atlantic Project (TPEA)

		NC/MPA	Fisheries & Aquaculture		Energy Resources		Tourism & Coastal management		Ports & Navigation	
		Nature Conservation Features	Fisheries	Aquaculture	Gas explotation	Wind farms	Tourism	Coastal uses	Ports	Maritime transport
Nature conservation features	Benthic habitats		*		*					
	Birds									
Maritime transport				*		*				
Fisheries	Bottom trawling	*								
	Gillnet fishery			*						
	Coastal fishery									
Aquaculture					*		*		*	*
Marine Biotechnology										
Laying pipelines and cables										
Exploitation of non-living natural marine resources	Gas explotation	*		*						
	Sand/gravel extraction & mining	*								
Dumping										
Military activities					*					
Carbon Capture Storage										
Tourism	Bathing sites									
	Nautical activities		*	*						
	Surf and regatta areas		*	*						
	Recreational fishing		*							
Wind farms				*			*		*	*
Ports and places of refuge				*		*	*			
Marine Scientific Research										
Wrecks and other historic features										
Coastal uses	Seawater abstraction									
	Water rejection									
	Coastal protection									

Conflicting sea uses

Sea uses compatible under certain conditions

Compatible sea uses

* Spatial solutions are possible to reduce or avoid the conflict