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Clément Dupont, Françoise Gourmelon, Catherine Meur-Ferec, Frédéric Herpers, Christophe Le Visage. Contribution of maritime surveillance data to French Maritime Spatial Planning: between technical potential and political constraints. *Cybergeog: Revue européenne de géographie / European journal of geography*, 2023, 10.4000/cybergeog.40565 . hal-04182947

**HAL Id: hal-04182947**

**<https://hal.science/hal-04182947>**

Submitted on 18 Aug 2023

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# Cybergeog: European Journal of Geography

Espace, Société, Territoire

2023

1052

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## Contribution of maritime surveillance data to French Maritime Spatial Planning: between technical potential and political constraints

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FEREC, FRÉDÉRIK HERPERS ET CHRISTOPHE LE VISAGE

<https://doi.org/10.4000/cybergeog.40565>

Cet article est une traduction de :

Contribution des données de surveillance maritime à la Planification de  
l'Espace Maritime français : entre potentiels techniques et contraintes  
politiques

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### Résumé

Maritime Spatial Planning (MSP) is widely recognised around the world as a lever for sustainable development at sea. In practice, it is a new form of negotiation for the use of maritime space and its resources. To support shared decision-making, MSP requires information on the spatiotemporal dynamics of existing maritime activities. In this context, maritime surveillance, operated in real-time by the State (defence, fisheries monitoring) is a strategic source of data (AIS, VMS and radar) and information for planning purposes. While these data are growingly used by the scientific community, their contributions to MSP remains marginal. This article identifies the main reasons for this, drawing on 38 semi-directive interviews with French MSP stakeholders. It highlights two obstacles to the use of data for MSP: a) a limited accessibility of data for many actors, especially public ones and; b) a lack of acceptability on the part of historical users of maritime space when faced with their mobilization. These results illustrate the fundamentally political dimension of geographic information in the context of MSP, and argues for a gradual “desensitization” of the use of maritime surveillance data, which have gained crucial



importance in a context of increasing spatial competition between maritime actors.

Keywords: territorial planning, maritime, spatial data, governance, survey

### Notes de la rédaction

This article is the translation of: <https://journals.openedition.org/cybergeogeo/40489>

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## Texte intégral

# Introduction

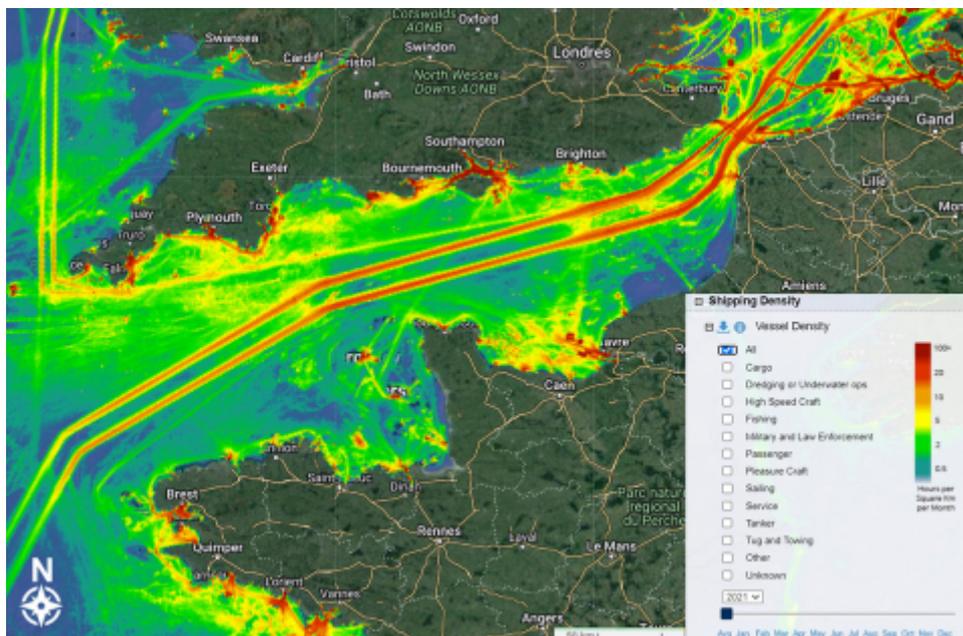
- 1 For more than ten years, Maritime Spatial Planning (MSP) has been acclaimed by many institutions around the world as an approach capable of supporting more sustainable development at sea: optimising the use of space, reducing risks and conflicts, and protecting resources and ecosystems (Ehler, Douvère, 2009; Menegon *et al.*, 2018; MSPGlobal, 2017). This is particularly the case in Europe, where its implementation has been mandatory for coastal Member States since 2014 with the adoption of the eponymous directive (MSPD-2014/89/EU).
- 2 Like Integrated Coastal Zone Management (ICZM), a few years its predecessor, MSP can be defined as an '*organising principle*' (Meur-Ferec, 2009), aimed primarily at coordinating the use of space and balancing the interests of its many users (Schaefer, Barale, 2011). Thus, while it often tends to respond to pre-established political objectives, such as the development of marine renewable energies or Marine Protected Areas (MPAs), to name but a few, it also encourages public authorities to engage in consultation processes with stakeholders from the maritime world, in order to converge towards a shared, forward-looking vision, and to enable the necessary compromises to be explicitly defined (Beck *et al.*, 2009).
- 3 Because it induces a new form of negotiation for the use of maritime space and its resources, the implementation of the MSP is complex and regularly controversial (Flannery *et al.*, 2018; de Groot *et al.*, 2017; Tissièrè, 2020). It often reveals imbalances in the power relations (executive or influential) historically maintained between maritime players (Clarke, Flannery, 2020; Flannery, Ellis, 2016; Trouillet, 2018).
- 4 In this context, the role of information, particularly geographical information, has become decisive: both as a tool for analysis and exploration (Cahill *et al.*, 2017; Dalton *et al.*, 2010), but also and above all as a means of legitimising decisions for public authorities, and as a means of asserting claims for certain stakeholders (Brunel *et al.*, 2021; Said, Trouillet, 2020).
- 5 From the point of view of the authorities in charge of the process, coordinating the use of space requires a precise vision: where and when are the activities taking place? How intensively? How often? With what impact on the environment? With what risk factor in relation to other activities? What level of economic dependence? This information is essential both for new users (e.g. developers of wind farm or aquaculture projects), who need to identify potential areas for development, and for historical users (e.g. fishing and transport), who need to secure their practice areas, or for environmental protection associations, who want to identify and highlight the pressures generated by human activities.
- 6 As a result, most countries have embarked on the development of maritime spatial planning. As part of this process, they have first been faced with the need to collect, aggregate and make available detailed geographical information, not only on the marine environment, but also on the spatiotemporal dynamics of the activities that take place there (Cahill *et al.*, 2017; MSPGlobal, 2017).
- 7 Until recently considered as a blind spot in the system, still very much marked by the '*freedom of the seas*' and minimal regulation (Eastern Research Group, 2010; St. Martin, Hall-Arber, 2008), the description of maritime activities beyond the horizon is now possible thanks to the masses of geolocated data produced in the context of

maritime surveillance (Campbell *et al.*, 2014; Le Tixerant *et al.*, 2018). The latter has indeed undergone major developments over the last decade, benefiting from a growing range of on-board (e.g., Automatic Identification System - AIS, Vessel monitoring System - VMS) or remote (radar, airborne, satellite) technical systems, and stimulated by international regulations (e.g. SOLAS 19 convention promoted by the International Maritime Organisation in 2000, requiring the presence of beacons on most transport vessels).

8 Initially implemented to support public action in real time, in particular to detect abnormal or dangerous situations for safety and security purposes (Alevizos *et al.*, 2015; Kullberg *et al.*, 2021; Patroumpas *et al.*, 2015; Schwarz *et al.*, 2015), maritime surveillance offers the possibility of using in delayed time extremely precise positioning data on a growing proportion of the world's fleet, and extracting various types of information relating to uses at sea (nature, spatial distribution, period, intensity, etc.).

9 There are many examples of this in the scientific literature, using more or less sophisticated processes, ranging from simple analysis of presence to detection of specific practices or extrapolation of their impact. These approaches make it possible for instance to map the intensity of maritime transport (Metcalf *et al.*, 2018; Wu *et al.*, 2018), assess the effort of certain types of fishing (Le Guyader *et al.*, 2017; Quattrocchi, Maynou, 2018; Watson *et al.*, 2018), estimate noise pollution (Roul *et al.*, 2019) or air pollution (Alessandrini *et al.*, 2017; van der Loeff *et al.*, 2018), assess cumulative environmental impacts (Ban *et al.*, 2010; Coll *et al.*, 2012), or anticipate risks and conflicts between activities (Krassanakis *et al.*, 2016; Pedersen, 2015). For some years now, the most basic analyses, enabling to map the presence density of vessels fitted with AIS beacons over a defined period, have been available to the general public on portals accessible online, such as the European EmodNet platform (Figure 1).

**Figure 1: Cumulative presence density map of vessels fitted with AIS beacons in the North Sea in August 2021, available on the European EmodNet portal.**



10 While this type of information resonates directly with the needs raised by MSP, i.e., to accurately describe the spatiotemporal dynamics of human activities at sea, in order to understand their dependencies, risks and impacts, explicit references to this process are still rare in the scientific literature (Dupont *et al.*, 2020; Le Tixerant *et al.*, 2018; Metcalf *et al.*, 2018). What does this mean in practice, within the operational planning framework? Do maritime surveillance data and the information they provide actually contribute to the exercise? Some weak signals suggest that their mobilisation may be limited in this context, due to legal and political constraints limiting their accessibility (Hinz *et al.*, 2013; Le Tixerant *et al.*, 2018), but also to a form of resistance to the use of surveillance technologies and associated data on the part of public authorities or stakeholders (Castagnino, 2018; Kondratov, 2018; Ouellet *et al.*, 2015). This is

accentuated by a conflictual political context (de Groot *et al.*, 2017; Papatheochari *et al.*, 2015; Tissi re, 2020), where information is integrated as an element of power (Toonen, Mol, 2016; Trouillet, 2019).

11 This paper proposes to study the use of these data and any obstacles to their use in the French context, a country that is both at the forefront of maritime surveillance technologies (Michoux, 2007) and firmly committed to planning its maritime space, both to comply with the European Framework Directive and to facilitate the development of offshore wind power supported by the State (Minist res  cologie  nergie Territoires, 2019).

12 It is based on a survey conducted in 2019 among 38 stakeholders involved in the French MSP, in parallel with the preparation of the Strategic Fa ade Documents (DSF), reference documents for the planning of the French maritime space defined by Article 123 of Law No. 2016-1087 as a response to the eponymous European Framework Directive (DCPEM-2014/89/EU) at the scale of the 4 metropolitan '*fa ades*': South Atlantic, North Atlantic and Western Channel, Eastern Channel and North Sea, Mediterranean.

13 The first sections of these documents, which provide a diagnosis of the present situation, were being finalised at the time of the survey, as part of a process led by the Directions Interr gionales de la Mer (DIRM), under the authority of the maritime prefects, and under the joint coordination of the Minist re de la Transition  cologique et Solidaire (MTES) and the Secr tariat G n ral de la Mer (SG-Mer), with the participation of all stakeholders through the Conseil National de la Mer et des Littoraux (CNML) and the Conseils Maritimes de Fa ade (CMF). At this stage, descriptive maps of maritime transport or fisheries produced from AIS and VMS data were already appearing on an occasional basis (see, for example, the *DSF Nord-Atlantique Manche-Ouest atlas*<sup>1</sup>), indicating the emergence of this use of surveillance data for planning purposes, but not in themselves enabling to assess their actual and expected contribution to the process.

14 The survey was therefore designed as a means of studying the contributions of surveillance data to MSP, through the experience of the stakeholders in charge of or involved in drawing up planning documents, by questioning them on both their level of familiarity with these data and their feelings about their use, between potential and possible reluctance.

15 The aim is to contribute to central reflections in the fields of geography, planning and, more generally, the human and social sciences, concerning the place given to geographical information in the context of territorial planning, and the role that the scientific community could play in the exploitation of these data if their use were to become more widespread.

## Methodology

16 To assess the use of maritime surveillance data in the French MSP context, identify the mechanisms for accessing such data, and analyse stakeholders' positions on their use for the benefit of MSP, a semi-directive interview survey was carried out during 2019 with 38 metropolitan maritime stakeholders who responded positively to the request.

17 The composition of the panel of interviewees, detailed in Figure 2, is based on that of the Conseil National de la Mer et des Littoraux (CNML) and the Conseils Maritimes de Fa ade (CMF), two governance bodies defined by Article 123 of Law 2016-1087 in order to support the preparation of the DSFs. These bring together 5 colleges of stakeholders concerned by maritime and coastal policies: representatives of the State and its public establishments; local authorities and their groupings; coastal and maritime professionals; employees of companies with a link to the sea or coastline; user associations and associations for the protection of the coastal or marine environment.

For this study, four of these five stakeholder categories were selected, and an additional category was introduced to take account of the technical viewpoint of data and information producers.

18 The first category brings together all the decision-makers (representatives of the State, its departments and public establishments, and those of the local authorities) and therefore merges the first two colleges of the CMF, on the assumption that they share the same objectives with regard to the implementation of MSP: to ensure the transposition of the national environmental and energy objectives of the National Strategy for the Sea and the Coast (SNML, 2017) while minimising conflicts and socio-economic and environmental impacts. Stakeholders in this category are assumed to be in favour of using surveillance data to build up the knowledge base required for their action. They are subdivided into two sub-groups according to their scale of intervention, based on the hypothesis that the importance of the issues at stake in the operational implementation of the process at local level could influence the place given to geographical information derived from maritime surveillance.

19 A distinction is therefore made between decision-makers at sub-national level (Directions Interrégionales de la Mer - DIRM; Préfecture maritime de l'Atlantique; Préfecture de la Région Bretagne; Direction Régionale de l'Environnement, de l'Aménagement et du Logement de Bretagne; Direction Départementale des Territoires et de la Mer du Finistère; Conseil Régional de Bretagne ; Conseil Départemental des Côtes d'Armor; Parc Marin de la Mer d'Iroise) and those operating at national or higher level (Ministère de la Transition Écologique et Solidaire - MTES<sup>2</sup>; Secrétariat Général de la Mer - SG-Mer<sup>3</sup>; Direction des Pêches Maritimes et de l'Aquaculture au ministère de l'Agriculture et de l'Alimentation<sup>4</sup>; Direction-Générale de la Mer à la Commission Européenne - DG-MARE).

20 The second category comprises representatives of professional users of the coast and sea, corresponding to the third college of the CMF. It is subdivided into two sub-groups: one comprising representatives of the so-called "historic" users (national, regional and departmental fisheries committees; federation of shipowners in France), on the assumption that their information needs are mainly conditioned by the desire to assert their historic areas of practice in the face of the risk of reconfiguration introduced by MSP; the other comprising representatives of the new users (promoters of the renewable marine energy sector and associated electricity transmission, Union Nationale des Producteurs de Granulats, Union Nationale des Associations de Navigateur de plaisance, and Fédération Française des Sport Sous-Marins), on the assumption that their information needs are primarily conditioned by the desire to know as much as possible about the practice areas of the other activities in order to identify potential development zones minimising the risk of conflict.

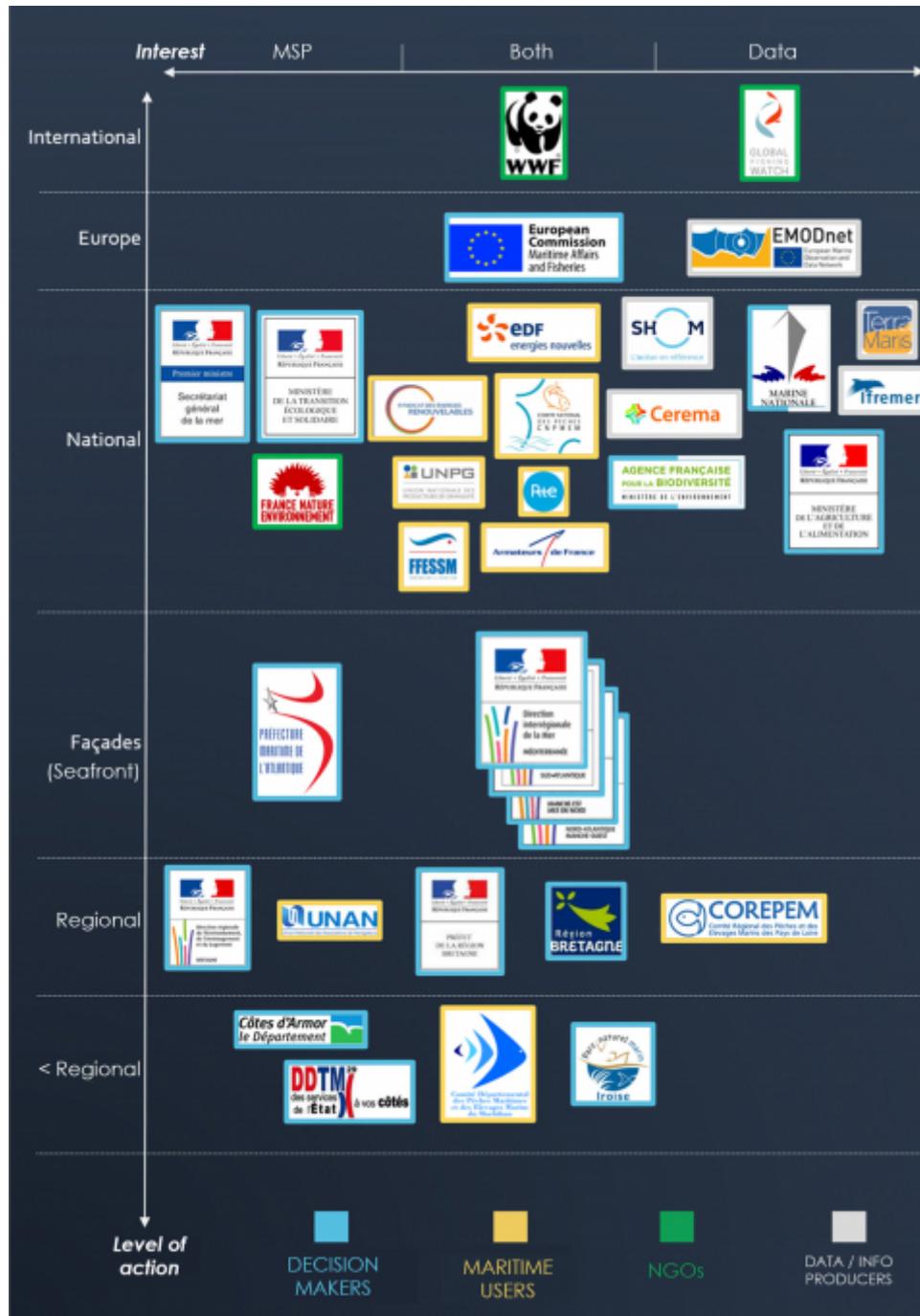
21 The third category brings together representatives of NGOs (WWF, Global Fishing Watch, France Nature Environnement), corresponding to the fifth college of the CMF, whose information needs are presumably mainly linked to the will to assess the negative impacts of activities on the marine environment and to ensure that these are taken into account within the framework of MSP.

22 In addition to the colleges defined within the CNML and the CMFs, a fourth category of stakeholders has been added to the panel, bringing together those involved in the production and processing of maritime surveillance data (referred to as "producers" in the rest of this paper). This category includes representatives from the French Navy, the main operator in maritime surveillance under French law, and its Hydrographic and Oceanographic Service (SHOM) ; Cerema, the public establishment responsible for producing maps as part of the preparation of the DSFs for the DIRMs ; Ifremer, French Institute of Ocean Sciences, responsible for maintaining the Halieutic Information System (SIH), a national database on fishing activities ; the European maritime data portal EmodNet ; and a French consultancy (Terra Maris) specialised in the analysis of descriptive spatial data on maritime activities.

23 The interviews were conducted on the basis of the guide presented in Appendix 1, structured so as to identify 1) the precise position and responsibilities of each of the

respondents in the planning process, and any opinions they may have on the value of the latter or on how it should be implemented, and 2) their level of familiarity with maritime surveillance data and the information that can be derived from it, and their experience and opinions regarding the analysis and use of the latter where appropriate.

**Figure 2: Panel of interviewees - organisations represented according to their category (colours), scale of intervention (vertical axis) and main area of interest assumed or expressed at the time of contact (horizontal axis).**



Source : Dupont, 2021.

24 The methodology for processing the data collected was based on a full transcription of the interviews using SONAL software (Alber, 2010), a thematic segmentation of the audio recordings and their transcription based on the sections of the interview guide, and then a combination of qualitative (prioritisation, identification of convergent points of view) and quantitative analyses (lexicometric analyses using IRAMUTEQ software).

25 A qualitative analysis phase, based on the manual prioritisation of discourse elements, in the manner of highlighting, made it possible to isolate and extract the central arguments and positions within the entire corpus. All these extracts were brought together in a synthetic corpus (representing 1/5 of the complete corpus) from which all the quotations used in this article were extracted. The quotations have been

anonymised in accordance with the commitments made to the respondents and are therefore linked only to the category of actor concerned. Having isolated the elements considered to be determining factors, a return to the complete corpus enabled to quantify the recurrence of their appearance in the discourse of the respondents within the panel. For ease of reading, despite the limited number of interviewees (38 interviews), the recurrence of these mentions is presented in the remainder of the article as a percentage (e.g. "50% of respondents mention"; "30% of decision-makers mention"). It should be remembered that the interviews were conducted using a semi-structured approach and that, as a result, the arguments presented were raised spontaneously by the respondents. Thus, unlike with a questionnaire-based approach, it is not possible to prejudge a divergence of position among respondents who did not spontaneously mention them.

26 In addition, a lexicometric analysis phase, using the free software IRAMUTEQ (© 2008-2020 Pierre Ratinaud), enabled a quantitative assessment of the importance attached by the different categories of stakeholder to certain subjects or arguments, based on their frequency of use of specific terms or semantic fields. After grouping the occurrences corresponding to different variations of the same term (using lemmatisation<sup>5</sup>), the specificity analyses offered by the software made it possible to describe the 'over-' or 'under-representation' of certain terms or groups of terms (semantic fields) in the discourse of certain stakeholders, compared with their average representation in the entire corpus. For the analysis, the texts (interviews) were grouped according to the stakeholder category variable, on the assumption that specific vocabularies could emerge between these groups. The indices presented in the specificity graphs (figures 6 and 9) correspond to a degree of specificity whose result is considered significant from an absolute value of 2 (Leblanc, 2015; Ratinaud, Marchand, 2015).

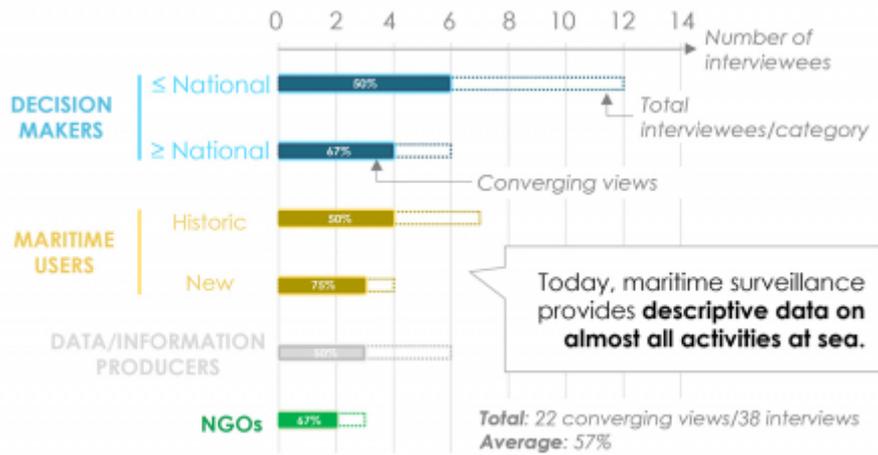
## Results

27 The comments and points of view gathered during the survey offer an unprecedented perspective on the use of maritime surveillance data in the context of French MSP and highlight in particular: the potential of monitoring data to describe the spatiotemporal dynamics of maritime activities and thus feed into the MSP process; the difficulties of access to such data for many stakeholders; and the reluctance of some stakeholders to the use such data.

### **A considerable potential for contribution, despite the technical limitations inherent to maritime surveillance data**

28 In the opinion of a majority of respondents (57%), the boom in maritime surveillance has put an end to centuries of invisibility at sea, and produced data with real potential for describing the spatial and temporal dynamics of maritime activities. The people interviewed stated that "we are moving towards a world in which it will no longer be possible to hide at sea" (national decision-maker 4), that "everything that happens at sea can be described" (sub-national decision-maker 2), that "all you have to do is provide the resources, and you can monitor any boat" (historical user 7), or that "we now have the computing power needed to describe most activities at sea" (NGO 3). This observation is shared by all categories of stakeholders, with a slightly higher proportion of national decision-makers (67%) and new users (75%) (Figure 3).

**Figure 3: Convergent views on the potential of monitoring data for describing the spatiotemporal dynamics of maritime activities**



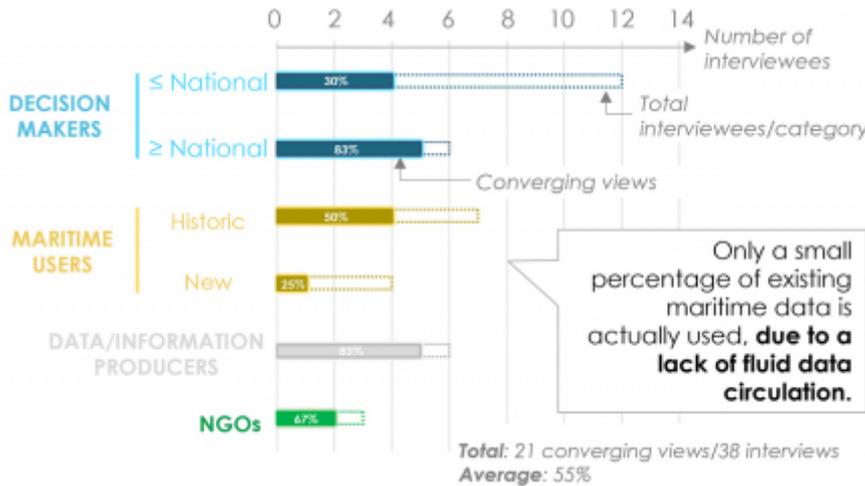
Source : Dupont, 2021.

- 29 In France, AIS appears to be the most popular data, familiar to the vast majority of respondents. While some considered that *"to measure traffic or occupation of space, traffic in any case [...], AIS is the best technical solution"* (sub-national decision-maker 3), others pointed out its limitations in terms of fleet coverage, particularly for fishing vessels: *"AIS is absolutely not representative for fishing, as 75% of vessels must be less than 15 metres long"* (historical user 6).
- 30 VMS data, which is specific to fishing, is also known to the majority of respondents, although few have had the opportunity to handle it. As with the AIS, respondents regularly pointed out the limitations of the VMS system in terms of fleet coverage: *"It's really rich data, from a technical point of view, it's really interesting to work with. [...] But inshore fishing is poorly represented"* (producer 2); *"Beyond 12 or 20 miles<sup>6</sup>, we have data that becomes representative, that is not questionable or that shouldn't be in any case, on the other hand, below 12 miles we no longer have anything usable"* (sub-national decision-maker 11).
- 31 In short, the two data systems most used by the respondents (AIS and VMS) have shortcomings which, in their view, make them partially unsuited to the needs of MSP, particularly for the smallest vessels (<300 gross tonnes for AIS, and <12m for VMS in Europe) operating close to the coast.
- 32 At the time of the survey, more than half of the 38 interviewees were unfamiliar with the SPATIONAV system, which incorporates data from coastal radars in mainland France: *"no use of radar data"* (producer 2); *"no use of radar"* (sub-national decision-maker 11); *"for the moment there is no radar anywhere"* (producer 4). However, for those who are familiar with it, SPATIONAV data has considerable potential for supplementing the spectrum offered by AIS and VMS: *"Spationav data is essential"* (new user 3), *"because it represents the state of real traffic"* (new user 4), in particular thanks to the *"finesse of radar data"* (historical user 9), and particularly in coastal areas *"more frequented by small vessels"* (producer 5) *"which emit little or nothing"* (national decision-maker 4). Their potential is particularly noted in the fishing industry: *"In fact, it's with fishing data that it's most interesting"* (new user 4); or as one sector representative sums it up: *"SPATIONAV [...] in terms of resolution, it's killer"* (historical user 9).
- 33 Regardless of the portion of activities visible to these different maritime surveillance systems, the potential for processing to characterise activities on the basis of the geolocalised data they provide is considered significant by a majority of respondents: *"maritime data is very rich, there is plenty to do"* (national decision-maker 4); *"at a fairly advanced level, we can spot a fishing vessel that is not fishing"* (national decision-maker 1); *"as long as we have thematic experts to guide us on the processing to be done"* (producer 2); *"in terms of processing, there is incredible potential for development"* (new user 5).
- 34 Independently of their intrinsic limitations, a clear majority of interviewees recognised the strong potential for using surveillance data for MSP.

# Most MSP stakeholders have difficulty accessing maritime surveillance data

35 Despite their recognised potential, difficulties in accessing surveillance data were highlighted by a majority of respondents (55%), across all stakeholder categories (Figure 4). Proportionally, these difficulties are more frequently mentioned by decision-makers at national and higher levels (83%), as well as by data and information producers (83%) and NGOs (67%). Some decision-makers state that there is "a real problem of access to data" (sub-national decision-maker 10), "even between administrations" (national decision-maker 6), and that "the truth is that we lack data, in terms of quantity, perspective and duration" (sub-national decision-maker 10). This observation does not seem to apply solely to maritime surveillance data, but more broadly to maritime data: "it is estimated that we do not exploit more than 20% of the maritime data we have" (national decision-maker 1), whereas "if we exploited existing data, [...] we would already be able to answer many pending questions" (sub-national decision-maker 2).

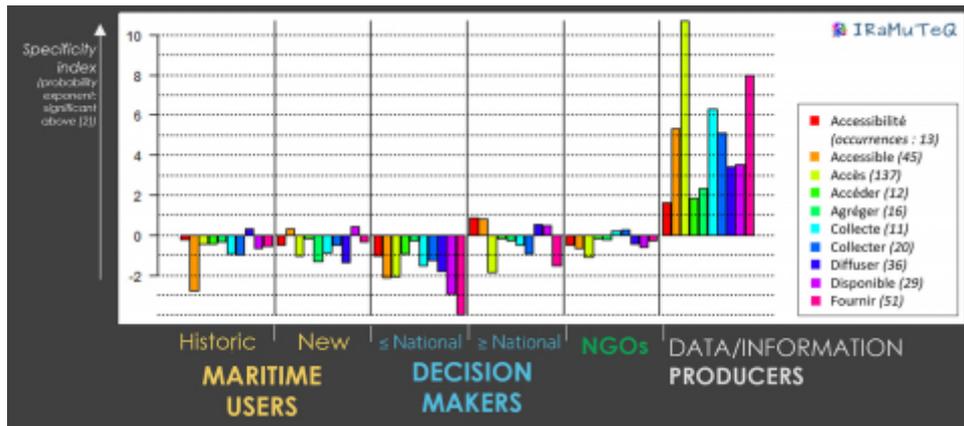
**Figure 4: Convergent views on the difficulties of accessing maritime surveillance data in the context of MSP**



Source : Dupont, 2021.

36 The specificity analysis carried out using IRAMUTEQ on the semantic field associated with [data circulation] highlighted a significant overuse of all the terms among data and information producers, and in comparison, a slight underuse of certain terms among historical users and decision-makers at sub-national level (figure 5). Data and information producers therefore appear to be the most vocal on this subject, probably because they are directly confronted with the difficulties of data circulation in their day-to-day work.

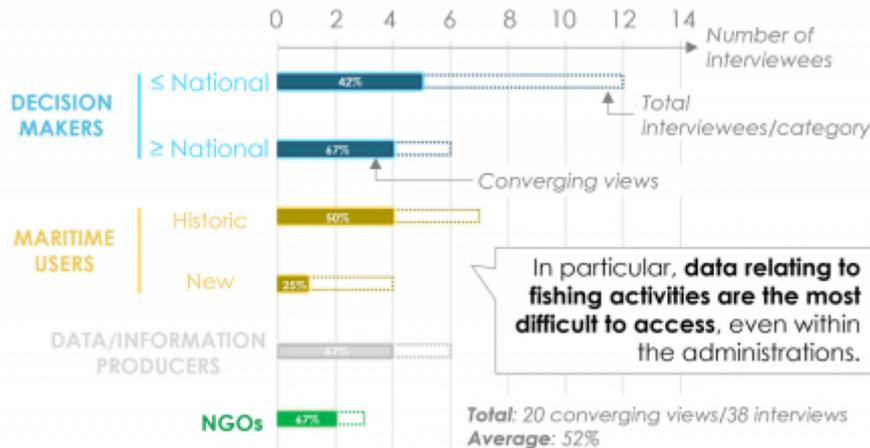
**Figure 5: Specificity analysis of the semantic field associated with [data circulation] within the categories and sub-categories of stakeholders.**



Source : Dupont, 2021.

- 37 Access difficulties seem to be particularly marked in the case of VMS data, descriptive of fishing activities, mentioned by 52% of interviewees, all categories taken together (Figure 6).

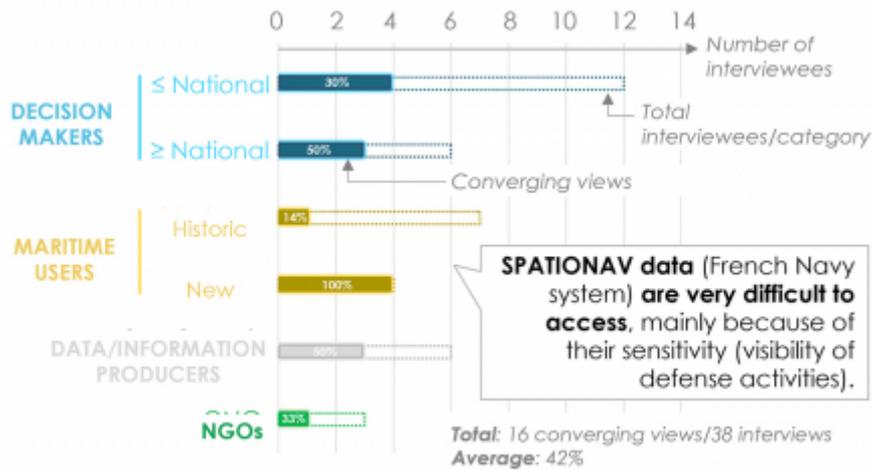
**Figure 6: Convergent views on the difficulties of accessing data associated with fishing activities in the context of MSP**



Source : Dupont, 2021.

- 38 Interviewees point out that, while "other activities [...] are well known, it's fishing that we know less about" (sub-national decision-maker 4), because the Direction des Pêches Maritimes et de l'Aquaculture (DPMA), owner of the VMS data, "is rather sensitive about sharing information on fishing" (national decision-maker 4): "there are blockages. Especially in France" (national decision-maker 1), "the DPMA is the most blatant example, the most perfect example for me" (producer 1), "despite all the declarations of goodwill from the DPMA, we very often find ourselves up against a wall and a refusal to make this data available" (new user 5). This difficulty of access also seem to affect the fishing professionals themselves: "even the fisheries committees and their representatives only have limited access to this data" (sub-national decision-maker 9), "fishermen do not have access to their own VMS data" (producer 1). The competitive constraints associated with the dissemination of this data appear to be the main factor limiting its circulation: "professionals don't really want their data to be made public, even to a fisheries committee" (producer 3).
- 39 The access difficulties reported by respondents also concern data from the French Navy's SPATIONAV system. Even though these data are less well known within the panel, a significant proportion of respondents (42%, Figure 7) mentioned these difficulties: "Spationav data is only available to the State" (new user 4). "We've made requests, but we've never been able to access it" (producer 2), "today, I think this data is jealously guarded in a corner and used very little" (sub-national decision-maker 6).

**Figure 7: Convergent views on the difficulties of accessing maritime surveillance data from the SPATIONAV system in the context of MSP**



Source : Dupont, 2021.

40 A small number of respondents (4 in all) did state that they had been able to access SPATIONAV data, but in a very restricted way: "We managed to get it, but it's not used for that purpose, we don't have the right to use it for that, we don't have the right to keep it. And in the context of our consultations, they are confidential data that are only used upstream, internally, and not distributed" (new user). It is the "operational sensitivity" (national decision-maker 4) of this data that appears to be the main factor limiting its dissemination: "the Navy was really scared when they saw these maps, [...] they realised that project developers, private companies, could detect defence activities" (new user 3).

41 AIS data is an exception, because it is accessible to everyone through the commercial system that centralises and exploits it. In fact, as a complement to public surveillance systems, a growing community of companies has gradually specialised in the collection and aggregation of AIS data, of which Marine Traffic appears to be the most popular. None of the respondents reported any difficulties in accessing this data, apart from a lack of financial resources to acquire it. In this respect, some respondents point to the paradox of the situation: "it's public data, it's just that the archives have to be paid for because there are a few companies that have archived it and now they're selling it" (sub-national decision-maker 9), "it's a very strange problem from my point of view. Because the Member States say that this data is confidential, because from the AIS you can trace it back to the name of the shipowner. So they don't want to release it. But you can buy the same data from any company! It makes no sense to me" (Producer 6).

42 Accessibility to maritime surveillance data is therefore considered by a majority of respondents as a limitation to its use in the context of MSP. While these difficulties seem to stem primarily from constraints linked to the confidentiality of data of an economic or military nature, they may also reflect a certain reluctance to their use.

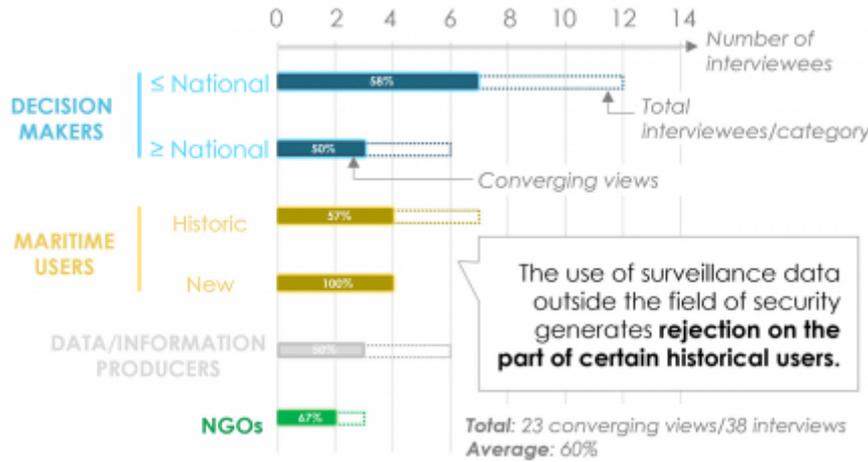
## Low acceptability of monitoring data, limiting their use in the French MSP context

43 The mobilisation of surveillance data in the MSP context is also facing a lack of acceptability on the part of historical users, who consider that "there has been a bypass" (historical user 7), "that it is a bit of a roundabout use of the data" (historical user 6), designed for "a maritime safety objective, and not for the purpose of geolocation" (producer 3), and even less for "tracking" (historical user 7) or "spying" (historical user 6) on activities. Some describe them as "Big Brother, at the service of planning...". (historical user 7), and in the face of this, "psychological acceptability is not necessarily obvious" (historical user 8).

44 While historical users, and particularly those involved in fishing, are the most forthcoming on this subject, a majority of respondents (60%) in all categories

mentioned this lack of acceptability on the part of certain historical users, particularly those involved in fishing (Figure 8).

**Figure 8: Convergent views on the lack of acceptability of surveillance data from historical users in the MSP context**



Source : Dupont, 2021.

- 45 In this respect, the specificity analysis carried out using IRAMUTEQ on the semantic field associated with [surveillance] highlighted a significant overuse among historical users compared with all the other stakeholder categories, underlining the importance they attach to the issue (Figure 9).

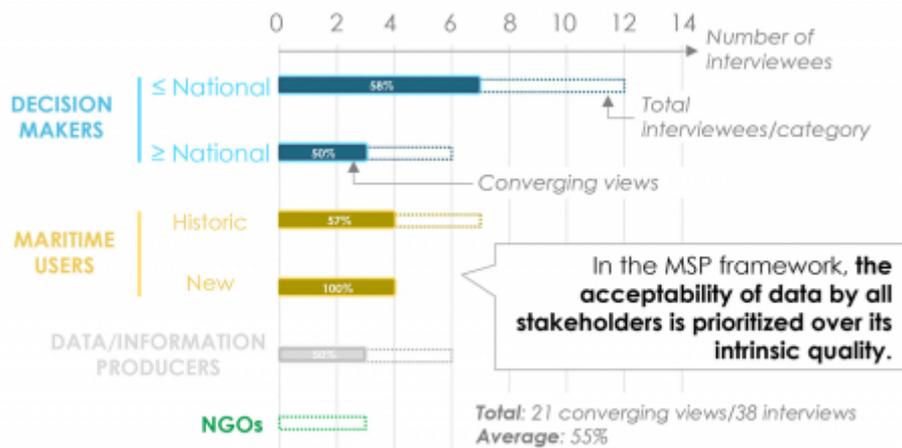
**Figure 9: Specificity analysis of the semantic field associated with [surveillance] within stakeholder categories and sub-categories**



Source: Dupont, 2021.

- 46 To minimise resistance, the majority of respondents (55%) put forward the acceptability of the data and information used for MSP as a prerequisite, regardless of their quality or reliability (Figure 10). This position is summed up very explicitly by one respondent: "What matters to me is consensus. So the data will be good as long as the person I'm talking to thinks it's good, even if it's not. To be clear. If [...] the person claiming the same space as me thinks my data is good, I don't have to ask myself whether it really is. Of course, technically, I would prefer to have reliable data, but the important thing is to have a good relationship. After that, do we need more? I don't care." (new user 1).

**Figure 10: Convergent views on the importance of the acceptability of the data used in the MSP process**



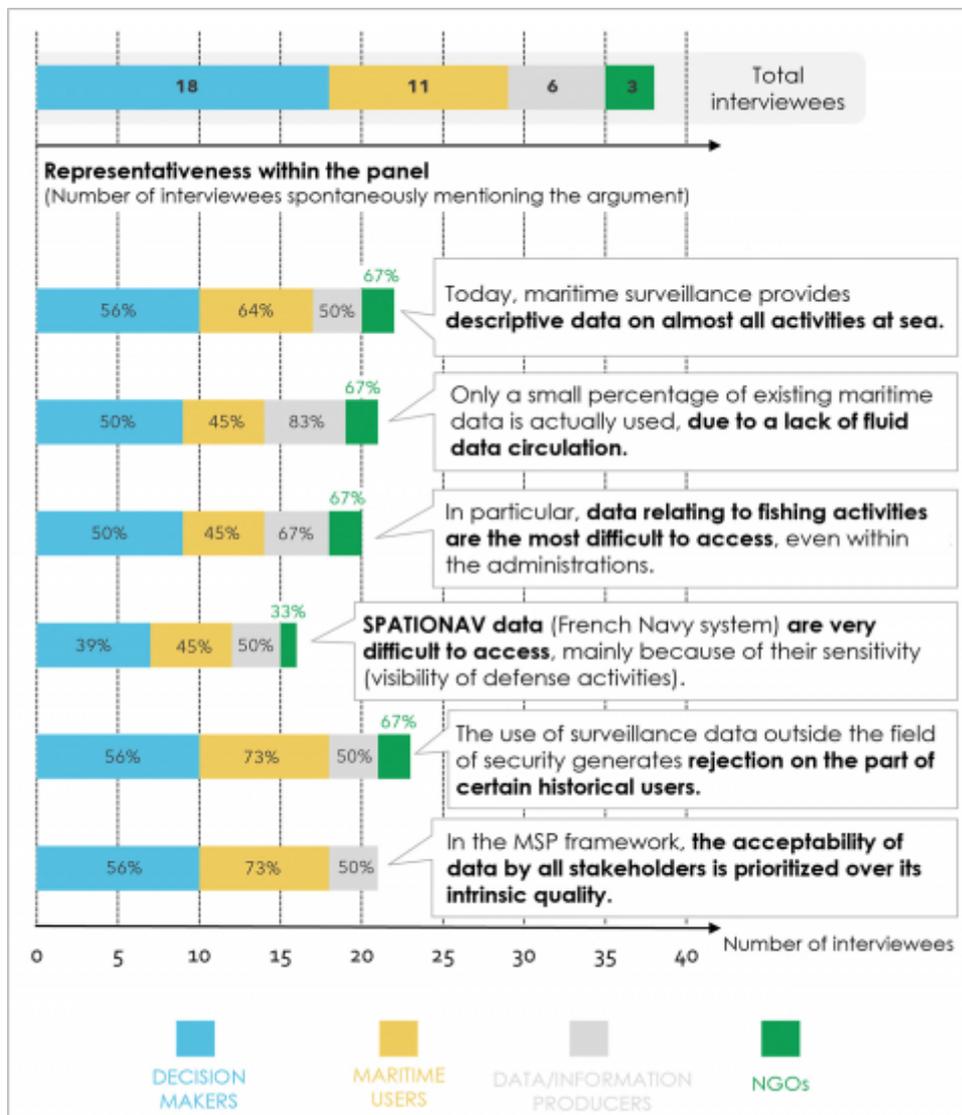
Source: Dupont, 2021.

- 47 In this context, the low level of acceptability of maritime surveillance data among those involved in fishing appears to be an additional factor limiting their use.

## Discussion

- 48 The survey carried out in mainland France in 2019 among a diverse panel of MSP stakeholders highlighted a clear convergence of views concerning the potential of maritime surveillance data to meet the needs of the exercise, but also the difficulties of accessing some of this data, and the lack of acceptability of the information derived from it among certain historical users. The following graph (Figure 11) summarises the results presented above and illustrates the extent to which spontaneous points of view converge for each argument considered, within each category of stakeholder.

**Figure 11: Summary - convergent spontaneous viewpoints within the panel of interviewees**



Source: Dupont, 2021.

49 Thus, despite the inherent limitations of each of the systems used for maritime surveillance (AIS, VMS, radar, etc.), their potential to support MSP, mentioned by 57% of respondents, all categories of stakeholders combined, appears indisputable. This is consistent with the potential identified in the international scientific literature (Campbell *et al.*, 2014; Fiorini *et al.*, 2016; Le Tixerant *et al.*, 2018; Metcalfe *et al.*, 2018). In addition, although the data generated by onboard geolocation systems (AIS and VMS) face certain limitations in terms of fleet coverage, particularly coastal coverage, these could be resolved by regulatory changes requiring a growing proportion of vessels to carry beacons. This could, for example, be the case for the VMS system, at the instigation of the Minister for Maritime Fisheries and Aquaculture, as provided for in the Order of 24 June 2021<sup>7</sup>, and already implemented in certain key areas (e.g. shellfish beds in Normandy). Independently of these potential extensions, radar data, collected and integrated into the SPATIONAV system, is considered to be a relevant means of completing the spectrum of on-board systems for MSP, although it is not mentioned in the scientific literature at present.

50 However, despite the proven potential of monitoring data to support MSP, the survey identified two external factors that significantly limit their use in France. The first, linked to difficulties in accessing such data, was mentioned by the majority of stakeholders (55%), all categories taken together, including almost all information producers. This finding is a specific illustration of the more general difficulties associated with implementing policies to open up data and information held by public authorities in France<sup>8</sup> and Europe<sup>9</sup> (Roa *et al.*, 2019; Zuiderwijk, Janssen, 2014). Whether of a technical, economic, political or cultural nature (Attard *et al.*, 2015), these difficulties particularly affect the opening up of geographical data initiated in Europe

since the adoption of the INSPIRE Directive (2007/2/EC) (Cho, Cromptvoets, 2019; Toots *et al.*, 2017), and seem particularly marked in the case of maritime geographical data (Abramic *et al.*, 2018). As has been pointed out in the literature, the free circulation of maritime surveillance data seems to be hampered by the vague legal context in which it takes place (Le Tixerant *et al.*, 2018), notably combining strategic aspects (defence secrecy) and economic aspects (confidentiality, commercial secrecy) (Hinz *et al.*, 2013; Tikanmäki, Ruoslahti, 2017).

51 In addition, many of the respondents (60%), across all categories, mentioned a lack of acceptability of the various types of information derived from surveillance data - outside the safety and security spectrum - by the historical economic players, and to a lesser extent by administrations. For the historical users surveyed, this lack of acceptance frequently resonates with the very notion of '*surveillance*', often perceived, both in the collective unconscious and in human and social science literature, as an intrusive instrument of '*domination*' (Castagnino, 2018; Richards, 2012). These observations relate very directly to the resistance observed in the literature to the use of Big Data technologies by public authorities (Castagnino, 2018; Kondratov, 2018; Ouellet *et al.*, 2015).

52 Alongside to their specific characteristics and accessibility, this observation points to the context in which they are used (i.e. metropolitan maritime spatial planning) as an explanatory factor for the low use of maritime surveillance data. Indeed, it is the issues of competition for the sharing of space and the distribution of powers in maritime governance, which are very frequently discussed in the literature (Bennett *et al.*, 2015; Flannery, Ellis, 2016; Tatenhove, 2017; Trouillet, 2019), that are most often - implicitly or explicitly - put forward by the respondents to explain the low use of maritime surveillance data for MSP. Thus, even though, as specified in the MSPD and its transposition into French law, the mobilisation of "*the best available data*" is a crucial issue, 55% of survey participants spontaneously mention the acceptable nature of the data mobilised for MSP as an essential prerequisite, independently of their intrinsic quality. In this respect, the assimilation of available information by all maritime stakeholders is probably the key to acceptable and accepted planning (St. Martin, Hall-Arber, 2008; Toonen, Mol, 2016; Trouillet *et al.*, 2019).

53 In a sense, the place of maritime surveillance data in the French MSP process is not an independent issue, but rather a reflection of the specificities and difficulties faced by those carrying out the exercise (Tissière, 2020). It also illustrates some of the limitations of the French approach to planning, which seems to be more oriented towards maintaining the status quo and a form of '*social peace*' than towards the ambitious objectives announced by the State in terms of developing the blue economy or protecting the environment (Dupont, 2021).

54 It should be noted, however, that the survey results are a snapshot of the situation in 2019, in the middle of the first iteration of the planning process in France. Given the calls from the decision-makers surveyed for these issues to be given greater consideration in the next planning cycle, the situation could change rapidly, both in terms of the circulation of data and its acceptability, or the importance of this aspect in the process. In this respect, repeating such a survey with MSP stakeholders in the years to come would provide an up-to-date picture of the problems identified, their stability or their gradual resolution. It could then be extended to cover a wider panel of respondents, in particular to make up for the limited representativeness of certain façades due to the unavailability of some of the stakeholders approached. In addition, the technical and political literature (or grey literature) produced in the context of maritime planning processes around the globe could be studied as an indicator of the effective use of monitoring data in this context, even though its analysis would be complicated by the limited referencing and accessibility compared with scientific literature, and the mastery of multiple languages that it would require.

55 The use of a questionnaire approach, taking advantage of the results of this initial survey, would enable a more accurate representation of the quantitative distribution of points of view between and within the categories of stakeholders. At the same time,

more detailed work on the perception of surveillance by the historical players in the fishing industry could help refine the results concerning the acceptability of the data and identify the levers that could promote it. Finally, by bringing together the French academic world and the French Navy, as part of collaborative research, it could be possible to identify more precisely the sensitivity issues associated with the SPATIONAV system data, and to develop methods for limiting them, in order to promote their circulation for the benefit of MSP.

## Conclusion

56 Recent advances in maritime surveillance and the resulting massive production of data (*Big Data*) offer the possibility to describe and analyse the spatiotemporal dynamics of human activities at sea with unrivalled precision. In this respect, maritime surveillance data (primarily AIS and VMS) are recognised as a source of information with considerable potential for supporting Maritime Spatial Planning (MSP). However, the survey carried out in 2019 among 38 MSP stakeholders in mainland France shows that there are political obstacles limiting the effective contribution of this data to the exercise. The first affects the circulation of certain data, in particular those from the French Navy and those relating to fishing activities, and results in access difficulties for many stakeholders, in particular decision-makers, despite policies relating to the opening up of public data. The second concerns a lack of acceptability of the use of this data on the part of historical users of maritime space and evokes deeper resistance to surveillance itself.

57 These results illustrate the fundamentally political dimension of geographical information in the context of MSP, which is taking shape as a new form of negotiation for the use of maritime space. Finally, they argue in favour of greater use of maritime surveillance data for MSP, in mainland France as elsewhere, taking full advantage of their representativeness and objectivity, and which should be accompanied by a gradual desensitisation of the data and the information they provide.

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## Annexe

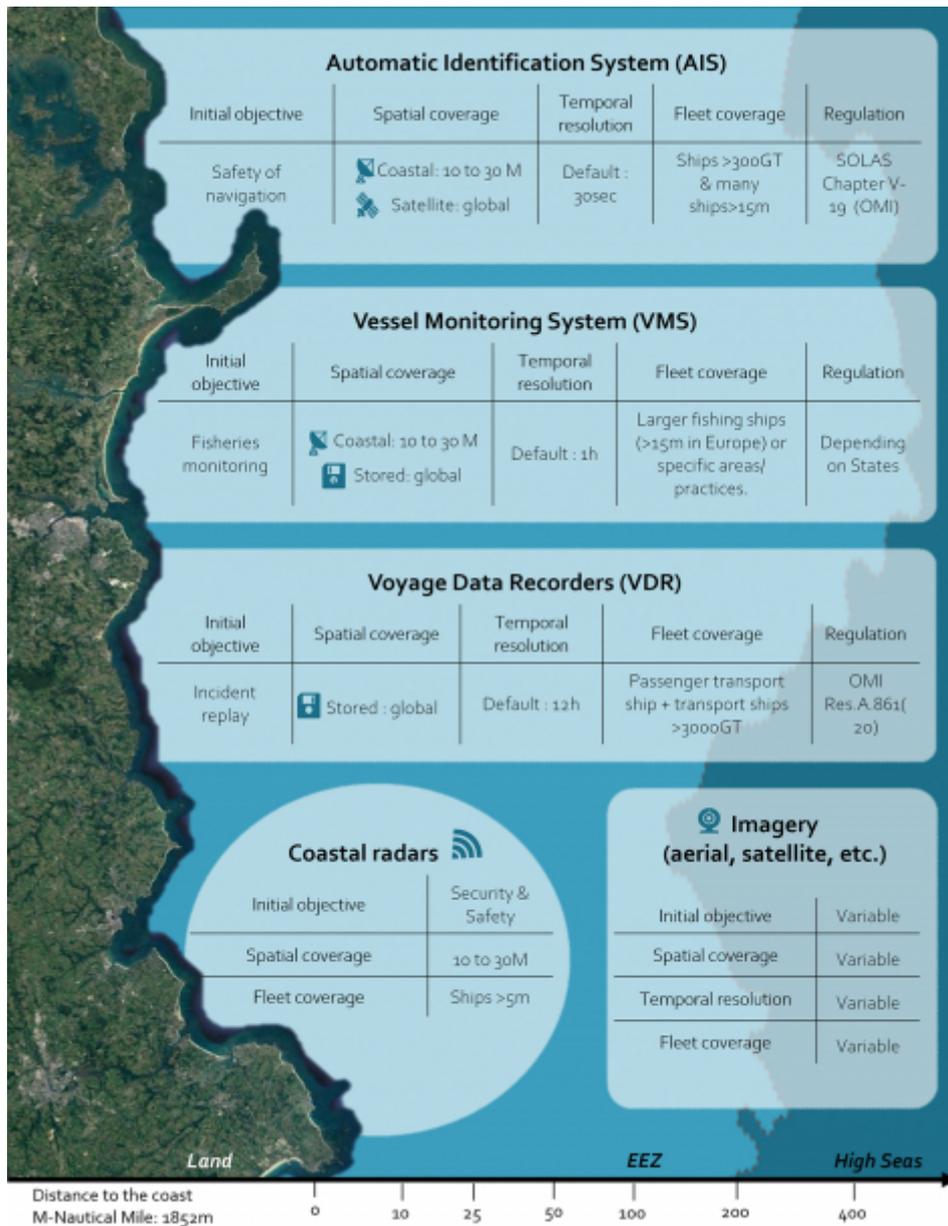
### Appendix 1: Interview guide

| Themes/items               |                                                                  | Questions                                                                                                                                 |
|----------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Maritime Spatial Planning  | Responsibility                                                   | Can you describe your relationship with MSP, your role and your responsibilities in this process?                                         |
|                            | Involvement                                                      | Can you tell me about the projects you're working on at the moment?                                                                       |
|                            | Interactions                                                     | Which stakeholders do you interact with in this context?                                                                                  |
|                            | Strategy                                                         | If you are free to talk about it, how would you describe your organisation's strategic positioning in this context?                       |
|                            | Vision                                                           | How do you see MSP in general terms?                                                                                                      |
|                            | Needs                                                            | What are your expectations of this process? What are your hopes, if any? Priority areas? What are your needs?                             |
|                            | Limits                                                           | What do you see as the limits of this process?                                                                                            |
|                            | Threats                                                          | Do you have any concerns about the planning process?                                                                                      |
| Maritime surveillance data | Transition: knowledge of maritime activities in the MSP context  |                                                                                                                                           |
|                            | Relation to information                                          | What data or information describing maritime activities (your own or others') do you usually use in the course of your work?              |
|                            | Needs                                                            | What do you need in terms of a description of the spatial and temporal course of the activities? Objectives, activities, resolution, etc. |
|                            | Transition: maritime surveillance data                           |                                                                                                                                           |
|                            | Familiarity                                                      | Are you familiar with this type of data? Have you ever handled or observed it?                                                            |
|                            | If yes: assessment (type of acquisition, treatment, limitations) | If no: Brief presentation and illustrations.                                                                                              |

|         |          |                                                                                       |                                           |
|---------|----------|---------------------------------------------------------------------------------------|-------------------------------------------|
|         | Interest | What do you see as the trend for the future?                                          | What do they evoke in you at first sight? |
|         | Limits   | Do you see any limits to the use of this data as a source of information for MSP?     |                                           |
|         | Threats  | Do you or others with whom you interact have any concerns about the use of such data? |                                           |
| Opening |          | Can you think of anyone else who might be interested in this survey?                  |                                           |

Source: Dupont, 2018.

**Appendix 2: Illustration of the characteristics of the main maritime surveillance technologies**



Source : Dupont, 2019.

**Notes**

- 1 Page 5 : [http://www.dirm.nord-atlantique-manche-ouest.developpement-durable.gouv.fr/IMG/pdf/annexe\\_o\\_vf\\_cle6e87bd.pdf](http://www.dirm.nord-atlantique-manche-ouest.developpement-durable.gouv.fr/IMG/pdf/annexe_o_vf_cle6e87bd.pdf)
- 2 Became the Ministry of Ecological Transition and Territorial Cohesion and the Ministry of Energy Transition in 2022.
- 3 Replaced by the Ministry of the Sea since its institutional installation in July 2020.
- 4 Became the Ministry of Agriculture and Food Sovereignty in 2022.

5 Conjugated verbs reduced to the infinitive, nouns and adjectives reduced to the masculine singular. For example: "monitoring", "monitor" and "monitors" become 3 occurrences of "monitoring".

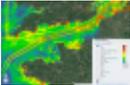
6 Abbreviation of a "nautical mile", or 1852 metres by convention.

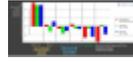
7 [Online]. URL : <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043728471>

8 Commission d'Accès aux Documents Administratifs - CADA ; Law for a Digital Republic, 2016.

9 PSI Directive amended in 2013 to introduce the concept of open data.

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|                                                                                     | <b>Fichier</b> | image/jpeg, 620k                                                                                                                                                                                                                  |
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|                                                                                     | <b>Fichier</b> | image/jpeg, 180k                                                                                                                                                                                                                  |
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|                                                                                     | <b>URL</b>     | <a href="http://journals.openedition.org/cyberge/docannexe/image/40565/img-4.jpg">http://journals.openedition.org/cyberge/docannexe/image/40565/img-4.jpg</a>                                                                     |
|                                                                                     | <b>Fichier</b> | image/jpeg, 184k                                                                                                                                                                                                                  |
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|                                                                                     | <b>Crédits</b> | Source : Dupont, 2021.                                                                                                                                                                                                            |
|                                                                                     | <b>URL</b>     | <a href="http://journals.openedition.org/cyberge/docannexe/image/40565/img-5.jpg">http://journals.openedition.org/cyberge/docannexe/image/40565/img-5.jpg</a>                                                                     |
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|                                                                                     | <b>Crédits</b> | Source : Dupont, 2021.                                                                                                                                                                                                            |
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|                                                                                     | <b>Fichier</b> | image/jpeg, 196k                                                                                                                                                                                                                  |
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|                                                                                    | <b>Crédits</b> | Source: Dupont, 2021.                                                                                                                                                 |
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|                                                                                    | <b>Fichier</b> | image/jpeg, 656k                                                                                                                                                      |

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