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# What can sea-related associations reveal about a coastal region's maritimity? A case study in southern France

Samuel Robert<sup>1</sup>

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## Abstract

A key component of the environment in coastal territories, the sea also creates special geographical features and grounds social and cultural identities. At a time of rising concern and multiple projects for its exploitation as well as its protection, public policies need to consider the social representation of the marine environment and people's visions of its future. Relying on the concept of maritimity, defined as all the relationships binding human societies to the sea and the resulting landscape, economy and culture, we assess the maritime character of a coastal region in southern France by analysing the local sea-related associations its population are engaged in. This is made possible through the supervised extraction of the relevant data from the national directory of associations, the official database of non-profit associations in France, which are then given appropriate statistical and cartographic treatments. Results provide an indication of the depth of the region's maritime character, as well as the areas of activity and places in which maritimity is the most developed. These are consistent with the social and economic profile of the region, highly engaged in tourism and a residential economy. Further work is recommended, with a view to exploring the region's maritimity more closely by comparing it with other regions and applying finer analysis to the stated objectives of the sea-related associations.

**Keywords** Coastal area · Maritimity · Territory · Associations · Provence-Alpes-Côte d'Azur

## Introduction

The sea is a component of the environment that bestows a distinctive value on coastal areas. In addition to being part of the landscape, it connects territories with the larger world through maritime navigation, provides them with specific resources, shapes human communities and contributes to their maritime character. The concept of maritimity, developed by French geographers in the 1990s (Péron and Rieucau 1996), is a useful way to address all the relationships that bind a population to the sea, whether through lifestyles, landscapes, coastal developments, public policies or archaeological and cultural heritage (Dantas 2016, 2014, 2011; Foulquier et al. 2023; Levain and Laval 2018; Tuddenham 2010).

Today, the sea is on the political agenda of most political-administrative entities having a coastline in Europe (countries, regions, local authorities). Under the impetus provided by the Water Framework Directive (2000), the Marine Strategy Directive (2008), the Maritime Spatial Planning Directive (2014), the Blue Economy Initiative (2021) and climate change adaptation strategies, territories bordering the sea are undertaking policies aimed at sustainable marine and coastal development, in accordance with the UN's Sustainable Development Goal no. 14 (conserve and sustainably use the oceans, seas and marine resources). However, it can be difficult to implement these policies, which raises the question of the maritimity of the people and territories concerned. Often, there is resistance to and conflict over projects and initiatives promoting offshore renewable energies (Haggett et al. 2020; Haggett 2008; Westerberg et al. 2015), coastal territories' adaptation to sea level rise (Birchall 2020; Bowden et al. 2019; Rey-Valette et al. 2019), aquaculture and marine biological resource exploitation (Albrecht 2023; Young et al. 2019), marine protected areas (Cadoret 2021; Kriegl et al. 2021; Pendleton et al. 2018), etc. This is due to divergent representations of the sea, including high

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seas, involving distinct visions and ambitions for its management (Pereira et al. 2023). It therefore brings into question these populations' links with the sea and the coast (Döring and Ratter 2023; Relano and Pauly 2023; Pafi et al. 2023; Trimbach 2022) and, concomitantly, the degree to which the authorities implementing marine policies are aware of these links. Even though public statistics on maritime employment and population concentration on the coast or coastal tourism provide information on these links, assessing and understanding the maritimicity of a territory and its population remains difficult. This frequently neglected aspect of marine and coastal policy requires new approaches.

The aim of this article is to provide guidance for assessing the maritime character of a coastal region, by studying local NGOs (hereafter associations) linked to the sea and that may or may not aim to influence public action. The mere existence of an association reflects the interests and concerns of a population at local scale, just as environmental NGOs reflect ecological and social concerns at national and international scale (Blasiak et al. 2017; Cadman et al. 2020; Peet 1994). Local associations have a specific geographical location and cover a wide range of activities, making them a suitable basis for a geographical study of these interests and concerns, provided data on them is available. Taking as a case study the Provence-Alpes-Côte d'Azur (PACA) region, bordering the Mediterranean in southern France, the article outlines the advantages of an association-based approach. First, the theoretical framework of the study, grounded in the concepts of maritimicity and territory, is presented (the “[Theoretical framework: the concepts of maritimicity and territory](#)” section). The relevance of the PACA region is then presented, detailing the region's geography and economy and partially outlining its public policy related to the sea (the “[PACA: a maritime region with doubts about its maritime identity](#)” section). The methodological approach, based on the unprecedented use of the *Répertoire national des associations*, RNA (national directory of associations), the official database of non-profit associations in France, is then outlined (the “[Material and methods](#)” section). Finally, the results of the study are presented (the “[Results](#)” section) and discussed (the “[Discussion](#)” section).

## Theoretical framework: the concepts of maritimicity and territory

The maritime character and identity of a place can be described and measured in a variety of ways. Following a classic approach in geography, the place can be qualified as more or less maritime according to various criteria such as topography, climate, ecology, landscape, demography, economics, or even culture (Falick 1966; Stražičić 1996). To frame our approach and achieve our objective of revealing

the maritime character and identity of a population within a given territory, two social science concepts prove particularly appropriate: maritimicity, a notion developed in France by coastal and marine geographers in the 1990s, and the more widely used concept of territory, applying the systemic definition by French geographers.

### Maritimicity

Introduced in the 1990s, the concept of maritimicity refers to the set of relationships that bind human societies to the sea, which contribute to the making of specific landscapes, representations and cultures (Péron and Rieucou 1996). A cultural geography concept, it was developed by geographers specialising in the coast and the sea, who wanted to design a conceptual tool for describing and analysing the maritime character of a population. In addition to grounding a few rare studies in geography (Dantas 2014, 2011), maritimicity has subsequently inspired other disciplines. Archaeology sees in it the possibility of better understanding the interactions between the terrestrial and marine realms with a view to studying maritime cultural landscapes (Laubé 2021; Tuddenham 2010). For anthropology and ethnography, it is the “cultural imprint of the sea” on a population (Levain and Laval 2018). History uses it to grasp the social construction processes linking people to the sea (Barron 2021). In a way, maritimicity has actually established itself as a social science concept, which has the advantage of covering all representations of the marine, i.e. the various ways of thinking and perceiving it, as well as human actions related to it and their results.

The concept of maritimicity allows us to capture and characterise humans' ties to the sea, whether they live near or far from the coast. In fact, maritimicity is not necessarily expressed on the seashore alone, just as it does not systematically concern every person living on the coast in the same way. By extension, maritimicity can be used to characterise a portion of geographic space. Precisely because the populations whose maritimicity we seek to understand are geographically located, the concept of maritimicity can be applied to the region where they live. Consequently, links to the sea and identity are also a territorial characteristic, which geographers have been re-examining in recent years to provide insights into globalisation, heritage preservation, or adaptation to climate change in coastal territories (Camus-Le Pape et al. 2021; Dantas 2016; Gontier et al. 2021; Foulquier et al. 2023; Robert et al. 2023). As a complement to maritimicity, the concept of territory can thus guide us in approaching the maritimicity of a region.

### Territory

In geography, the concept of territory refers to an appropriated and administered portion of land, with geographical, biophysical, legal, social, cultural and symbolic

Fig. 1 Study area



characteristics (Brunet 1993; Le Berre 1995). Conceptualised as a system (Moine 2006), every territory comprises a spatial component, with its physical, ecological, social and anthropic properties, and a social component whose categories of actors depend on the space involved. Actors interact with each other, just as they act on and shape the spatial component. In return, the latter provides the actors with constraints and opportunities. The two components interact via a third component, representations, i.e. all the psycho-sociological filters involved in perceiving and thinking about the spatial component.

This conceptualisation proves useful in developing an approach to the maritime character of a region. For instance, it points to the necessary presence of the sea. Indeed, while a given population can be characterised by its maritimity without the sea being physically present where they live, due to symbolic sea-related investment and practices (Levain and Laval 2018), a territory cannot reasonably be considered maritime if its spatial component does not incorporate the sea. For example, we could argue that Swiss society involves a kind of maritimity, because Swiss people have their own representation of the sea, go to the seaside on vacation, or because some Swiss companies are leaders in the maritime charter or cruise business. But Switzerland cannot be considered maritime, being a landlocked state not bordered by the sea. Overall, the concept of territory suggests that the maritimity of a territory is the result of both spatial characteristics

(presence of the sea and related amenities, concentration of population on the shoreline, microclimatic effects of the sea on the coastal strip, specialisation in maritime activities—fishing, shipping, ship repair, etc.), social features (sea-related lifestyles, public policies, popular festivals and events, etc.) and the representations of the sea that local stakeholders (institutions, civil society, businesses) create.

## PACA: a maritime region with doubts about its maritime identity

### An unquestionably maritime region

Located in south-eastern France, Provence-Alpes-Côte d'Azur (PACA) is one of the eight coastal regions in mainland France (Fig. 1). Its geography makes it a maritime region. Bordering the Mediterranean Sea, its coastline stretches for just over 1000 km, from the Rhône delta in the west to the Italian border in the east. Three of its six administrative provinces border the sea: Bouches-du-Rhône, Var and Alpes-Maritimes. Half the population is concentrated on the coast, with almost 2.6 million people living in the 65 coastal municipalities defined by the French Coastal Act of 3rd January, 1986. This demographic concentration means a density of 743 inhabitants/km<sup>2</sup>, which is 2.5 times higher than the average for French coastal municipalities and 6.2

times higher than the average population density in France (INSEE 2020). This has led to a highly developed coastal zone (Robert et al. 2019, 2015), with considerable residential built-up areas and major infrastructures: three major international airports (Marseille, Nice and Toulon); France's leading port for total traffic and the Mediterranean's fifth-largest for cruises (Marseille); Toulon's arsenal and military port; France's main oil port complex (Gulf of Fos-sur-Mer); large seaside resorts with several thousand homes, etc.

In economic terms, the region stands out as France's leading maritime region, with 120,000 jobs directly linked to the sea (29% of maritime employment in France), accounting for 5.9% of the region's total employment (Meyer and Novella 2017). PACA is ahead of Bretagne (74,000 jobs), Nouvelle-Aquitaine (51,000) and Normandie (43,000), with sea-linked jobs in tourism (69%), the navy (10%), shipping (10%), ship-building and repair (6.3%) and seafood products (1.6%). Statistically, PACA is a maritime region, but this is mainly due to the fact that it is a leading area for tourism in France and the Mediterranean. The "Sea and Coastal Zone Plan" (*Plan mer et littoral* in French) published in September 2019 by the region states that the regional coastline boasts 135 marinas and fishing ports, has 350 bathing sites whose bathing water quality is monitored, welcomed 2.5 million cruise passengers before the Covid-19 pandemic and is frequented by 40% of the world's yacht fleet, particularly on the Côte d'Azur (Région SUD 2019). This recreational and tourism vocation is particularly strong in the Alpes-Maritimes and Var provinces, which boast several renowned seaside resorts (Nice, Cannes, Antibes Hyères, Saint-Raphaël, Saint-Tropez, etc.), next to the famous principality of Monaco.

The region's maritimity is also reflected in measures taken to protect the marine environment. Thus, two national parks are located at sea and on the coast: Port-Cros (created in 1963), which covers the islands and bay of Hyères, and the Calanques national park (created in 2012) on the outskirts of Marseille. These parks are complemented by coastal and marine protection areas created at the initiative of the regional authorities, notably, the Camargue natural regional park, created in 1970 in the Rhône delta; the Côte Bleue marine park created in 1983 to the west of Marseille; and the Pelagos sanctuary<sup>1</sup> created in 1999 with Italy and the Principality of Monaco to protect marine mammals and their habitat. However, the region's maritimity is not expressed in terms of policies for anticipating and adapting the coastline to the effects of climate change. While France has clearly embarked on a national strategy for adapting its coastline to coastal risks and rising sea levels, the region lags behind in this area (Robert et al. 2023; Robert and Schleyer-Lindemann 2021).

## PACA regional authority questions the population's maritimity

Its geographical and socio-economic characteristics clearly make PACA a region with many obvious links to the sea. This is reflected in the "Regional strategy for the sea and the coast" issued in 2012 by the Regional authority, which includes the following statements: "the region's future is closely linked to the Mediterranean Sea"; the coastal zone is "a strategic area for regional planning and development"; "as the region's leading employer, the sea is a major economic lever for meeting the employment challenge"; "the Mediterranean Sea unites us, in a single community of interests, with the other peoples of the Mediterranean". This belief in the region's maritime character is echoed in the 2019 "Sea and Coastal Zone Plan", in which the Regional authority recalls PACA's "strong maritime identity" that "reinforces inhabitants' sense of belonging to their region". However, the document also suggests some doubts regarding the true maritimity of the region. Indeed, it states that "PACA does not always express itself as an active maritime territory and is not systematically identified as such". In other words, the Regional authority feels that the region lacks external visibility and recognition of its links to the sea, and that various internal obstacles are preventing inhabitants from feeling they belong to the maritime realm. Accordingly, it has set itself the goal of "an asserted maritime identity" by 2030.

In 2020, in order to achieve its goal of a stronger maritime identity, the Regional authority decided to fund studies that would enable it to assess its inhabitants' ties to the sea. To this end, the topic "maritime identity" was included in a call for research projects issued yearly by the Region and addressed to academics. More specifically, under the heading "A look at regional maritime identities" (*Regards sur les identités maritimes régionales*), the call was for studies aiming at "documenting the ways in which the population and the various players in the region's territories appropriate the sea and coastal areas, which bear witness to evolutions and legacies in terms of lifestyles and living, economic models and regional planning". Answering this call, we proposed to study the region's maritimity based on PACA's sea-related non-profit associations. Perceived as innovative and original, our proposal was selected and funded.

## Material and methods

The study is based on the statistical and cartographic exploitation of a database of officially registered associations in France, from which we extracted those with a sea-related activity. This section presents the original data, the treatment performed to compile the data table of sea-related associations in PACA and the principles and methods used

<sup>1</sup> <https://pelagos-sanctuary.org/pelagos-agreement/>

to analyse this table with a view to characterising what we refer to as associative maritimity in the study area.

### Original database: the national directory of associations

Created in October 2009, the *Répertoire national des associations*, RNA (national directory of associations), is the official database gathering information on associations in France. The RNA is made possible by the law of 1st July, 1901, which constitutes the legal framework for all non-profit associations considered a legal entity. The law requires that any newly created association be declared to the state, at local level. This declaration includes the following information: name and purpose of the association, articles of association, address of the registered office and any branches, as well as the names, professions, addresses and nationalities of the administrators. Once created, the association's evolving articles and administration may also be declared, as well as its dissolution, but this information is not systematically reported. Information is published in the Official Journal (JO), more specifically in the Official Journal of Associations and Corporate Foundations (JOAFE) since 2nd January, 1985 (before this date, announcements of new associations were published in the Official Journal of the French Republic).

Developed by the *Ministère de l'Intérieur* (Home Office), the RNA aims to facilitate state access to information on associations and the management of associations, and to provide reliable statistics. RNA data is updated monthly and is accessible to public administrations, with or without personal information, depending on the authority's level of authorisation. A reduced content version is also distributed under an open licence on the government website ([data.gouv.fr](http://data.gouv.fr)) for each province and in the form of two tables not containing personal information (files are tables in.csv format). One covers all the associations created, or having declared a modification, since 2009 and therefore possessing an RNA code or number (file named RNA\_waldec, for Web of freely declared associations); the other covers associations created since 1901 and which have not declared any change since 2009 (file named RNA\_import).

RNA proves a relevant source of data on the associative maritimity of a region. In the table, the field "objet" (purpose of the association) clearly provides evidence of any link associations may have to the sea. In addition, the data enable an exhaustive investigation of the territory's associative dynamics, since they are compiled in strict compliance with regulations applied nationwide by the Ministry. The geographical location of the associations is provided at municipal level, enabling detailed geographical analysis. Similarly, the date of creation allows the associative dynamics to be examined in terms of their duration. However, the RNA also

has limitations. For example, it does not provide any information on certain potentially useful features, like the number of association members or their place of residence.

### Selecting associations linked to the sea

For the purposes of our study, the RNA\_waldec files of the six provinces of PACA (Alpes de Haute-Provence, Hautes-Alpes, Alpes-Maritimes, Bouches-du-Rhône, Vaucluse and Var) were downloaded. The database extraction, dated 1st March, 2021, includes 146,724 associations working in a very wide variety of fields.

The data is provided in tables of 17 columns; surprisingly, their metadata is not provided, so we had to identify the meaning of the column names to ensure their proper use. Table 1 lists these columns, with an interpretation of their meaning. After visual examination of the information contained in the tables of the six provinces, the title field proved to be unreliable as a means of detecting sea-related associations and only the text describing the purpose of the association proved usable.

Sea-related associations (hereafter SRAs) were identified from a two-step analysis of the texts describing the purpose of each association. In step 1, we used text statistics software (IRaMuTeQ<sup>2</sup>) to identify, list and count the frequency of all nouns, verbs and adjectives used in the "Objet" column of the table. Words directly or indirectly suggesting a link with the sea were manually selected by three different analysts. Many of these words were unambiguously identified and listed, such as the noun "sea" itself or the adjective "submarine". Others that were also selected gave less clear guarantees that the association using them to describe itself actually has a link with the sea. For example, an association mentioning fish may only be engaged in river fishing, while another using the word "aquatic" may be interested in aquatic plants regardless of their habitat. This broad approach was therefore used to select a first set of associations (Appendix Table 3 provides the list of words used to select SRAs) which required filtering in a second step. The filtering was intended to eliminate multiple listings of a single association whose description of its purpose contains several words from the list, or associations that have no connection with the sea, selected due to the misleading nature of certain terms, as explained above. In step 2, we checked that each association selected has an unequivocal relationship to the sea, by closely examining the declared purpose of each association. The final dataset obtained comprises associations having either an unambiguous or a highly probable link with the sea, since this cannot be fully guaranteed from reading their purpose.

<sup>2</sup> <http://www.iramuteq.org/>

**Table 1** Contents of the tables extracted from RNA\_Waldec files

| Column name     | Meaning  |
|-----------------|--|
| Id              | Identification number of the association                                       |
| Date_creat      | Date of creation   |
| Date_decla      | Date of declaration to the authorities   |
| Date_publi      | Date of publication in the Official Journal                                    |
| Date_disso      | Date of dissolution of the association   |
| Nature          | ??   |
| Groupement      | ??   |
| Titre           | Name of the association  |
| Objet           | Purpose of the association   |
| Objet social 1  | Association classified level 1 of the RNA nomenclature (29 classes)            |
| Objet social 2  | Association classified level 2 of the RNA nomenclature (271 classes)           |
| Adrs_codeinsee  | Official ID of the municipality where the association's head office is located |
| Adrs_codepostal | Postal code of the association's head office                                   |
| Siteweb         | Website of the association   |
| Publiweb        | ??   |
| Position        | ??   |
| Maj_time        | Last update  |

## Statistical and mapping processing

The SRA table was subjected to simple statistical and cartographic processing aimed at revealing the associative maritimity in PACA region. Three classic quantitative geography approaches were used.

### Spatial approach

First, we explored the spatial dimension of maritimity in the region. SRAs being geographically located at the municipal level, it was possible to list them at this level of the administrative mesh and to make related maps. We also calculated the total number of associations per number of inhabitants, in order to detect any particular local features. For instance, theoretically, it could be expected that the more populated a municipality, the greater the number of associations; yet small cities can sometimes have more associations than larger ones. Similarly, geography suggests that links to the sea will appear first and foremost in municipalities located on the coast or relatively close to the sea; however, other municipalities located in the hinterland may also host associations that have some relationship with the sea.

### Approach by area of activity

The second investigation approached SRAs through their field of activity, anticipating several specific features. For example, the sea being a major support for recreational and

sports activities, a large number of sports associations can be expected. There should also be numerous associations linked to the sea as an environment, an element of nature and a support for biodiversity. Without, of course, ruling out large numbers of other types of association. SRAs were therefore quantified by type, at two levels of the administrative mesh: provinces and municipalities. Statistical summaries and simple thematic maps were used to complement the initial diagnosis.

### Approach by date of creation

The third investigation focused on the date of creation of the associations active at the date of data extraction. The aim here was to qualify the link to the sea in terms of the age of the associations and to identify whether links date back several years or are more recent. This approach took into account both the spatial variable (are SRAs older/more recent in certain provinces?) and the thematic variable (does more or less recent establishment of the associations depend on their field of activity?).

## Results

Our results are presented in three sections. The first provides the number of SRAs and an analysis of their geographical distribution in the region, the second analyses their areas of activity, while the third presents the length of the associative links with the sea.

**Table 2** Total number of SRAs by province and per capita

| Province                | Number of SRAs | Total population in 2020 # | Number of SRAs per 1000 inhab | Number of inhabitants per SRA |
|-------------------------|----------------|----------------------------|-------------------------------|-------------------------------|
| Coastal provinces       |                |                            |                               |                               |
| Var                     | 796            | 1,085,189                  | 0.73                          | 1363                          |
| Bouches-du-Rhône        | 929            | 2,048,070                  | 0.45                          | 2204                          |
| Alpes-Maritimes         | 449            | 1,097,410                  | 0.41                          | 2444                          |
| Inland provinces        |                |                            |                               |                               |
| Alpes-de-Haute-Provence | 24             | 165,451                    | 0.15                          | 6893                          |
| Hautes-Alpes            | 20             | 140,605                    | 0.14                          | 7030                          |
| Vaucluse                | 47             | 561,941                    | 0.08                          | 11,956                        |
| <b>Regional total</b>   | <b>2265</b>    | <b>5 098 566</b>           | <b>0.44</b>                   | <b>3251</b>                   |

#INSEE 2023

### Associations mainly located near the coast

As of 1st March, 2021, the RNA lists 146,924 associations in PACA, of which 2265 (1.5%) have a link with the sea (Table 2). With respect to the total population of the region, this figure is equivalent to 0.44 SRAs for 1000 inhabitants or 1 SRA for 2251 inhabitants. Unsurprisingly, this maritimity is higher in the coastal provinces: highest in the Var (0.73 SRAs for 1000 inhab., 1 SRA for 1363 inhab.) and lowest in the Vaucluse (0.08 SRAs for 1000 inhabitants, 1 SRA for 11,956 inhab.).

The 2265 SRAs are spread over 248 municipalities, mostly located on the coast (Fig. 2). The 56 municipalities bordering the sea total more than 78% of the regional total (1782 associations). Together with the 9 municipalities bordering the Berre lagoon, they make up the group of 65 coastal municipalities as defined by the French Coastal Act of 3rd January, 1986, and comprise 1850 SRAs, i.e. more than 81% of the region's total. As might be expected, associative maritimity is mainly found close to the coast. However, Fig. 2 shows that other municipalities close to the coast but not bordering the sea also host several SRAs (Aix-en-Provence, 22 km from the coast; Draguignan, 26 km; Grasse, 13 km; Vence, 8 km; etc.) and that, conversely, two coastal towns have no SRA (Ollioules and Gassin, in the Var). Finally, Fig. 2 reveals that SRAs may also be established in municipalities located farther inland, sometimes at a great distance from the coast.

The geographical distribution of the SRAs is linked to the demographic weight of municipalities, as shown by the very strong and highly significant correlation rates between number of SRAs and municipal population in 2020 ( $r=0.960$ , sig. 0.01, but non-linear relationship), and between number of SRAs and municipal population density in 2020 ( $r=0.463$ , sig. 0.01, linear relationship). The most populated towns tend to be those harbouring

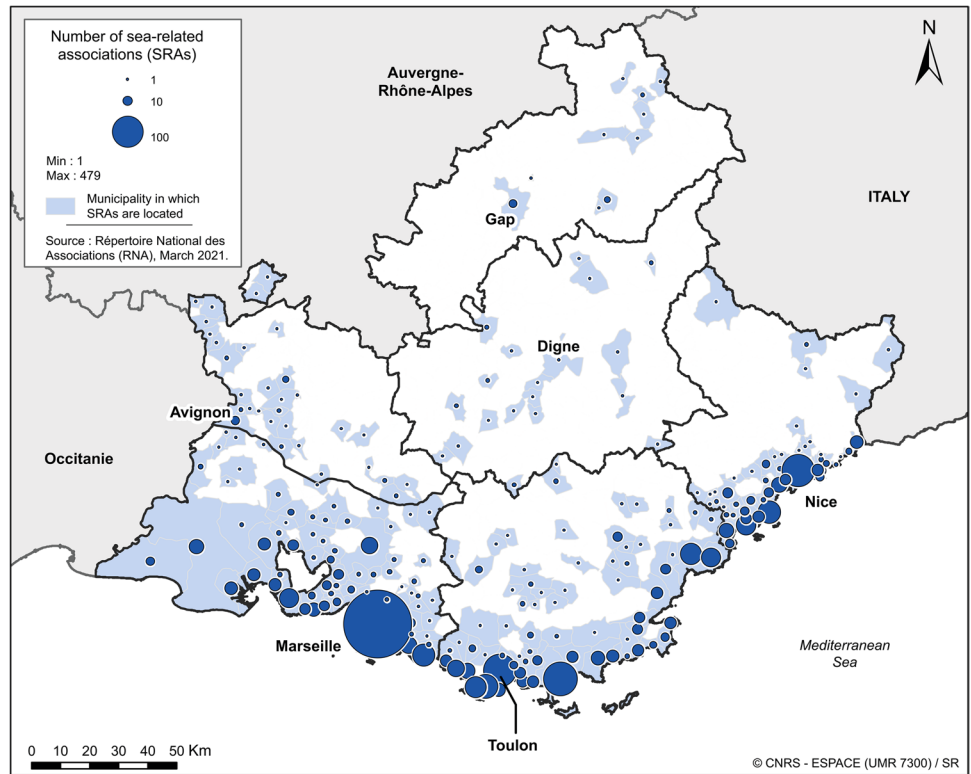
the greatest number of associations (Marseille, Toulon, Nice, in particular). However, other less populated municipalities are positioned at the top of the ranking and sometimes ahead of cities with larger numbers of inhabitants (Appendix Table 4). This is true of Hyères (54,615 inhabitants in 2020), which is ahead of Toulon (179,659 inhabitants) and Nice (343,477 inhabitants), with 122 associations against 111 and 108 respectively. It also applies to La Ciotat (36,441 inhab., 51 associations), which is ahead of Fréjus (57,750 inhab., 46 associations) and even Cannes (72,435 inhab., 42 associations). In other words, while the most populated cities tend to have large numbers of SRAs, certain medium-sized cities stand out through their more marked associative maritimity. In contrast, some large cities appear less maritime than others, in any case less than their demographic weight might suggest, particularly Nice and Cannes.

Another interesting figure is the number of SRAs in relation to the population of the municipalities, which provides another perspective (Fig. 3). Indeed, the figures reveal that associative maritimity is stronger in small municipalities, like Théoule-sur-Mer (1361 inhab. in 2020, 1 SRA per 170 inhabitants), Saint-Jean-Cap-Ferrat (1481 inhab. in 2020, 1 SRA per 192 inhabitants); Rayol-Canadel-sur-Mer (646 inhab. in 2020, 1 SRA per 234 inhabitants), Cassis (6782 inhab. in 2020, 1 SRA per 246 inhab.) or Ramatuelle (2037 inhab. in 2020, 1 SRA per 265 inhab.).

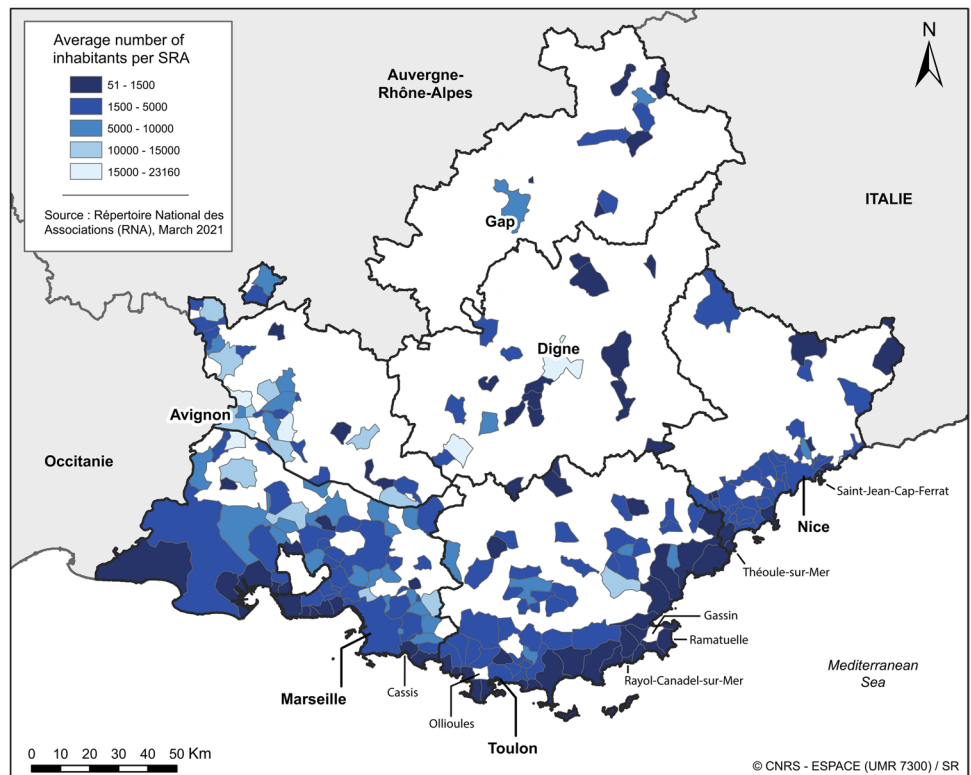
Thus, the geographical distribution of SRAs follows a double pattern: an opposition between the coast and the interior, and a concentration in the most densely populated municipalities. But exceptions to this pattern distinguish: (1) towns where maritimity is stronger (often medium-sized towns and smaller localities, or towns with a strong traditional link with the maritime economy such as shipyards in La Ciotat and La Seyne-sur-Mer) and (2) towns where maritimity is weaker (Nice, Cannes).

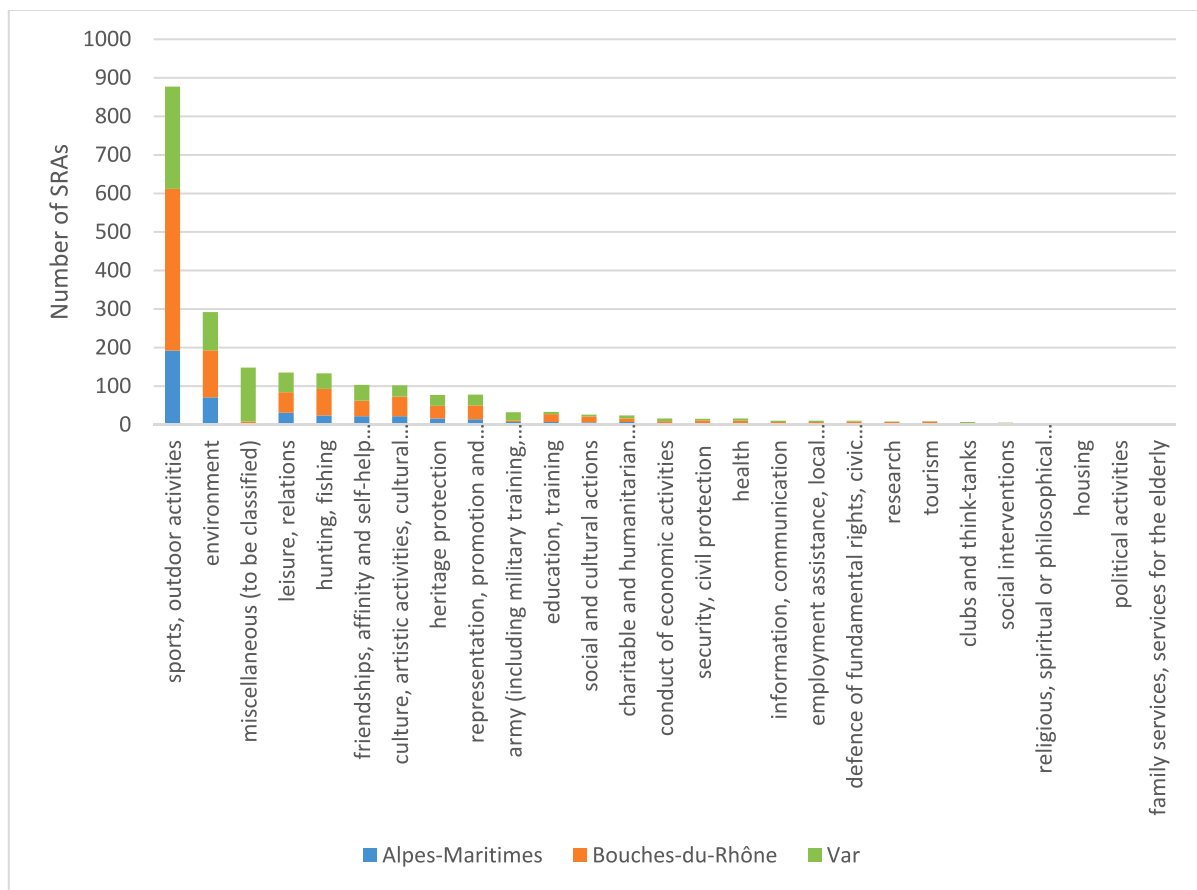


**Fig. 2** Location of sea-related associations (SRAs), at a municipal level



**Fig. 3** Municipalities with the most SRAs relative to total population





**Fig. 4** Total number of sea-related associations by category in coastal provinces

### A marked associative maritimity in the field of sports and the environment

The 2265 SRAs are divided into 27 fields of activity (Appendix Table 5). Among them, the “sports, outdoor activities” category stands out clearly, with 934 associations, i.e. just over 41% of the total number. The categories ranked next by number of SRAs are “environment” (302), “leisure clubs, relations” (139), “hunting, fishing” (137), “friendships, affinity and self-help groups” (104) and “culture, artistic activities, cultural practices” (103), which cover a total of more than 82% of the associations studied. An anomaly in the original RNA file, with the category “miscellaneous” containing a relatively high number of unclassified associations (148), hardly alters the finding of SRAs very strongly centred around sports, leisure, the environment and culture. Associations connected with the economy and employment appear in a very secondary position.

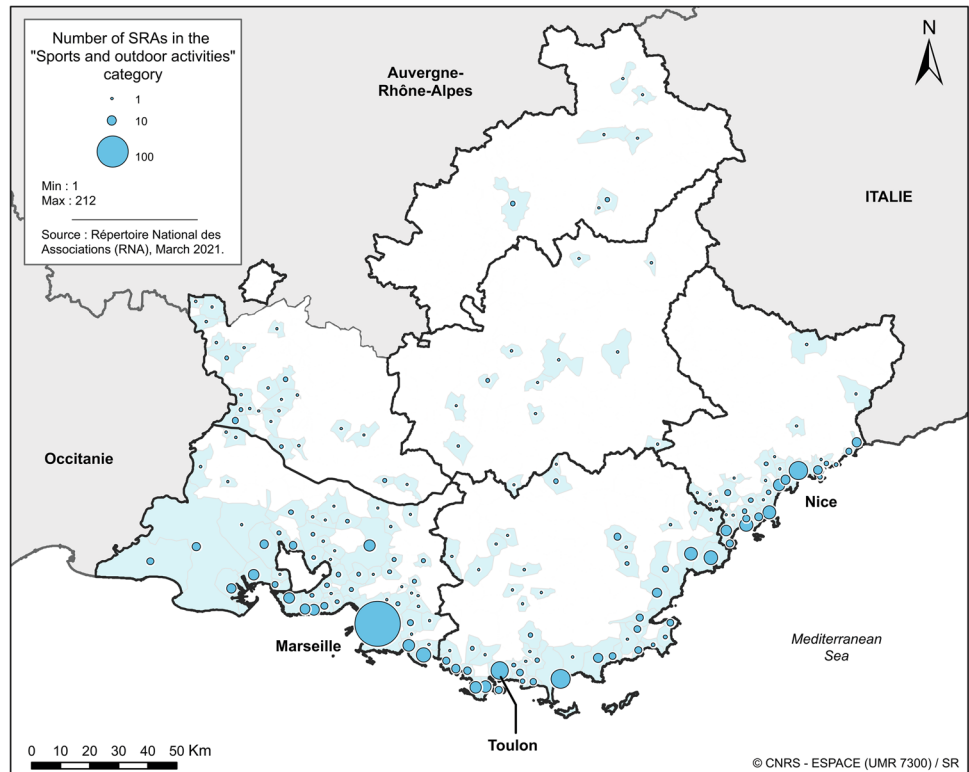
For the three coastal provinces, containing 96% of the SRAs, distribution by field of activity is both in line with what is observed at regional level (clear dominance of the “sports, outdoor activities” category, for example) and

indicative of particular local features. Figure 4 shows that the anomaly relating to the “miscellaneous” category mainly concerns the Var province (containing 140 of the 148 associations of this type in the region), inducing a bias in the study of SRAs in this province.

At province level, data on the total number of associations (in %) reveal that: the coastal provinces (Bouches-du-Rhône, Var and Alpes-Maritimes) contain the widest range of associative categories (25, against less than 8 in the other three provinces); the “sports, outdoor activities” category is strongly represented in provinces not bordering the sea (around 70% of all associations in Vaucluse, and 55% in Alpes-de-Haute-Provence and Hautes-Alpes), compared to 42% in Alpes-Maritimes and 45% in Bouches-du-Rhône); the “environment” field is best represented in the Alpes-Maritimes (a little less than 16%).

At municipal level, the analysis shows that the fewer the region-wide associations in a given field of activity, the closer these associations are to the coast. Conversely, the more common an associative category is in the region, the more widely these associations are spread over the regional territory. Accordingly, the “sports, outdoor activities”

**Fig. 5** Location of SRAs in the “Sports and outdoor activities” category, at municipal level



category, which is numerically the most strongly represented in the region (934 associations), is present in the greatest number of municipalities (185 out of the 248 hosting an SRA). Figure 5 shows that these associations are mainly located on the coast, but also in a relatively high number of inland municipalities, sometimes very far from the sea. This is explained by the fact that this category includes associations whose activity can be performed in fresh water, in a swimming pool, or at sea (kayak, scuba diving, sailing, etc.), and that can be established either on the coast or in the interior, especially the mountainous areas where rivers and lakes abound.

Contrastingly, Fig. 6 shows that there are far fewer SRAs in the categories “environment”, “leisure clubs, relations”, “hunting, fishing”, and “friendships, affinity groups, self-help groups” in the interior of the region. These fields of activity seem more related to the sea and can be considered as a better indicator of maritimity.

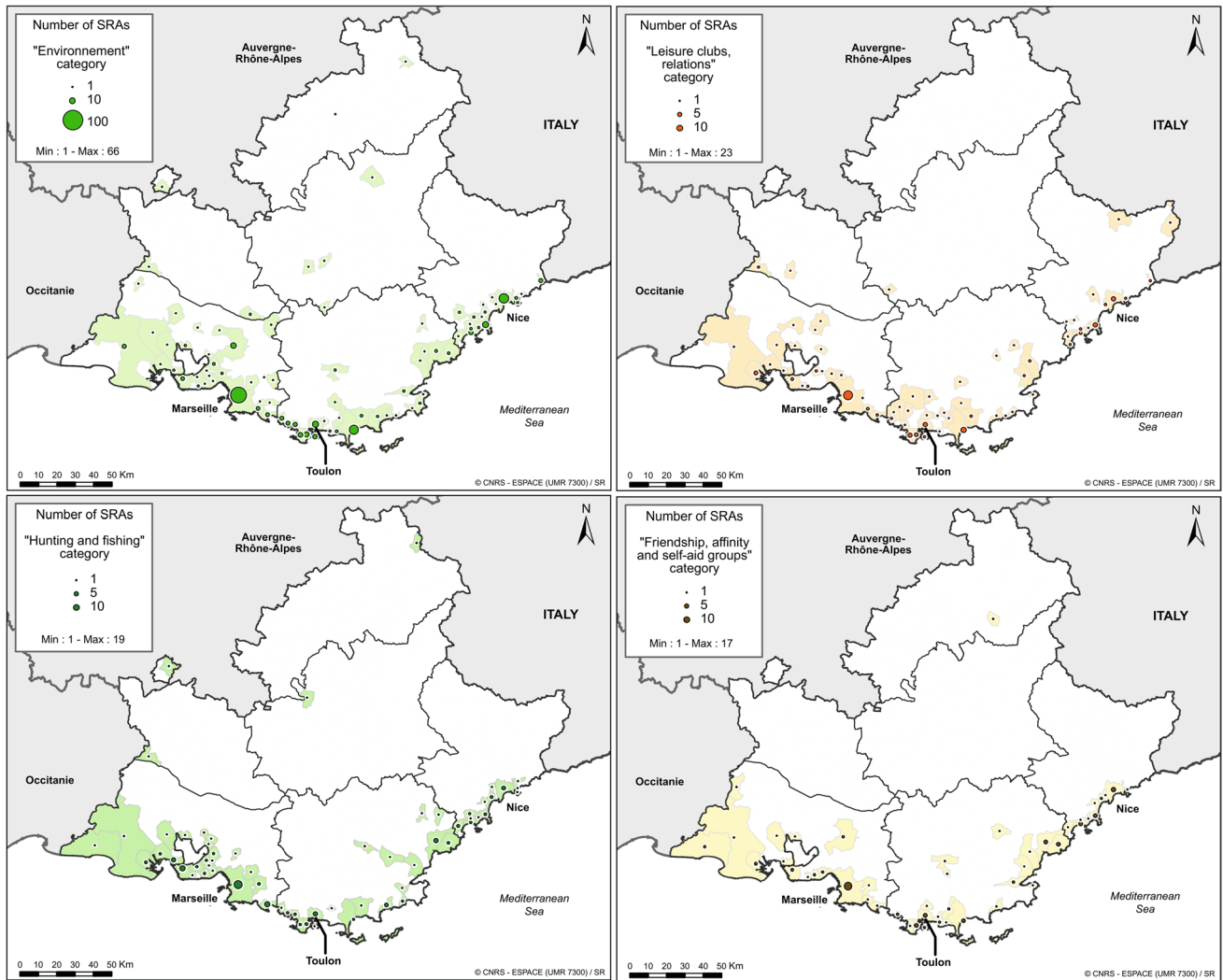
### Mainly recently-established associations, initially on the coast but having moved inland

The statistical distribution of SRAs according to year of creation shows that they were predominantly created after 1970 (more than 92%). A glance at Fig. 7 reveals pivotal dates such as 1980 and 2005, which underline the even more recent nature of the majority of the associations: 60% (1375)

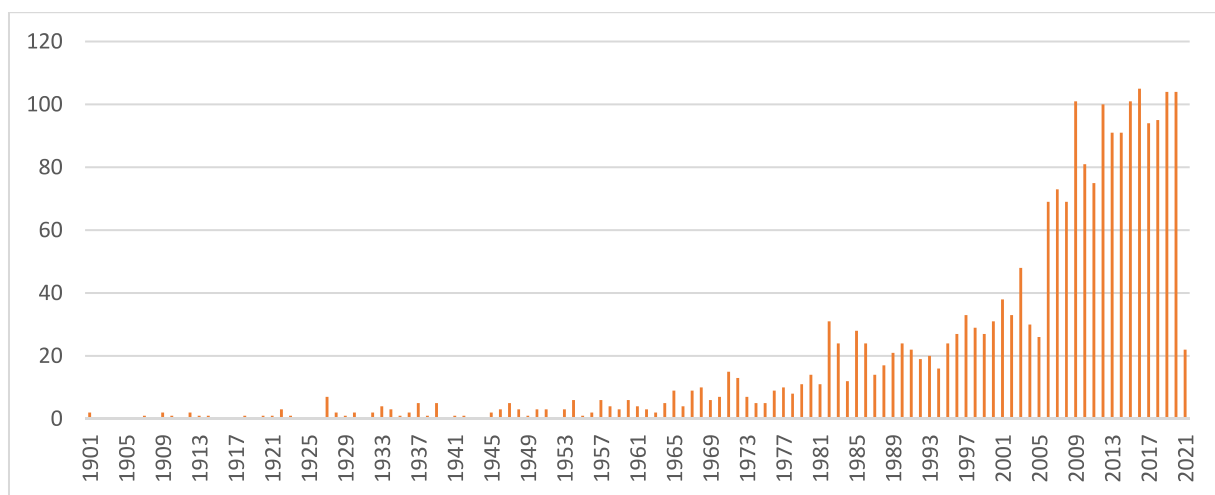
were created after 2005, and more than one half were created after 2008.

The age of the SRAs differs depending on their field of activity (Appendix Fig. 11). Those in the “sports, outdoor activities” category are older (slightly more than 13% were created before 1980, compared to 11%, 7% and 6% respectively for those in the “hunting, fishing”, “leisure clubs, relations” and “environment” categories). Associations in the “environment” field are proportionally more recent (nearly 38% were created after 2015, compared to 30% for “hunting, fishing”, 21% for “sports, outdoor activities” and for “leisure clubs, relations”). These figures may suggest that environmental concerns associated with the sea and the living environment near the sea are growing in the region and support an expanding associative activity. In March 2021, more than one third of the 302 associations in this field had indeed been created in the previous 5 years.

The age of SRAs also varies according to their geographical location. Quite clearly, the oldest are mainly located on the coast (Fig. 8). Specifically, the 158 that were created before 1970 are located in 55 distinct municipalities, 41 of which border the sea or the Berre lagoon. Those created later continued appearing in these municipalities but also in others, sometimes more inland, so that over time, a trend towards creating SRAs at a greater distance from the sea has emerged. As shown in Fig. 8, first the interior of coastal provinces, then the three other interior provinces of the



**Fig. 6** Location of SRAs in the categories “environment”, “leisure clubs, relations”, “hunting and fishing”, and “friendship, affinity and self-aid groups”, at municipal level



**Fig. 7** Number of SRAs as per March 2021, by year of creation

region, have gradually been won over by new SRAs. This indicates a gradual spread of maritimity within the region.

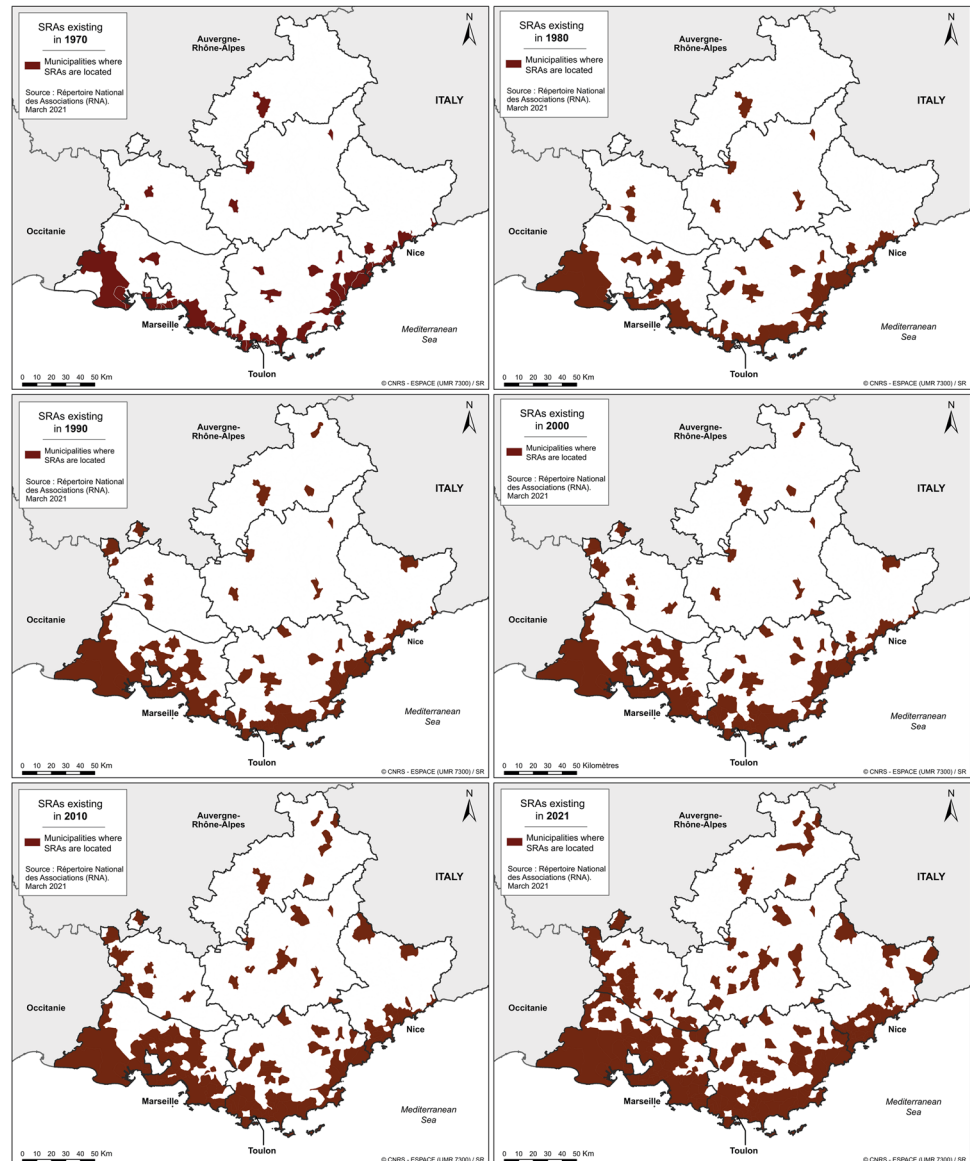
### A typology of coastal municipalities according to their associative maritimity

In addition to the statistical relationship already demonstrated between the number of associations and population density, the associative maritimity of the region is closely linked to the residential profile and age structure of the population, at municipal level. For the 65 coastal municipalities of the region (which total 81% of SRAs), correlation analyses show that the higher the rate of second homes in the housing stock, the greater the number of SRAs per 1000 inhabitants (linear relationship,  $r = 0.668$ , sig. 0.01). Similarly, the higher the proportion of people

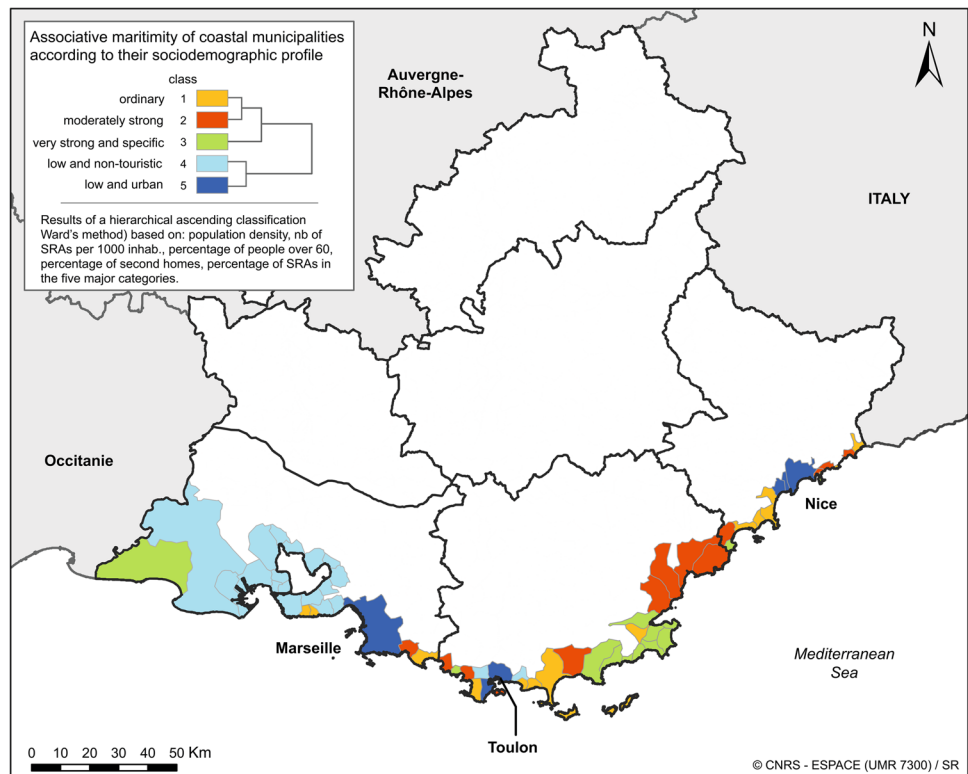
over 60 years old in the municipal population, the greater the number of SRAs per 1000 inhabitants (linear relationship,  $r = 0.543$ , sig. 0.01). Associative maritimity is therefore linked to the socio-economic profile of the region, characterised by a strong tourism and residential economy, mainly in the Var and the Alpes-Maritimes, which has notably promoted the migration of retirees.

A hierarchical ascending classification (aggregation using Ward’s method, measurement of intervals with the metric of the square of the Euclidean distance) on population density, number of SRAs per 1000 inhab, percentage of over-60 s in the population, percentage of second homes and distribution of associations in the five most represented categories enables municipal diversity to be categorised according to a typology in 5 classes (Fig. 9). This reveals a relative heterogeneity in terms of associative maritimity within the coastal zone.

**Fig. 8** Geographical distribution of SRAs by date of creation



**Fig. 9** A typology of coastal municipalities according to their associative maritimity



Class 1 (15 municipalities) is the closest to the regional coastal profile, i.e. what is observed in the 65 coastal communes of PACA (Fig. 10). It shows an ordinary associative maritimity, together with a moderately high number of second homes, number of SRAs per inhabitant and population density. It contains tourist towns, mainly in the Var and Alpes-Maritimes provinces. There is no clear trend in SRAs based here, apart from a clear under-representation of the “army” field, and a less marked under-representation of the “culture, artistic activities, cultural practices” and “heritage preservation” fields. “Representation, promotion and defence of economic interests” and “leisure clubs, relations” are slightly over-represented.

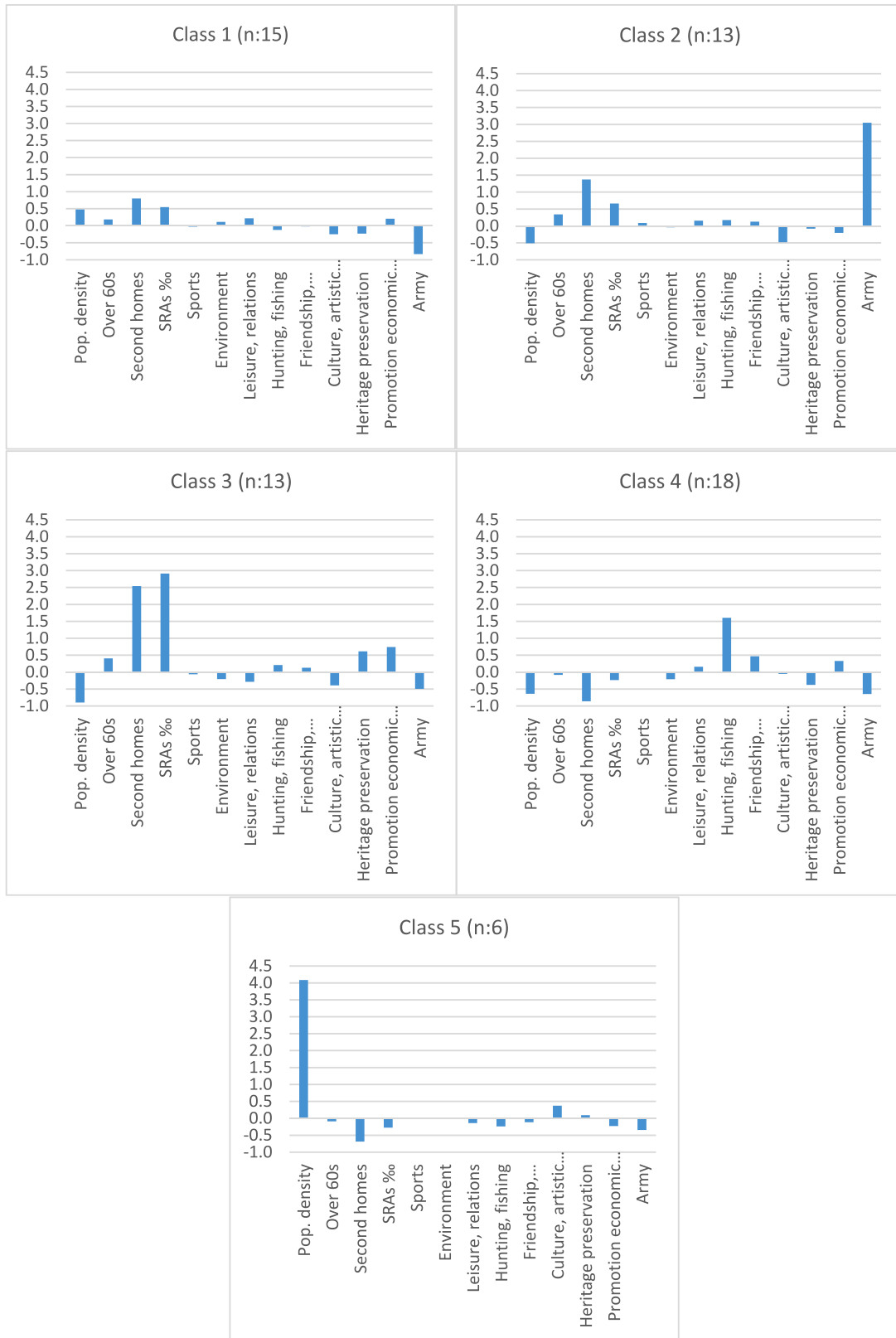
Class 2 (13 municipalities) is the closest to class 1, but has a higher number of associations per inhabitant, more second homes and more people over 60, while population density is lower than in the coastal profile. This group can be seen as having a moderately strong associative maritimity. It is composed of municipalities mainly located in the Var. The profile of associations here is marked by a strong over-representation of the “army” field and a very slight over-representation of the “hunting, fishing”, “leisure clubs, relations” and “friendly societies” fields. Conversely, “culture, artistic activities, cultural practices” and “representation, promotion and defence of economic interests” are under-represented.

Class 3 (13 municipalities) is characterised by strong associative maritimity. The number of associations per

inhabitant is much higher than in the coastal profile, as is the number of second homes. The proportion of over-60 is also slightly higher than in the coastal profile, but population density is much lower: these are small towns with a strong residential and tourism leaning, mainly located in the Var. Associations in the categories “heritage preservation”, “representation, promotion and defence of economic interests” and to a lesser extent “hunting, fishing” are over-represented here. Conversely, the categories “army”, “culture, artistic activities, cultural practices”, “leisure clubs, relations” and “environment” are under-represented.

Class 4 (18 municipalities) is characterised by low associative maritimity, linked to a non-tourism profile. The number of associations per inhabitant is lower than in the coastal profile, there are far fewer second homes and population density is lower. The majority of these towns are located in Bouches-du-Rhône, around the Berre lagoon, and in Camargue. Two are in Var and none in Alpes-Maritimes. SRAs are characterised by a marked over-representation of the “hunting, fishing” category, and a lesser over-representation of “friendly societies” and “representation, promotion and defence of economic interests”. Conversely, the “army”, “heritage preservation” and “environment” categories are under-represented.

Class 5 (6 municipalities) has a marked socio-demographic profile and a relatively low associative maritimity. It is clearly distinguished by its very high population density and, secondarily, by its fewer second homes. The



For each variable, the deviation from the average profile of the 65 coastal municipalities is calculated as follows: (mean value for the class-mean value for the 65 municipalities)/mean value for the 65 municipalities

Fig. 10 Class specifications relative to the average coastal profile

number of associations per inhabitant is lower than in the coastal profile. This group includes the three largest conurbations in the region: Marseille, Toulon with La Seyne-Sur-Mer, Nice with Saint-Laurent-du-Var and Cagnes-sur-Mer. The associative categories “culture, artistic activities, cultural practices” and “heritage preservation” are over-represented. Conversely, the “army”, “representation, promotion and defence of economic interests”, “hunting, fishing”, “friendly societies” and “leisure clubs, relations” categories are under-represented.

## Discussion

Mobilising the concepts of maritimity and territory, our study sought to characterise the region in terms of its relationship with the sea, and to investigate the underlying geographical pattern of its sea-related associations. In this section, we discuss the results: methodological contributions and limitations, contributions and limitations in terms of our knowledge of the region’s maritime identity, and the prospects for extending the results.

### A novel and instructive approach, but with certain limitations

The non-profit associations sector has already been the subject of various studies in France, with a regular survey conducted by the *Centre d'économie de la Sorbonne* (Tchernonog and Prouteau 2019; Tchernonog 2013, 2007), but this study is the first to analyse it in this way. This sector was difficult to describe before official statistics became available, knowledge of it being based solely on surveys and attempts at typologies (Defourny 2005; Tchernonog 2008, 2007). The advent of the RNA has made it possible to study in detail associations’ geographical location, the number in the different categories, the length of their presence in an area, the range of associations present in a given place. Our study applied this to Provence-Alpes-Côte d’Azur region, to address its maritimity. This is an original piece of research that has no equivalent, neither in principle nor in terms of the theme chosen. Apart from the work carried out by the association *Recherches et Solidarités*,<sup>3</sup> for the sector itself (Bazin et al. 2022) and for local authorities such as the Lyon metropolitan authority (Ben Ayed et al. 2022), we can identify no in-depth analysis of the spatial nature of the non-governmental associations sector in a region. Similarly, we have found no studies that focus specifically on associations linked to the sea.

However, while our RNA-based analysis is instructive for exploring the maritime character of a territory, the data are insufficient for a more detailed assessment. The main

limitation is the lack of data on the human, economic and social dimensions of the non-governmental associations sector, such as number of members, number of employees, budget or mode of governance. It is therefore not possible to assess the extent of associative practices or their economic impact in terms of direct employment, for example. Other limitations, of lesser impact on the quality of the study, can be cited. Studies have shown, for instance, that the associative sector is highly dynamic, some associations becoming inactive and others disappearing without declaration (Ben Ayed et al. 2022; Robert and Plouvier 2017). The RNA list of associations cannot, therefore, be considered totally reliable, as there is no legal or regulatory provision requiring an association to declare its dissolution.<sup>4</sup> However, by convention, an association is deemed to still be active if it has been created or has declared a change over the past 15 years, which reduces uncertainty (Ben Ayed et al. 2022). Another limitation concerns an association’s link to a municipality, which depends on the address of the head office, often the address of the president. As this address is not necessarily the actual location of the association’s activity or a hub for its members, it can introduce a bias that should not be ignored. Lastly, an association’s assignment to one particular field of activity is somewhat debatable; it is not uncommon for associations to have multiple activities that fall within several fields (Tchernonog and Prouteau 2019). This can affect analyses like typologies.

### An associative maritimity in line with the social and economic characteristics of the region

Despite the above limitations, the results go a good way towards meeting the objective of the study. They provide an account of the links to the sea that are created through associations in PACA, and enable us to assess their intensity (number of associations), diversity and geography at different scales of analysis. Three particular points stand out.

Firstly, the maritimity revealed by analysing these associations appears to be consistent with the socio-economic profile of the region. It is strongest on the coast, where most of the population lives. It has spread inland over the last few decades, accompanying the spread of the population and reflecting a growing relationship with the sea in the region, consistent with what Robert and Plouvier (2017) showed for scuba diving in the Bouches-du-Rhône. The commonest fields of activity reflect a strong focus on sports, the environment, leisure and social practices. In contrast, only a small proportion of associations are engaged in promoting economic development or heritage preservation, despite the

<sup>3</sup> <https://recherches-solidarites.org/>

<sup>4</sup> Ministry of the Interior, 2021—<https://www.demarches.interieur.gouv.fr/associations/dissolution-association>



fact that the region offers the largest number of maritime jobs in the country (Meyer and Novella 2017). This seems to be in line with the region's social and economic identity, characterised by a strong tourism profile, a highly developed residential economy (Grandclément 2020) and a population renewed by long-standing and still strong migratory inflows from other French regions and by all age groups (Chauvot and Pougnaud 2016). In fact, as a considerable proportion of the population consists of people who have moved here to enjoy life, landscape amenities and, in particular, the sea, these residents will naturally be more involved in associations corresponding to their hedonic expectations. On the other hand, they will take little interest in associations promoting the sea-based economy or the region's maritime cultural identity, unlike people historically more rooted in the area and more concerned with its economic development and history.

Secondly, the results show that maritimism varies along the region's coastline. Two main groups of municipalities can be distinguished. The first consists of towns with the fewest associations per inhabitant: the three major cities and their conurbations (class 5 in the typology) as well as most of the coastal municipalities in the Bouches-du-Rhône (class 4), where the tourism and residential function is very weak. In the large cities, there is over-representation of associations in the fields of culture and heritage preservation. In the Bouches-du-Rhône coastal municipalities, the fields of "hunting, fishing", "friendly societies" and "economic promotion" are strongly represented, in line with the importance of the maritime economy, excluding coastal tourism and the national navy (Caray and Méreau 2019). The second group includes all the other municipalities in the region (classes 1, 2 and 3), where the number of associations per inhabitant is high, like the number of second homes. Of particular note are towns with very low population density, where associations in the fields of economic promotion and heritage preservation are particularly numerous, while the environment, leisure clubs and culture categories are under-represented. As can be observed for the region as a whole, the specific features of these groups are consistent with the socio-economic profile of their municipalities.

Thirdly, the field of culture appears to contribute particularly little to the regional associative maritimism. In 2021, 4.5% of PACA SRAs fall under the category "culture, artistic activities, cultural practices" and 3.5% under "heritage preservation". This represents 8% of all associations linked to the sea; whereas the cultural sector as defined by Tchernonog and Prouteau (2019), which includes associations that manage equipment, organise events, work to preserve heritage, as well as small specialised clubs, represented 23.6% of all associations in France in 2017. In other words, while culture is the objective of almost a quarter of French associations, less than 10% of PACA associations linked to the sea are in this category. The lack of culture-based

SRAs may not be specific to this region alone, but it is an interesting finding to be investigated further.

## Prospects for further study

Using RNA data to approach maritimism as proposed here provides insights into the situation in PACA but does not answer all the questions posed regarding this region. Without using other data sets or producing new information through new surveys or investigations, two in-depth complementary studies could be considered. First, the texts describing the purpose of the associations could be subjected to finer analysis. This would mean going beyond the simple identification of words indicating a link to the sea to examine more closely how the sea is evoked and to seek the motivations behind the association's sea-related action. An analysis of the social representations emerging from these texts, employing thematic content analysis combined with similarity analysis of textual statistics in the manner of Robert et al. (2023), could provide a finer qualitative assessment. Second, the study could be replicated to cover the other French coastal regions, thus allowing a comparative approach. As is regularly done in national studies, the singularity of this region could be verified by comparison with others, in particular Bretagne, with which PACA is often compared (Colas et al. 2015). Excluding the coastal tourism and national navy sectors, PACA actually lags behind Bretagne, Nouvelle Aquitaine and Normandie in terms of number of maritime jobs (Meyer and Novella 2017). This raises questions about the influence of this indicator on associative maritimism. Could not the regions bordering the Atlantic and the English Channel, where there are more non-tourism jobs related to the sea, be expected to have a different and even stronger associative maritimism?

## Conclusion

Seas and oceans are increasingly coveted but at the same time threatened by growing anthropogenic pressures and the effects of climate change. The future of marine areas and environments and the evolving socio-economic relations with the sea are issues for coastal territories. They require careful consideration, both at state level and by coastal local authorities. Increasingly, people are concerned about ecology and alert to the consequences of political decisions on the exploitation, development and management of the environment. With regard to the sea, decisions concerning the production of renewable energy, adaptation of coastal areas to climate-change-induced risks and sea level rise, treatment of pollution, environmental protection by MPAs, are examples of subjects on which public opinion is expressing expectations. Better understanding a given population's relationship to the sea is

therefore essential for the definition and conduct of appropriate public policies regarding the marine environment.

Taking the Provence-Alpes-Côte d'Azur region as a study area, this article proposes a methodology for characterising a population's links to the sea through its associative activities. We show how an official database listing all the non-profit associations in the territory can be used to reveal what these associations say about maritimity in the study area. It thus appears that Provence-Alpes-Côte d'Azur predominantly contains associations in the field of sports and the environment, recently established and mainly on the coast, but that they have progressed towards the interior in recent decades. According to their socio-demographic profile, coastal municipalities differ in the types of associations they host, those with a high proportion of residents over 60 and second homes being particularly well endowed with associations per capita. Additionally, we show that while the region offers the highest concentration of maritime jobs in France, it has only a few associations dedicated to economic promotion, and relatively few dedicated to culture and

heritage. Overall, the associative maritimity of PACA appears strongly linked to the region's orientation towards a tourism and residential economy. This approach could usefully be applied to other territories, to allow comparisons. By improving our understanding of the relationship to the sea and maritime life, such an examination can inform public policy decisions in a context of growing appetite and projects for the exploitation of the sea.

## Funding

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## Appendix

**Table 3** Words employed in the description of the associative objectives used to identify sea-related associations

| Word            | Criteria  |
|-----------------|---|
| admiral         | If explicit reference to a marine admiral   |
| anchor          | If explicit reference to a marine anchor  |
| apnea           | If explicit reference to apnea in a marine environment  |
| aquaboxing      | If explicit reference to a practice in the marine environment or if complemented by a word referring to a maritime activity |
| aquaculture     | If explicit reference to marine aquaculture   |
| aquafitness     | If explicitly described as a marine activity  |
| aquagym         | If explicit reference to a practice in the marine environment or if complemented by a word referring to a maritime activity |
| aquahealthyness | If explicit reference to the marine environment   |
| aquaphobia      | If explicit reference to the marine environment   |
| aquasoftness    | If explicitly described as a marine activity  |
| aquastep        | If explicit reference to a practice in the marine environment or if complemented by a word referring to a maritime activity |
| aquatherapy     | If explicit reference to a practice in the marine environment or if complemented by a word referring to the sea             |
| aquathlon       | If explicit reference to a practice in the marine environment or if complemented by a word referring to a maritime activity |
| aquatique       | If explicit reference to the sea or a maritime activity   |
| archipelago     | If reference to islands in a marine environment   |
| atoll           | If reference to this specific kind of islands in a marine environment   |
| azure           | If explicit reference to the colour of the sea  |
| bath            | If explicitly mentioned as a maritime activity  |
| bathing         | If explicitly mentioned as a maritime activity  |
| beach           | If explicit reference to the sea  |
| beauduc         | If explicit reference to this famous beach in Camargue  |
| benthic         | If explicit reference to the submarine environment, flora and fauna   |
| boat            | If referring to the sea and sea boats   |
| buoy            | If explicit reference to the sea  |
| cabanonier      | If explicit reference to this very typical seaside housing and lifestyle in Provence  |
| calanque        | If explicit reference to this specific sea side topography and the related lifestyle in Provence                            |
| calypso         | If explicit reference to the sea and/or the associated goddess  |

**Table 3** (continued)

| Word          | Criteria   |
|---------------|--|
| canoe         | If explicit reference to the sea   |
| captain       | If explicit reference to a boat captain  |
| castaway      | If explicit reference to shipwrecks in the sea   |
| catamaran     | If explicit reference to the sea   |
| cetacea       | If explicit reference to these marine mammals  |
| coast         | If explicit reference to the coast of sea  |
| coastal       | If explicit reference to the sea   |
| coastline     | If explicit reference to a marine coastline  |
| coral         | If explicit reference to the sea   |
| cruise        | If explicit reference to sea cruise  |
| delphinarium  | If explicit reference to the sea in addition to references to dolphins and marine mammals    |
| dive          | If explicit reference to this practice in a marine environment                               |
| diver         | If explicit reference to this practice in a marine environment                               |
| diving        | If explicit reference to this practice in a marine environment                               |
| dolphin       | If explicit reference to this marine mammal  |
| drowning      | If explicit reference to the sea   |
| dune          | If explicit reference to coastal dunes along the sea   |
| dyke          | If explicit reference to the sea   |
| fish          | If explicit reference to this animal in a marine environment                                 |
| fish farming  | If explicit reference to this practice in a marine environment                               |
| fisherman     | If explicit reference to this practice in a marine environment                               |
| fishing       | If explicit reference to this practice in a marine environment                               |
| harbour       | If explicit reference to a sea port, whatever its size and capacity                          |
| ifremer       | If explicit reference to the French Research Institute for the Exploitation of the Sea       |
| insular       | If explicit reference to an area surrounded by the sea, its associated culture and lifestyle |
| island        | If explicit reference to an area surrounded by marine waters                                 |
| islet         | If explicit reference to an area surrounded by marine waters                                 |
| jet_ski       | If explicit reference to a practice in a marine environment                                  |
| jousting      | If explicit reference to a practice in a marine environment or within a harbour              |
| kayak         | If explicit reference to a practice in a marine environment                                  |
| kitebuggy     | If explicit reference to a practice on a beach   |
| kitesurf      | If explicit reference to a practice in a marine environment                                  |
| Light house   | If explicit reference to a use in a marine environment                                       |
| marina        | If explicit reference to a place set on the sea coast  |
| marine        | If used as an adjective to mean a link to the marine environment                             |
| maritime      | If explicit reference to the marine environment  |
| mask          | If explicit reference to scuba diving and snorkelling  |
| mediterranean | If explicit reference to the Mediterranean sea   |
| mollusc       | If explicit reference to these marine animals  |
| mooring       | If explicit reference to mooring in a marine setting   |
| nautic        | If explicit reference to the marine environment  |
| naval         | If explicit reference to the maritime activity   |
| navigability  | If explicit reference to navigability in a marine environment                                |
| navigable     | If explicit reference to navigability in a marine environment                                |
| navigator     | If explicit reference to navigation on the sea   |
| navy          | If explicit reference to military navy and its members                                       |
| neptune       | If explicit reference to the sea and sea-related god   |
| ocean         | If explicit reference to ocean as a sea (not as a figurative word)                           |
| oceanic       | If explicit reference to the sea and marine environment                                      |
| oceanography  | To be selected whenever the word is used   |
| oceanology    | To be selected whenever the word is used   |
| pacific       | If explicit reference to the Pacific ocean   |
| paddle        | If explicit reference to this practice in a marine environment                               |
| palme         | If explicit reference to scuba diving, snorkelling, etc                                      |

**Table 3** (continued)

| Word            | Criteria  |
|-----------------|---|
| pedal boat      | If explicit reference to a use in a marine environment                                |
| peninsula       | If explicit reference to a specific place almost entirely surrounded by the sea       |
| pirate          | If explicit reference to a character in a marine setting                              |
| port            | If explicit reference to a sea port, whatever its size and capacity                   |
| posidonia       | If explicit reference to this marine seagrass   |
| quay            | If explicit reference to this specific place within a port and connected with the sea |
| reef            | If explicit reference to this marine environment (natural or artificial)              |
| regatta         | If explicit reference to this practice in a marine environment                        |
| riviera         | If explicit reference to the sea  |
| rope            | If explicit reference to the sea and to sea sailing                                   |
| rowing          | If explicit reference to this practice in a marine environment                        |
| sailboat        | If explicit reference to this practice in a marine environment                        |
| sailing         | If explicit reference to this practice in a marine environment                        |
| sailing dinghy  | If explicit reference to this kind of boat and the sea                                |
| sailor          | If explicit reference to one person navigating on the sea                             |
| salt            | If explicit reference to the sea  |
| sand            | If explicit reference to the beach along the sea                                      |
| schooner        | If explicit reference to this specific kind of boat                                   |
| sea             | To be selected whenever the word is used  |
| sea bream       | If explicit reference to this sea fish  |
| seafarer        | To be selected whenever the word is used  |
| seaguards       | To be selected whenever the word is used  |
| seamanship      | If explicit reference to working in maritime transport                                |
| seaside         | To be selected whenever the word is used  |
| shark           | If explicit reference to this marine animal   |
| shellfish       | If explicit reference to the sea  |
| ship            | If explicit reference to a boat navigating on the sea                                 |
| shipping        | If explicit reference to shipping on the sea  |
| shore           | If explicit reference to the sea shore  |
| shrimp          | If explicit reference to this marine animal   |
| sperm whale     | If explicit reference to this marine mammal   |
| stopover        | If explicit reference to maritime stopover  |
| submarine       | If explicit reference to the sea and submarine environment                            |
| submariner      | If explicit reference to the submarine environment                                    |
| surf            | If explicit reference to this practice in a marine environment                        |
| surfer          | If explicit reference to this practice in a marine environment                        |
| surfing         | If explicit reference to this practice in a marine environment                        |
| swimmer         | If explicit reference to this practice in a marine environment                        |
| swimming        | If explicit reference to this practice in a marine environment                        |
| swimwear        | If explicit reference to a use in the marine environment                              |
| thalassotherapy | If explicit reference to the sea and submarine environment                            |
| thuna           | If explicit reference to this marine animal   |
| tide            | If explicit reference to this phenomenon in the marine environment                    |
| trawler         | If explicit reference to this fishing boat  |
| tuba            | If explicit reference to diving   |
| vessel          | If explicit reference to a boat navigating on the sea                                 |
| wakeboard       | If explicit reference to this practice in a marine environment                        |
| wave            | If explicit reference to sea waves  |
| wreck           | If explicit reference to ship wreck   |
| yachter         | If explicit reference to this practice in a marine environment                        |
| yachting        | If explicit reference to this practice in a marine environment                        |

**Table 4** The ten municipalities having the highest number of sea-related associations

| Municipality         | Number of sea-related associations | Population 2020 # |
|----------------------|------------------------------------|-------------------|
| Marseille            | 479                                | 870,321           |
| Hyères               | 122                                | 54,615            |
| Toulon               | 111                                | 179,659           |
| Nice                 | 108                                | 343,477           |
| La Seyne-sur-Mer     | 61                                 | 62,232            |
| Antibes              | 55                                 | 74,709            |
| La Ciotat            | 51                                 | 36,441            |
| Fréjus               | 46                                 | 57,750            |
| Six-Fours-les-Plages | 46                                 | 35,339            |
| Cannes               | 42                                 | 72,435            |
| Total                | 1121                               |                   |

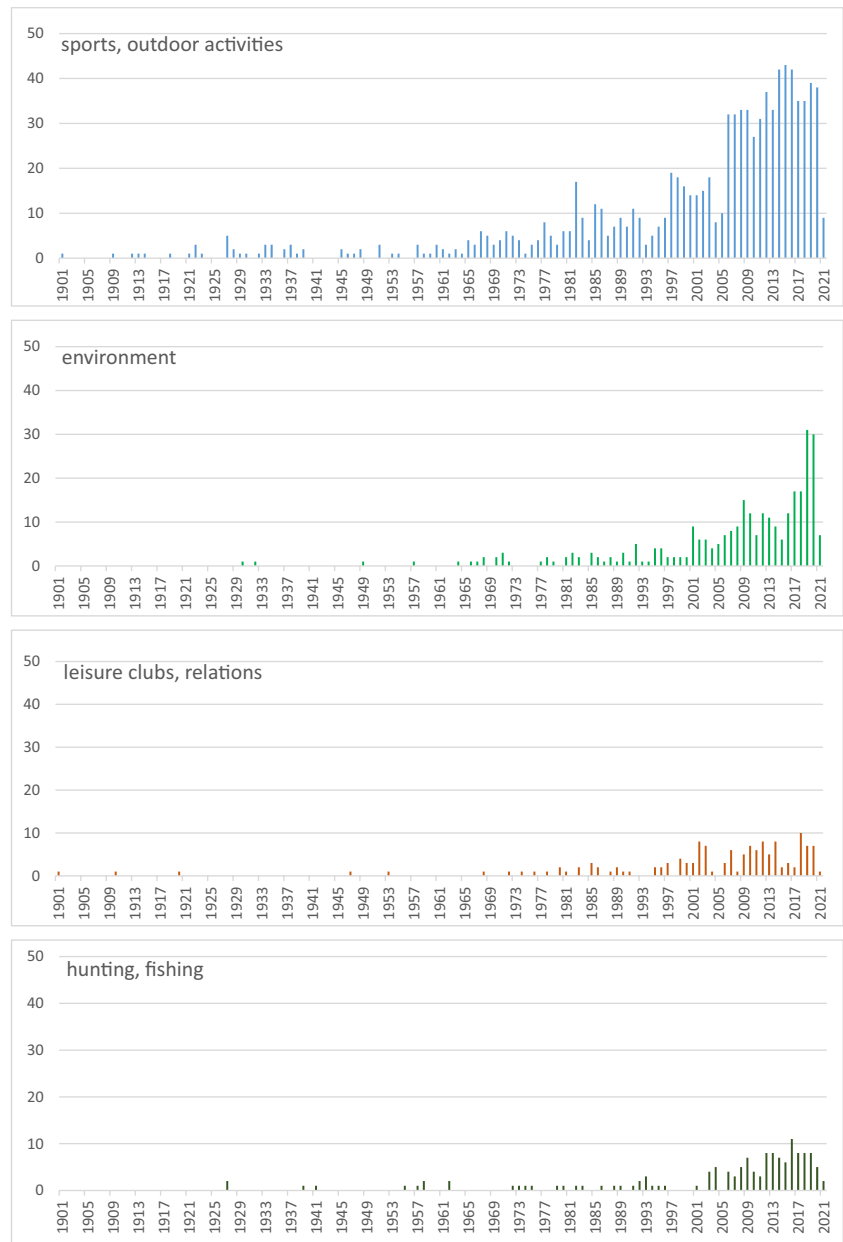
These towns contain nearly 50% of all sea-related associations in PACA region

#Source: INSEE, 2023

**Table 5** Sea-related associations by area of activity (level 1 of RNA nomenclature)

| Area of activity   | Total number of associations | Cumulative number | Cumulative percentage |
|--|------------------------------|-------------------|-----------------------|
| Sports, outdoor activities   | 934                          | 934               | 41.24                 |
| Environment  | 302                          | 1236              | 54.57                 |
| Miscellaneous (to be classified)   | 148                          | 1384              | 61.10                 |
| Leisure, relations   | 139                          | 1523              | 67.24                 |
| Hunting, fishing   | 137                          | 1660              | 73.29                 |
| Friendships, affinity and self-help groups (excluding the defence of fundamental rights) | 104                          | 1764              | 77.88                 |
| Culture, artistic activities, cultural practices   | 103                          | 1867              | 82.43                 |
| Heritage protection  | 79                           | 1946              | 85.92                 |
| Representation, promotion and defence of economic interests                              | 78                           | 2024              | 89.36                 |
| Army (including military training, medals), veterans                                     | 39                           | 2063              | 91.08                 |
| Education, training  | 33                           | 2096              | 92.54                 |
| Social and cultural actions  | 26                           | 2122              | 93.69                 |
| Charitable and humanitarian associations, development aid, volunteer development         | 24                           | 2146              | 94.75                 |
| Conduct of economic activities   | 17                           | 2163              | 95.50                 |
| Security, civil protection   | 17                           | 2180              | 96.25                 |
| Health   | 16                           | 2196              | 96.95                 |
| Information, communication   | 11                           | 2207              | 97.44                 |
| Employment assistance, local development, promotion of economic solidarity, local life   | 10                           | 2217              | 97.88                 |
| Defence of fundamental rights, civic activities  | 10                           | 2227              | 98.32                 |
| Research   | 9                            | 2236              | 98.72                 |
| Tourism  | 9                            | 2245              | 99.12                 |
| Clubs and think-tanks  | 7                            | 2252              | 99.43                 |
| Social interventions   | 5                            | 2257              | 99.65                 |
| Religious, spiritual or philosophical activities   | 3                            | 2260              | 99.78                 |
| Housing  | 3                            | 2263              | 99.91                 |
| Political activities   | 1                            | 2264              | 99.96                 |
| Family services, services for the elderly  | 1                            | 2265              | 100                   |

**Fig. 11** Existing sea-related associations in March 2021, by category and by year of creation



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