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1. Introduction

The purpose of this report is to examine how marinas and small ports can serve as a catalyst and support for tourism activities. Therefore, the proposed analysis aims to highlight the attractiveness of these infrastructures and how they can promote tourism.

The FRAMESPORT project has chosen to use the classification of different facilities supporting recreational boating in response to the regulatory definitions provided by different countries. However, categorizing them solely as marinas, small ports, and moorings fails to provide any indication regarding the range of services that these types of infrastructures offer.

Furthermore, while the correspondence between the definitions used is clear for Croatia, the same cannot be said for Italy. In fact, Italian small ports are similar to Croatian marinas in terms of their typology and services offered. Moreover, Croatian moorings, which are supposed to be mere berths according to their definition, often feature significant tourist services. This is the case, for example, of berths that cater to large hotel facilities, campsites, and similar amenities.

Lastly, the category of "mooring" is not present in Italian regulations and does not fully meet the project's expectations, as it refers to dispersed facilities intended for nomadic forms of tourism, even though they fall under the jurisdiction of the relevant authorities.

2. Survey and database

Defining the current state of the art in relation to the small port's phenomenon requires information as well as data that will affect transferability of information and outcomes to all the FRAMESPORT community. In fact, the information collected may be used for further developing of small ports in the Adriatic area. In this purpose, the proposed survey on small ports characteristics has the aim to obtain a quasi-exhaustive list of the status of small ports, their growth, and their effect on the surrounding coastal areas. This will be a sort of photography of the actual state of the infrastructure equipment of small ports, services offered to their customers and visitors, choices made on sustainability, links on surrounding areas in a common exchange of services and supports.

To do that, FRAMESPORT proposed to all small port and marinas in the project area to complete a survey to collect information about:

- Dimensional characteristics
- Users & fares
- Technical services to vessels
- Other yachtsman's services
- Other consumer services
- Environmental protection services
- Added-value services

These macro categories were detailed into specific topics that created a deeper analysis on the state of art of marinas.

The analyses here proposed want to highlight main features about the marinas and small ports in Italy and Croatia, showing common characteristics and main differences between the two Adriatic coast to support the creation of the common FRAMESPORT's strategy.

3. The contents of the report

The report is structured based on the database collected during the project activities. The database contains a substantial amount of information, which required simplification. The large quantity of available data and its sometimes non-quantitative format pose limitations on the quality and use of the data.

Furthermore, from the perspective of tourism attractiveness, the focus was placed on aspects such as:

1. Berth characteristics: This includes the number, size, and type of propulsion (motor or sail) of available boat berths. Not all ports are capable of accommodating all types of vessels due to structural limitations of the port itself (e.g., entrance channel width, basin depth, etc.).
2. Boat services: These services, along with environmental factors, provide details not only about the activities offered but also serve as indicators of the sustainability of the facility.
3. Environmental sustainability: It is believed that this aspect represents a qualification of the overall offering.
4. Sports activities: This analysis aims to define that the maritime environment offers not only water sports but also a wide range of other available activities. The evaluation also considers whether non-marine sports activities are provided within the port or externally (e.g., tennis courts, football fields, golf courses, etc.).
5. Personal services: These are activities that support visitors during their stay at the marina. Personal services include basic amenities (bathrooms, showers, laundry), recreational facilities (restaurants, cinemas, shops), and additional services (insurance offerings, rental services, defibrillators). The evaluation of ports considers the number of services offered, as it also categorizes the type of port (simple berth, small port, or marina).
6. Accessibility: This aspect is crucial in establishing a relationship between urban space and the marina/dockyard, with the aim of developing an expanded system of services.

3.1 Characteristics of Small Ports

The data collected in the initial phase of questionnaire surveys provides us with a fairly representative sample of the analysed realities. This sample consists of 502 structures, with the majority of them located in Croatia.

Table 1: Breakdown by Type of Analysed Structures

PORT TYPOLOGY	N°
Marina (Nautical tourism port)	35
Mooring	16
Small Port	451
Total Overall:	502

The definitions of the types were decided with the partners at the beginning of the research, and they are as follows:

- Nautical tourism port (Marina) - is part of a specially built and arranged sea/water area and coast for the provision of mooring services, accommodation of tourists in boats, and other services needed by tourists. Drinks, beverages, and food services are provided in the marinas. Nautical ports (marinas) are managed under the concessional agreements by concessionaires.
- Port - refers to a seaport, i.e. a sea and land area directly connected to the sea with built and unbuilt shores, breakwaters, devices, plants, and other facilities intended for berthing, anchoring, and protection of ships, yachts, and boats, loading and unloading of passengers and goods, storage and other manipulation of goods, production, refining and finishing of goods and other economic activities that are in economic, traffic or technological connection with these activities. They are managed by the Port authorities.
- Mooring - (nautical mooring) is a part of a specially built sea or water area for providing mooring services and accommodating vessels. They are managed under the concessional agreements by concessionaires.

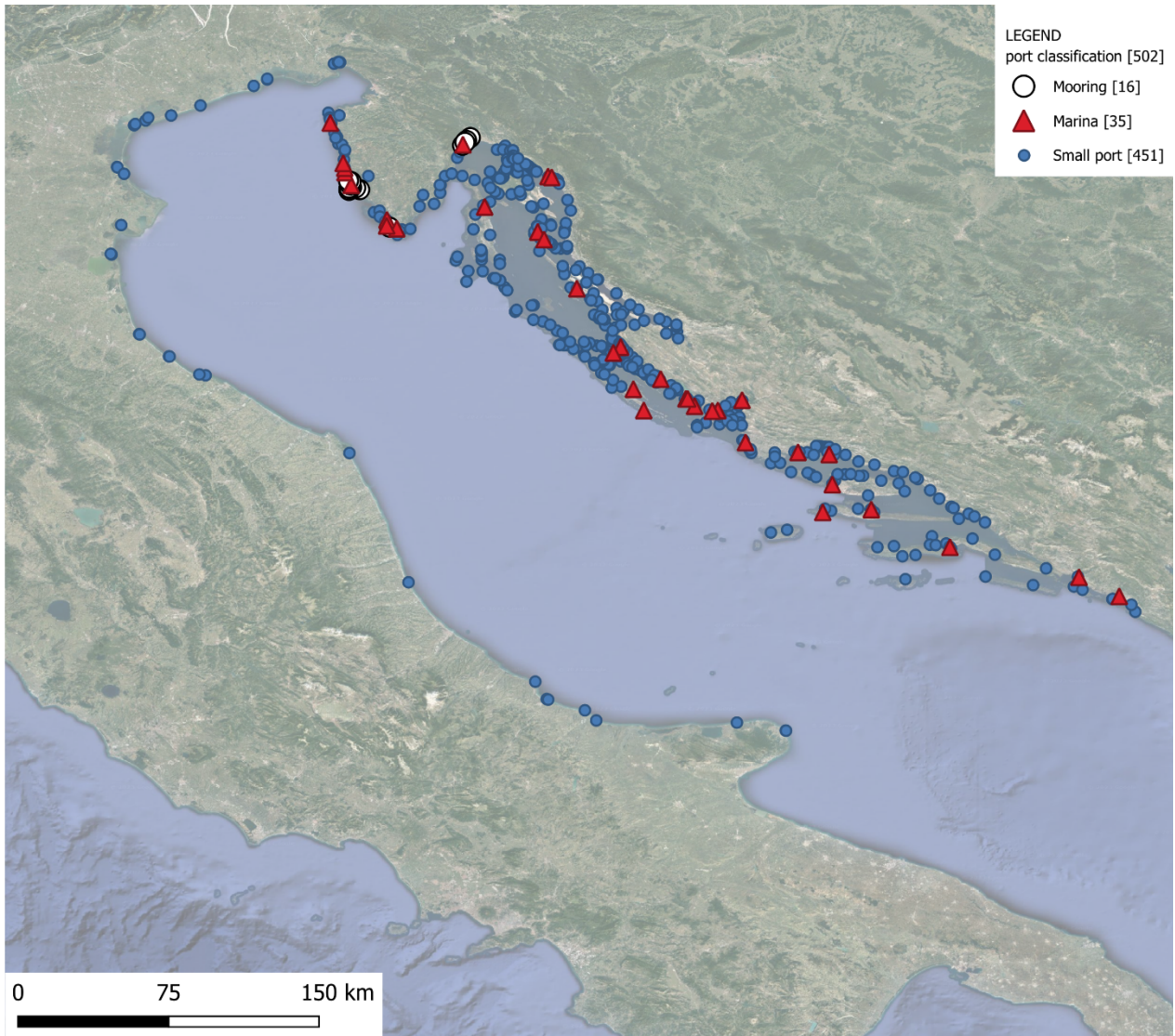


Figure 1: Port classification (moorings, small ports and marinas)

The figure highlights that "mooring" type ports are only present in Croatia in the areas of Rovinj, Pula, and Rijeka. It should be noted that this distinction does not provide any indication of the services offered or the spatial size of the facility.

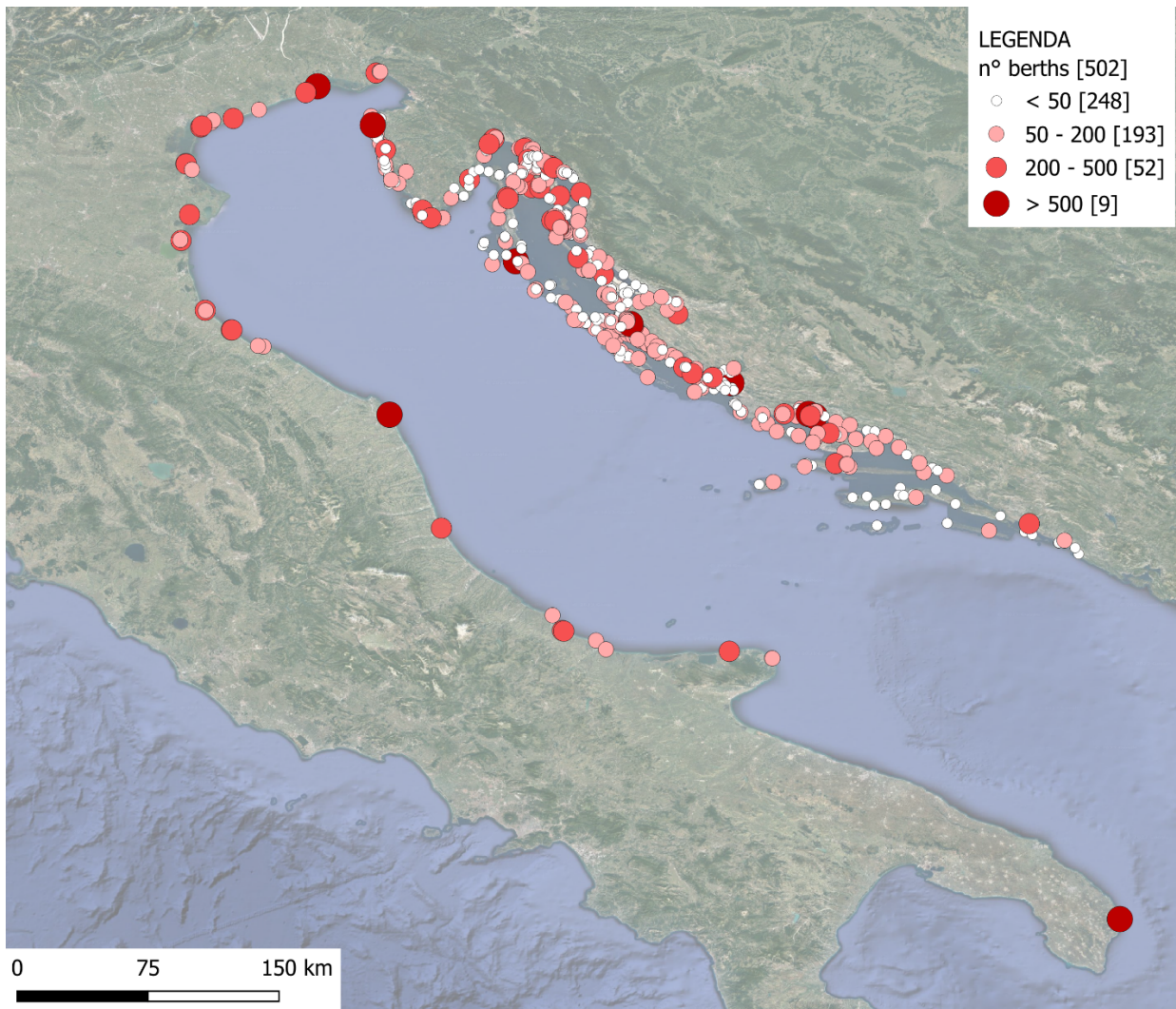


Figure 2: Number of berths per port infrastructure

When looking at the map in Figure 2, it becomes clear that the distribution of boat berths based on their capacity is connected to the territorial structure. The large number of marinas in Croatia and their distribution in a rugged territory rich in coves and islands allows for stops in diverse locations. In contrast, the Italian coast is much more compact, and the recreational boating infrastructure appears to have larger dimensions.

Analysing the numbers divided by country, two main elements stand out. The majority of the data pertains to the Croatian territory, while in Italy, there seems to be only one type of recreational boating infrastructure, namely small ports.

Table 2: breakdown of data by Country and type of data collected

CROATIA	465
Marina	35
Mooring	16
Small port	414
ITALY	37
Small port	37
Total Overall:	502

From the perspective of the sizes of the analysed structures, in general, they are relatively small, especially in Croatia, possibly due to their large number. In Italy, on the other hand, we find a medium size, ranging from 50 to 200 berths, and this will obviously correlate with the issue of service provision.

Table 3: breakdown of structures by number of berths

Number of Ports by Number of Berths		
	Croatia	Italy
0-50	241	2
51-200	182	14
201-500	36	18
Over 500	6	3
TOTAL	465	37

3.2 Types of boats accommodated

In order to identify the types of boats that can be accommodated in various ports, in addition to the distinction between motorboats and sailboats, some dimensional data of boats and the marina were collected, such as:

- Maximum draft (in meters)
- Maximum height of the vessel (in meters)
- Maximum length of the vessel (in meters)
- Maximum tonnage of the vessel (in tons)
- Minimum depth of the seabed (in meters)
- Width of the port entrance (in meters)

In particular, the minimum depth of the seabed and the maximum height of the vessel (in case of obstacles, bridges, etc.) are important information for those traveling with sailboats.

The ability to accommodate yachts, on the other hand, depends on the width of the entrance, the acceptable maximum tonnage and length of the vessel, taking into account the available manoeuvring space.

Sailboats require a certain depth of the marina basin and the related access channel. In Italy, where the seabed near the coast is shallower and sandy, continuous dredging activities are required. Therefore, not all ports are able to accept sailboats (or boats with size limitations).

In contrast, Croatia has a rocky seabed with an average depth, but the questionnaire indicates the presence of numerous small ports (moorings) that are not equipped for mooring sailboats (draft less than 1.5m).

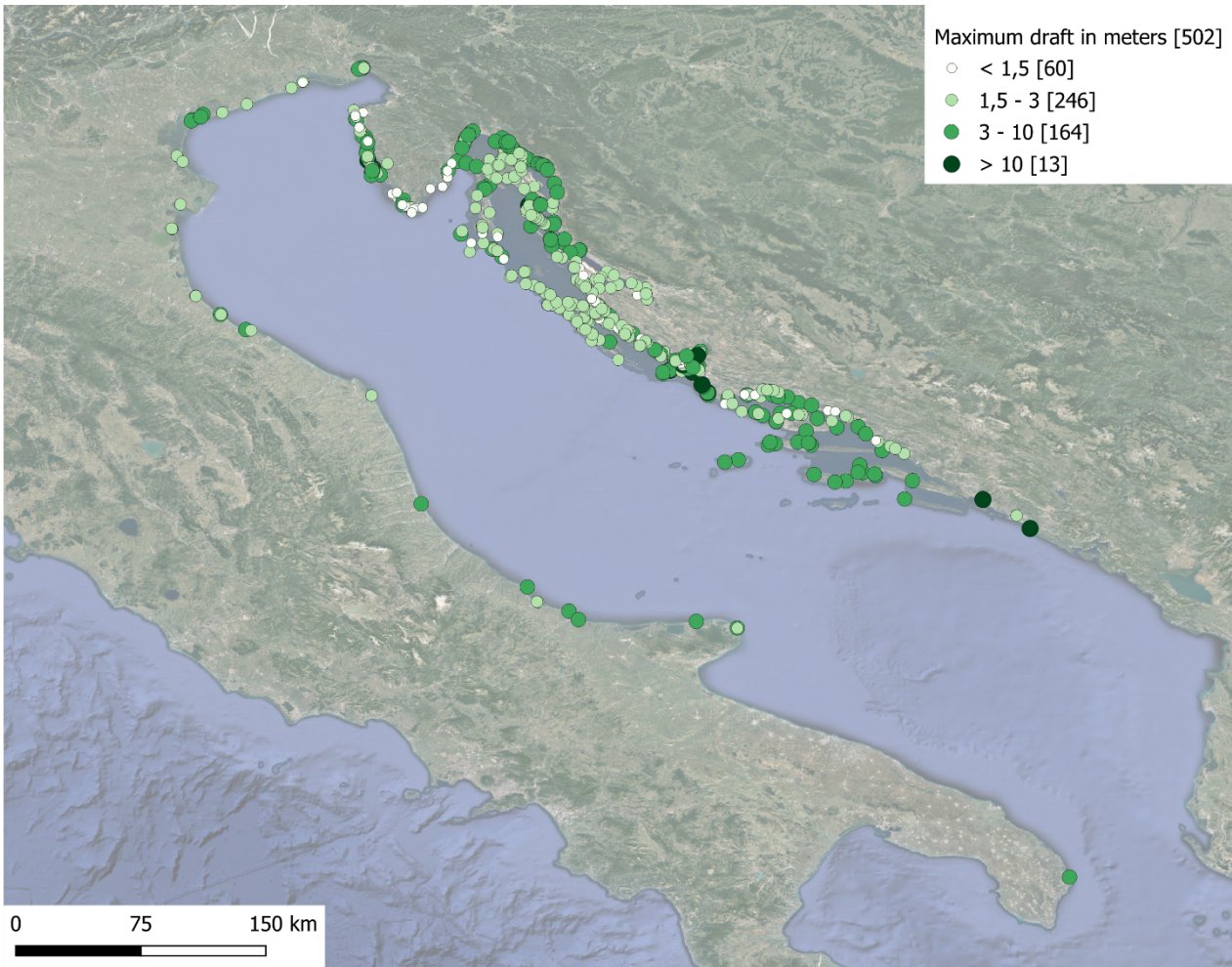


Figure 3: Classification map of ports based on the maximum draft allowed

The map divides the ports based on the maximum draft. For example, a 10-meter sailboat has a draft ranging from 1.5 meters (approximately 5 feet) to 2.5 meters (approximately 8 feet).

Table 4: Breakdown of ports by draft

Depth Intervals (m)	N° Port
< 1,5	60
1,5 – 3	246
3 – 10	164
> 10	13
Total Overall:	502

Another interesting analysis concerns the size of boats, particularly whether ports are able to accommodate luxury yachts for tourism purposes.

Yachts can be classified into different size categories based on the length of the vessel. The following are general distinctions, but it's important to note that there is no universal agreement on the specific dimensions of each category:

- Yachts are classified as boats with a length exceeding 33 feet, or approximately 10 meters.
- Superyachts if they exceed 25 meters in length.
- Megayachts when they are larger than 50 meters.
- Gigayachts when they exceed 100 meters.

Only about ten ports among those mapped are capable of accommodating ships larger than 100 meters and therefore offering a ferry service for vehicles and passengers.

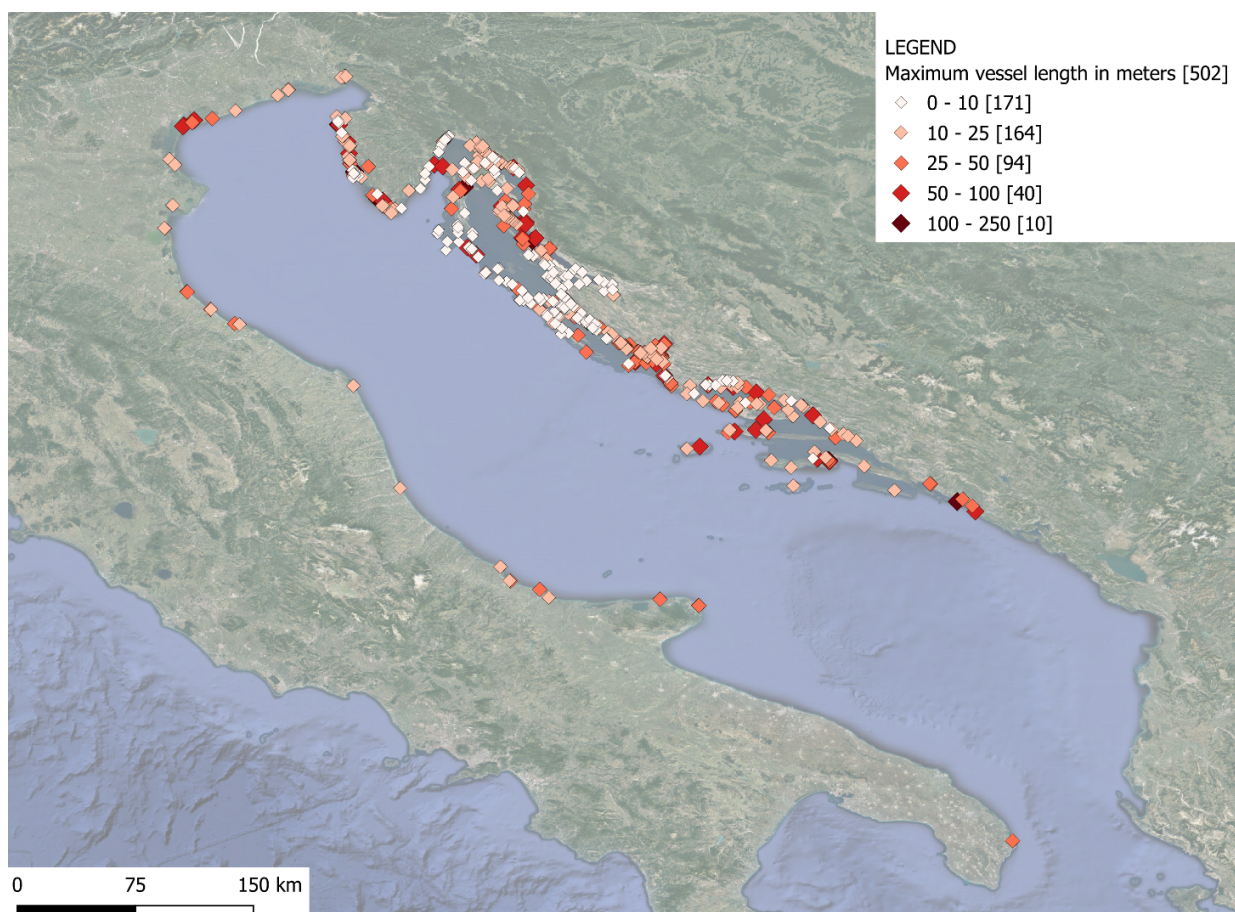


Figure 4: Classification map of ports based on the maximum length of boats allowed

Table 5: Breakdown of ports by boat length

Length Range	N° Port
< 10	171
10 – 25	164
25 - 50	94
50-100	40
> 100	10
Total Overall	502

3.3 Services for vessels

Many ports and marinas are used for the seasonal or permanent berthing of recreational boats and offer numerous services for the vessels, both for routine and extraordinary maintenance. The questionnaire aimed to collect a specific list of services structured as follows:

- lowering and raising the vessel
- hull washing
- place for temporary storage
- vessel storage space
- boat transfer trailer
- crane self-propelled land lift services
- boat service overhaul available
- sales of technical products
- hull sanitation
- manufacture and repair
- sales of technical products for vessel to order
- upholstery services
- rope fitting and adjustment services
- marine engine service
- electrical engineering services
- supervisor
- dry dock
- electronical services
- warehouse worker
- plasticization of vessels
- ship carpentry
- authorized marine and outboard engine service
- technical diver service
- fire protection system on the berths
- is there mooring service
- mooring service available 24 hours a day
- an emergency mooring service
- a night watchman in the harbour
- they also perform the mooring service

Table 6: Number of services offered by the port

No. of services offered	N° Port
0	125
1 – 3	199
3 – 6	78
> 6	100
Total Overall	502

It is worth noting that 125 small ports in Croatia do not offer any services for boats, limiting themselves to mooring facilities only. This is particularly evident in the central areas of the coast, where numerous islands are visited primarily during the summer season as part of the typical itinerant vacation in recreational boating.

On the other hand, Italian marinas appear to be more well-equipped and structured, primarily serving seasonal or year-round customers who require a comprehensive range of services for boat maintenance.

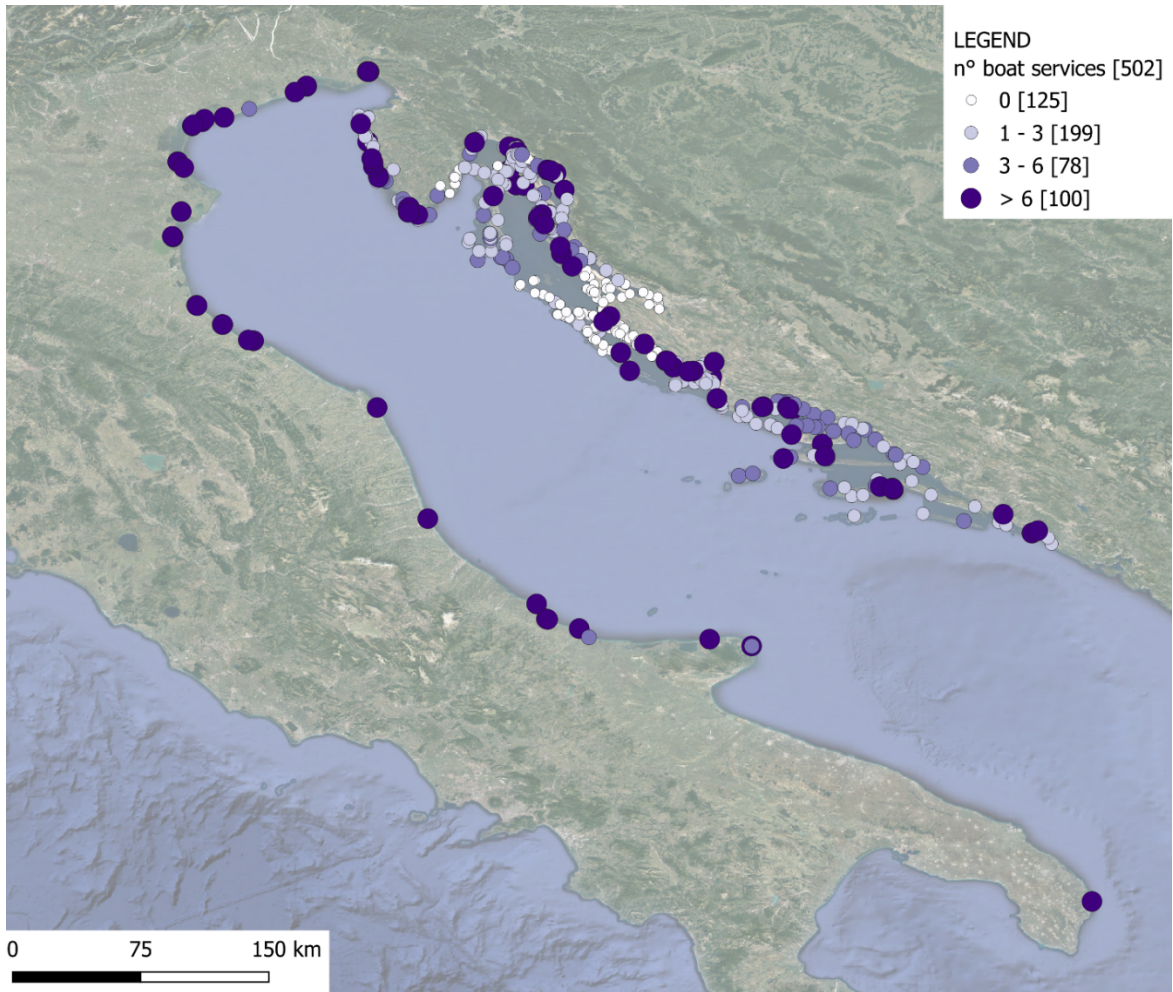


Figure 5: Classification map of ports based on the number of services provided to boats

3.4 Equipment to support the sustainability of marinas

The FRAMESPORT project has focused heavily on sustainability, particularly through the evaluation of the life cycle assessment of activities carried out within the marinas.

ECOLABEL

An Ecolabel is a set of guidelines that allows improving and certifying the operations of small ports, making them more sustainable and less harmful for the environment. A set of “minimum” criteria has been developed to obtain the Ecolabel certification and a set of “excellence” criteria has been defined to mark the small port as excellent from a sustainability perspective. The LCA methodology has been adopted to perform the study and develop the Ecolabel criteria and guidelines. This methodology assures the identification of the environmental hot-spots, main environmental impacts and opportunities for improvement. There are several criteria as energy efficient lighting, on site self-generation of electricity through renewable energy sources, on site self-generation of heat for water through solar thermal system, efficient water fittings, water self-sufficiency, waste sorting and sending for treatment, rainwater and grey water recycling, environmentally preferable means of transport offer, environmental and social actions, that can be derived from the FRAMESPORT’s marinas and small ports survey.

The database created from the questionnaire and used on the website www.framesport.eu has gathered information on waste management and energy-related topics, which are key areas in terms of infrastructure sustainability.

The analysis of the presence of environmental services within marinas has focused on the following topics:

- wastewater monitoring system
- monitoring system classified
- monitoring system developed
- separate waste collection system
- wastewater treatment plant
- environmentally friendly tanks
- proper battery disposal service
- environmental management system certification
- desalinator
- air purification system
- water treatment plant

- environmental education and activities
- sustainable modes of transport

The following table and graph illustrate the number of these services present in the Italian and Croatian ports evaluated within the FRAMESPORT project.

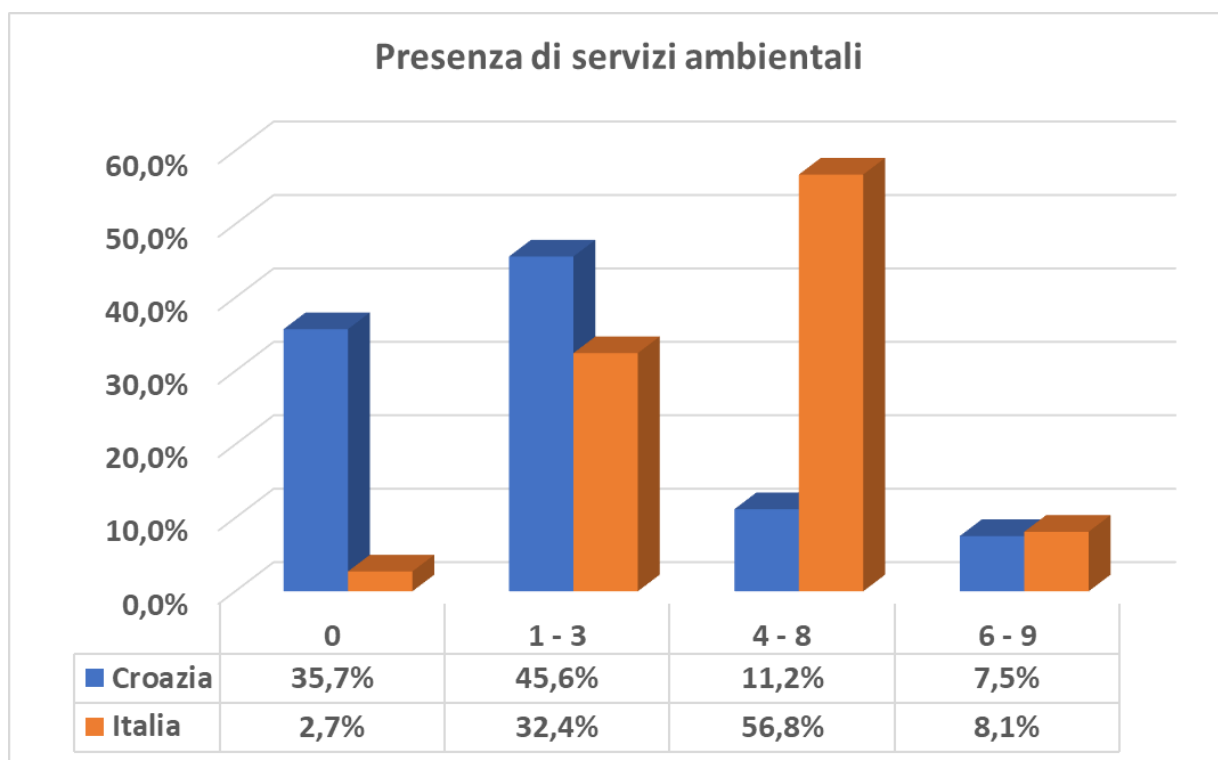


Figure 6: Percentage of ports with environmental services in Italy and Croatia

Table 7: Number of services provided by ports in terms of waste separation, water treatment system, oil collection, etc

N° services	N° Port Croatia	N° Port Italy
0	166	1 ¹
1- 3	212	12
4 -8	52	21
6 - 9	35	3

¹ NOTE: The only Italian port that appears to lack environmental services in this table has actually not filled in the fields, but it is a marina complete with all services.

Table 8: No. of ports with the presence of Electric Charging Systems

	No. of ports with the presence of ELECTRIC CHARGING SYSTEMS	Total	Percentage
CROATIA	27	465	6%
ITALY	7	37	19%
Total	34	502	7%

Table 9: No. of ports with the presence of Electricity Supply from Renewable Sources

	Number of ports with renewable energy- powered electrical supply	Total	Percentage
CROATIA	150	465	32%
ITALY	18	37	49%
Total	168	502	33%

3.5 Equipment to support the sustainability of marinas

The theme of leisure time, how to spend it and the opportunity to utilize services within recreational port facilities create a connection between these facilities and the surrounding territory. The availability of leisure time for individuals becomes both a generator and consumer of tourism.

The sports activities offered by these facilities to tourists who choose a boating vacation can be categorized into two types: nautical activities and traditional activities. The nautical sports activities offered within the port services include:

- wind surf
- sport clubs
- sailing school
- diving school

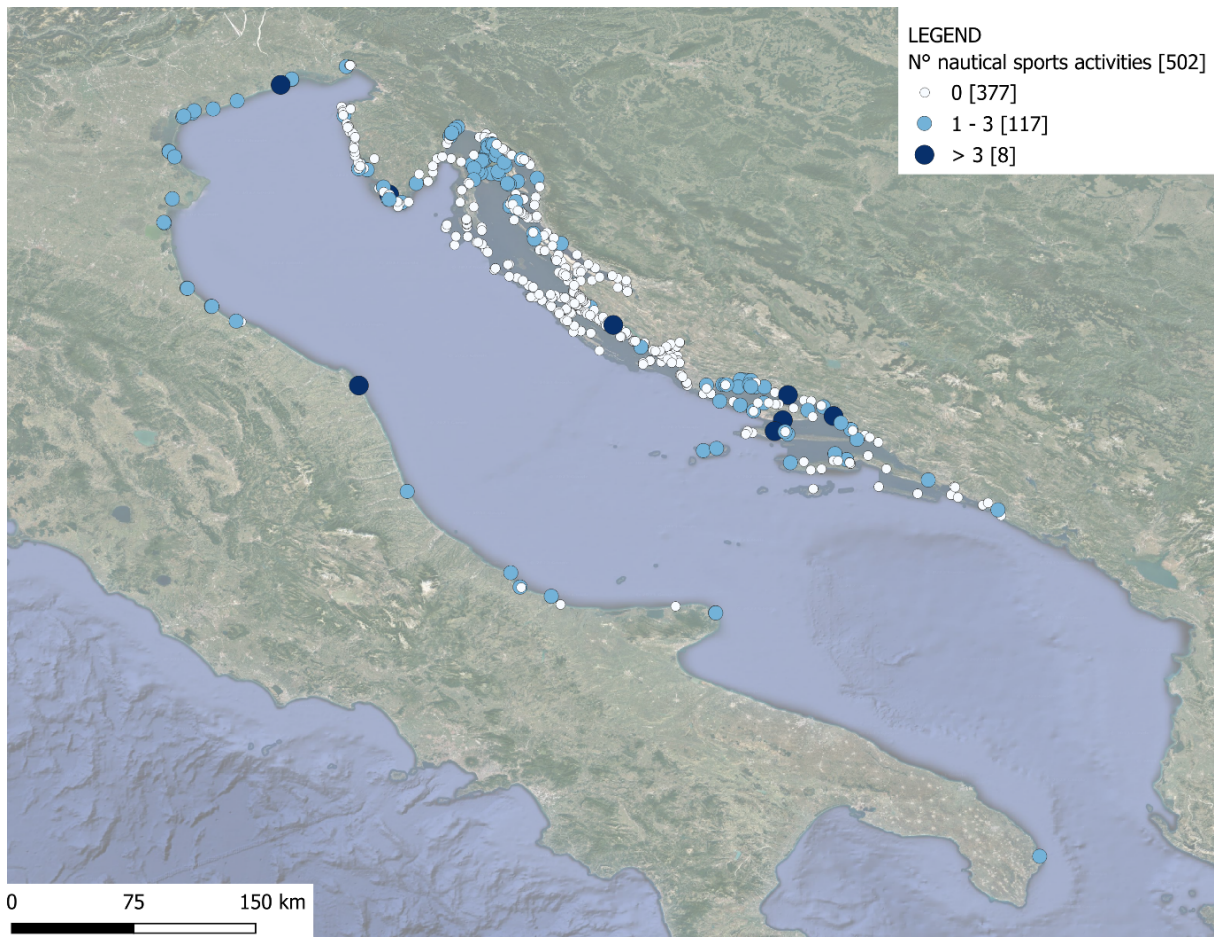


Figure 7: Classification map of ports based on the number of nautical sports activities provided

Table 10: Number of marine sports offered by port

No. of services offered	N° Port
0	377
1 - 3	117
> 3	8
Total Overall	502

The same can be said for non-nautical sports activities available within docks, marinas, and small ports. The sports activities generally available within these facilities are:

- tennis court
- football field
- pool
- horse riding
- golf course
- gym

The questionnaire also sought to verify whether this type of sports offering was potentially available outside the marina but in the vicinity.

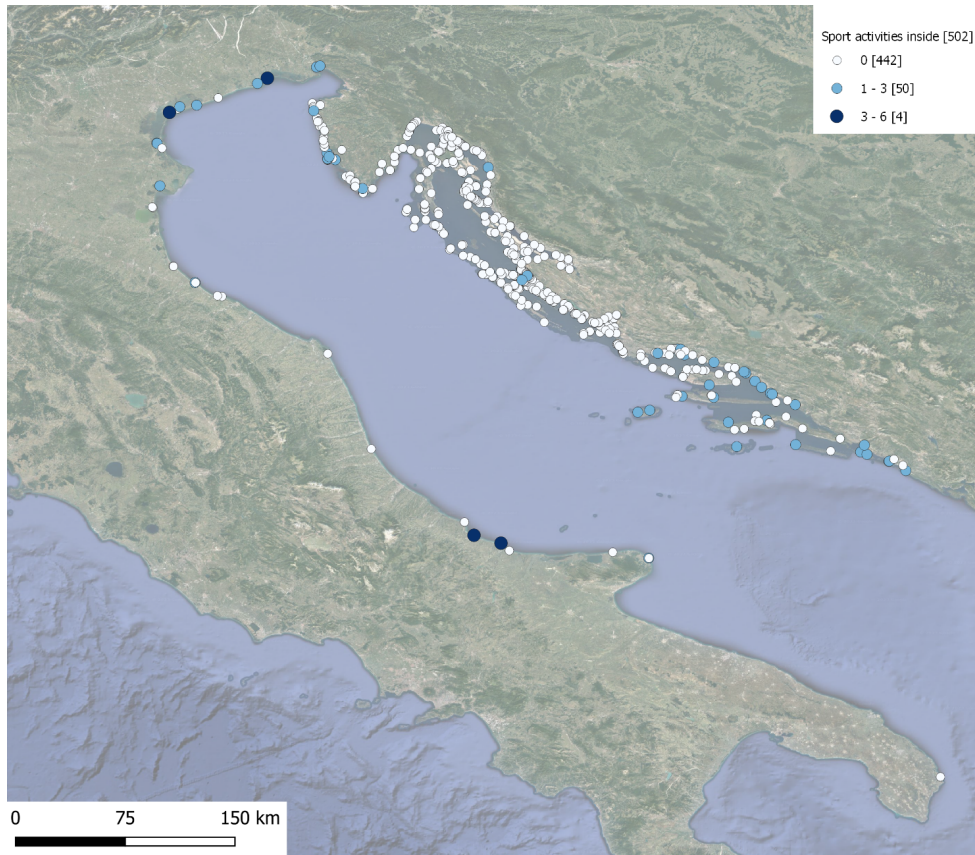


Figure 8: Classification map of ports based on the number of non-nautical sports activities offered within small ports

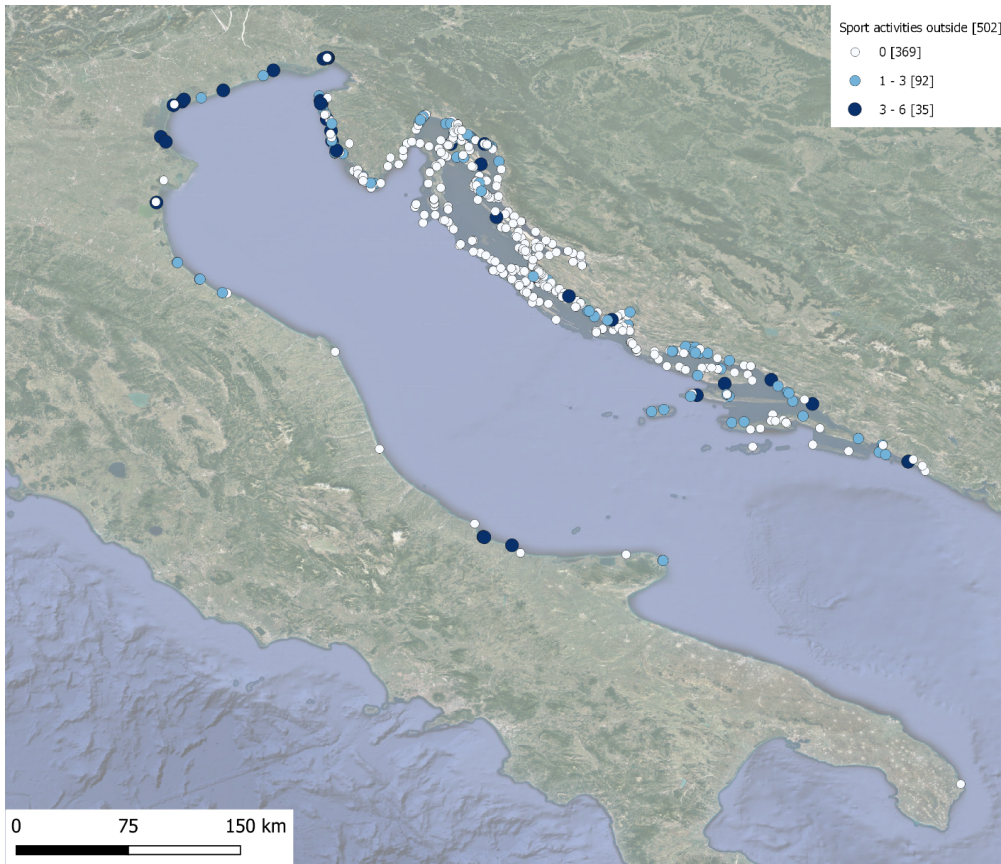


Figure 9: Classification map of ports based on the number of non-nautical sports activities offered in the vicinity of small ports

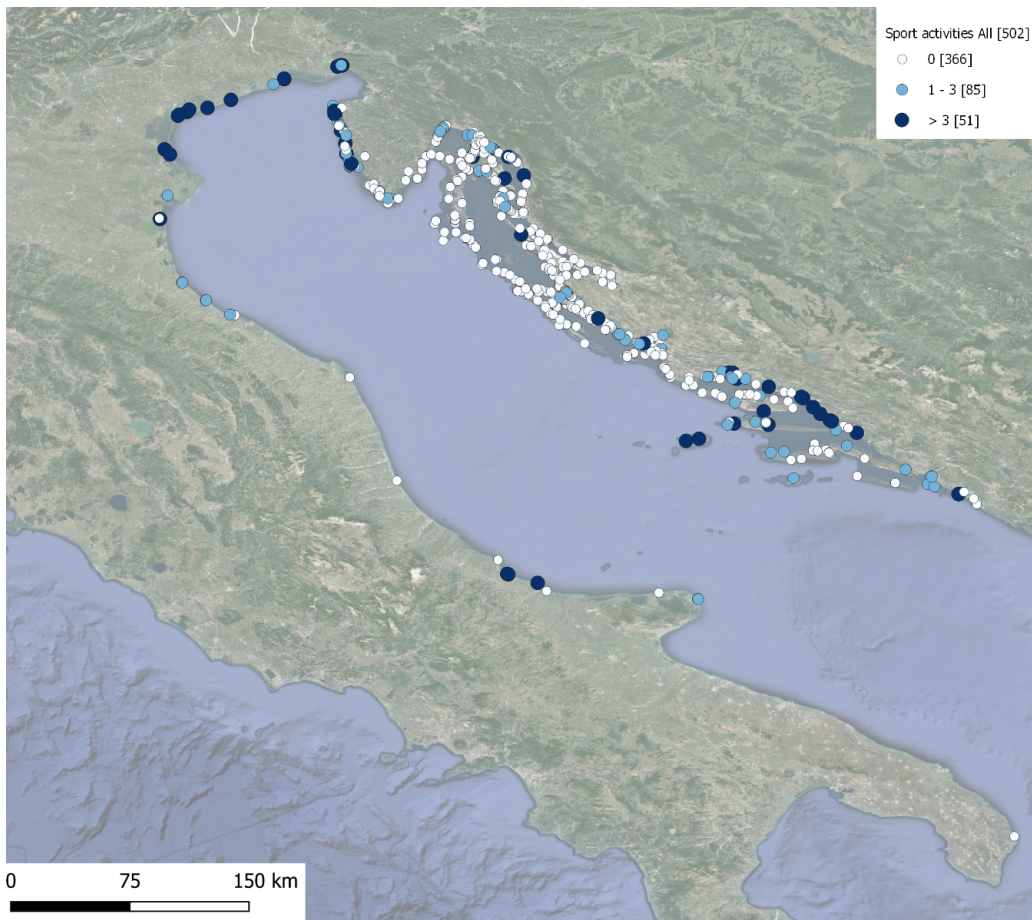


Figure 10: Overall non-nautical sports activities offered both inside and outside the small ports

Table 11: Number of sports activities offered

No. of services offered	INSIDE PORT	OUTSIDE PORT	OVERALL
0	442	369	366
1 - 3	50	92	85
> 3	4	35	51
Total Overall			502

These two maps and corresponding tables confirm that the majority of moorings and small ports in Croatia serve for short and temporary stays. Only the more structured marinas, accustomed to hosting seasonal boaters, offer sports activities. In conclusion, this type of activity is not very widespread, especially in Croatia, and is mainly present in well-organized facilities with numerous services available to visitors and a significant number of berths.

3.6 Type of boaters

The questionnaire aimed to identify the profile of port customers, specifically the age range of boaters. As highlighted in the meetings with industry representatives, the analysis of the responses also indicates that 2/3 of users are over 40 years old.

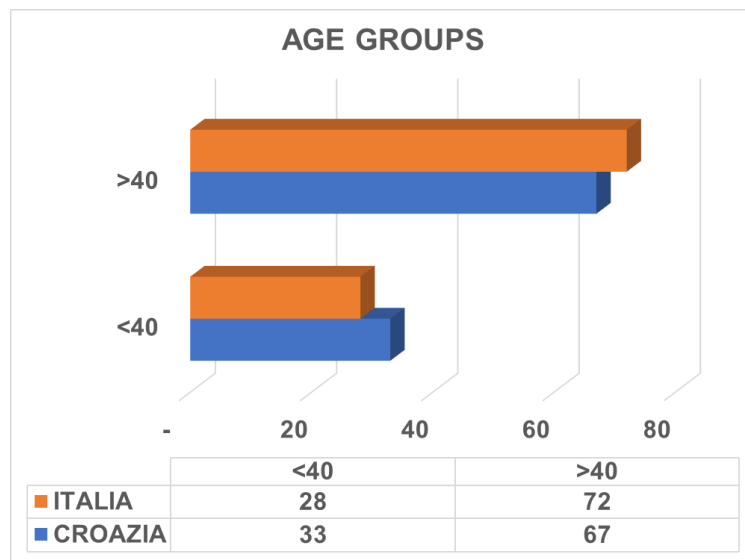


Figure 11: Percentage of yachtsmen under or over 40 years old

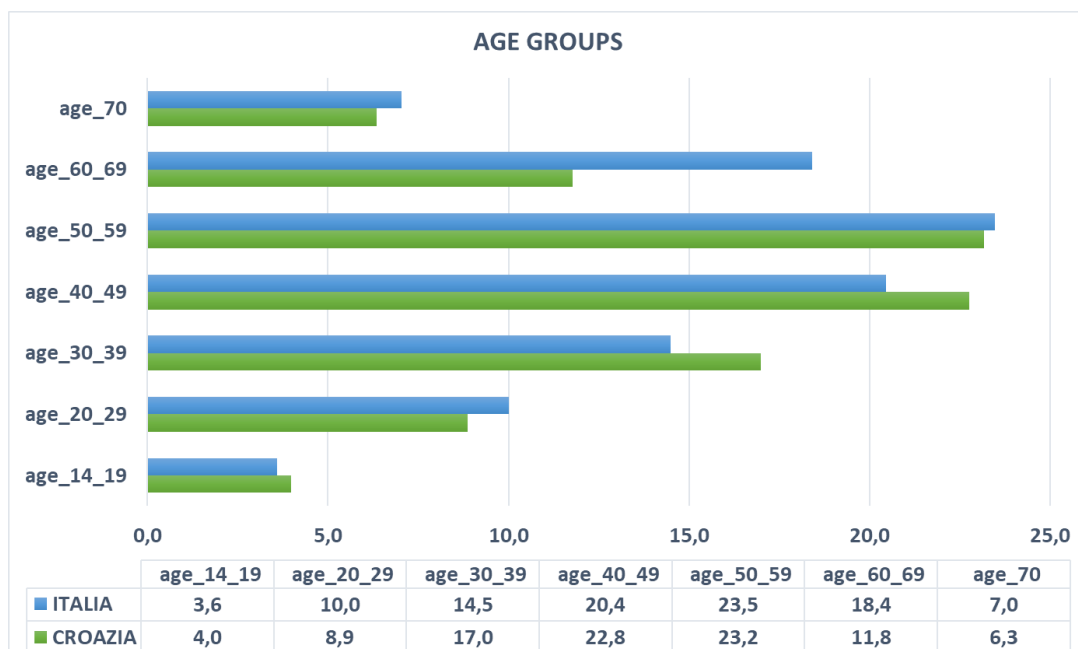


Figure 12: Age groups of boaters

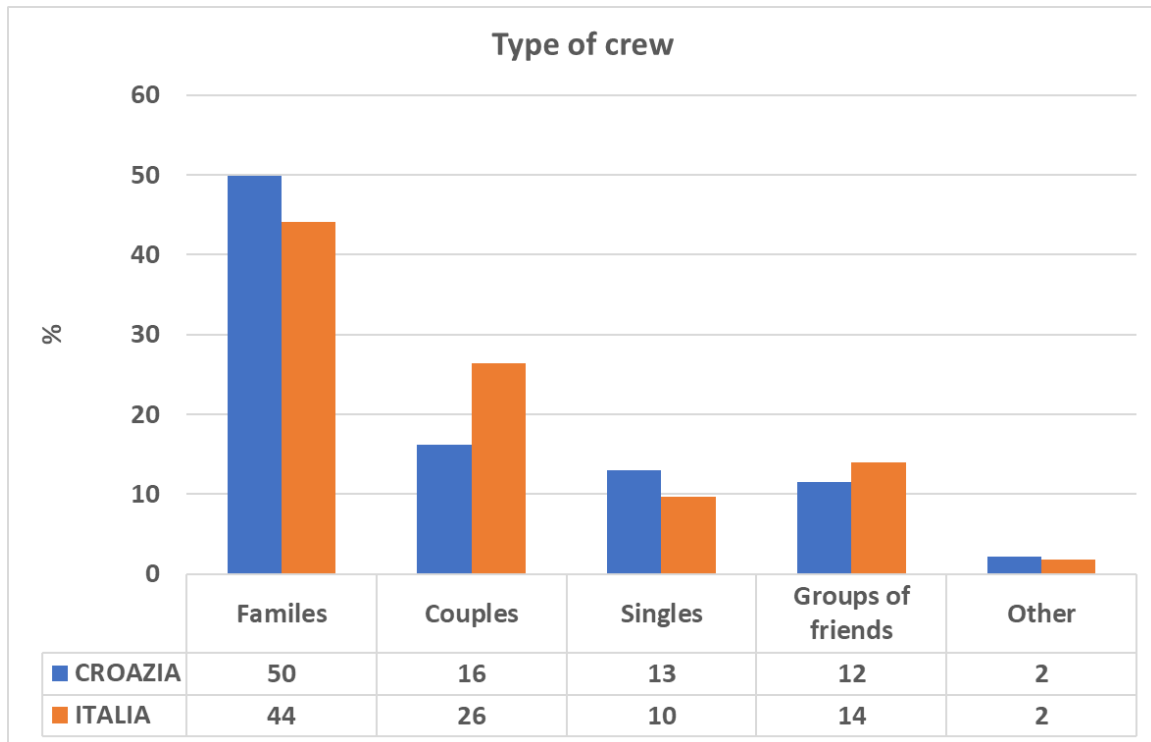


Figure 13: Typology of users of small ports

The type of users is also of interest, as could be expected, half of them are families.

3.7 Supply of personal services

The theme of personal services is considered to be one of the key aspects to focus on when defining the port infrastructure, not only as a place for shelter and maintenance for boats, but also as a space where activities involving people's stay can be organized.

The presence of numerous mooring points in Croatia highlights a tendency towards tourist nomadism or a primary destination usage, where having services is not a primary necessity.

The questionnaire collected information divided into the following personal services:

- offer toilets
- offer showers
- offer car parking
- offer insurance
- services people with reduced mobility
- services tailored to pets
- restaurant
- spa inside
- laundry
- galleries theatres
- technical sports shops
- clothing stores
- designer clothing stores
- defibrillators

Analysing the data above, it is possible to see that almost half of the analysed sample does not offer any type of personal services. The infrastructures with a low number of services are mainly located in Croatia, where 225 moorings do not even have restroom facilities. The minimum considered service is the sanitary one. The structures that have more than six services are predominantly located in Italy (in percentage terms).

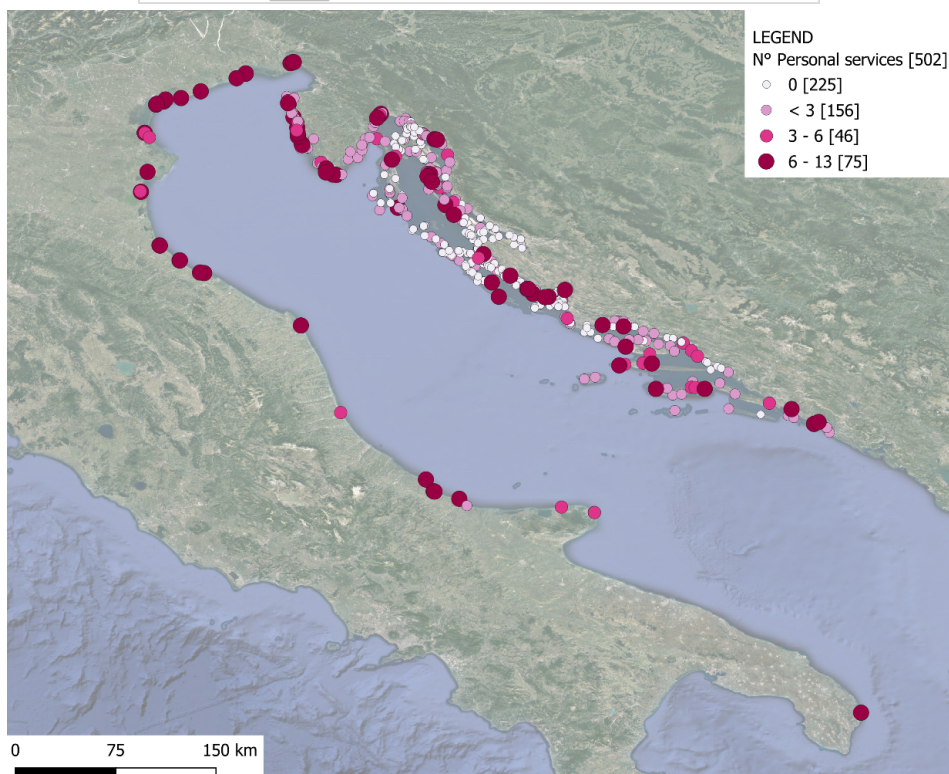
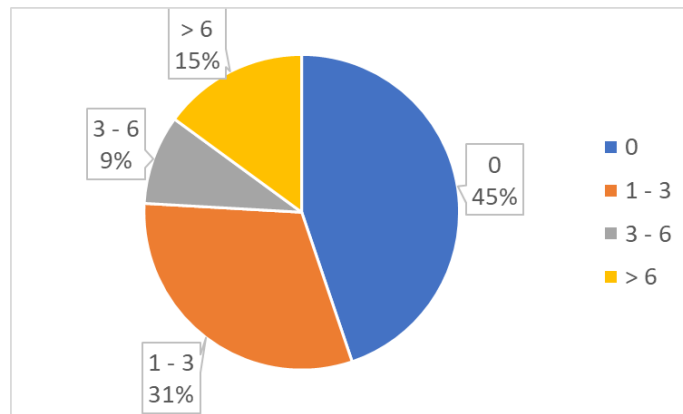


Figure 14: Classification of ports according to the number of services offered to the person

N° services	N° Port Croatia		N° Port Italy	
	N°	%	N°	%
0	225	50 %	0	0 %
1 - 3	155	35 %	1	3 %
3 - 6	37	8 %	9	24 %
6 - 13	31	7 %	27	73 %
TOTAL	448	100%	37	100%

3.8 Connected Tourism Offer

Port facilities, especially those of a tourist nature, are also equipped to offer activities to be enjoyed within the surrounding area, such as nature and cultural excursions, given the presence of historical centers near the marinas. The data collection within the questionnaire specifically asked managers the following questions:

- Is there a tour guide?
- Is documentation (digital or paper) provided for tourist visits?
- Is there an offer of half-day tourist excursions?
- Is there an offer of day trips?
- Is there cooperation with local self-government units?

The following map shows the outcome of the first round of data collection:

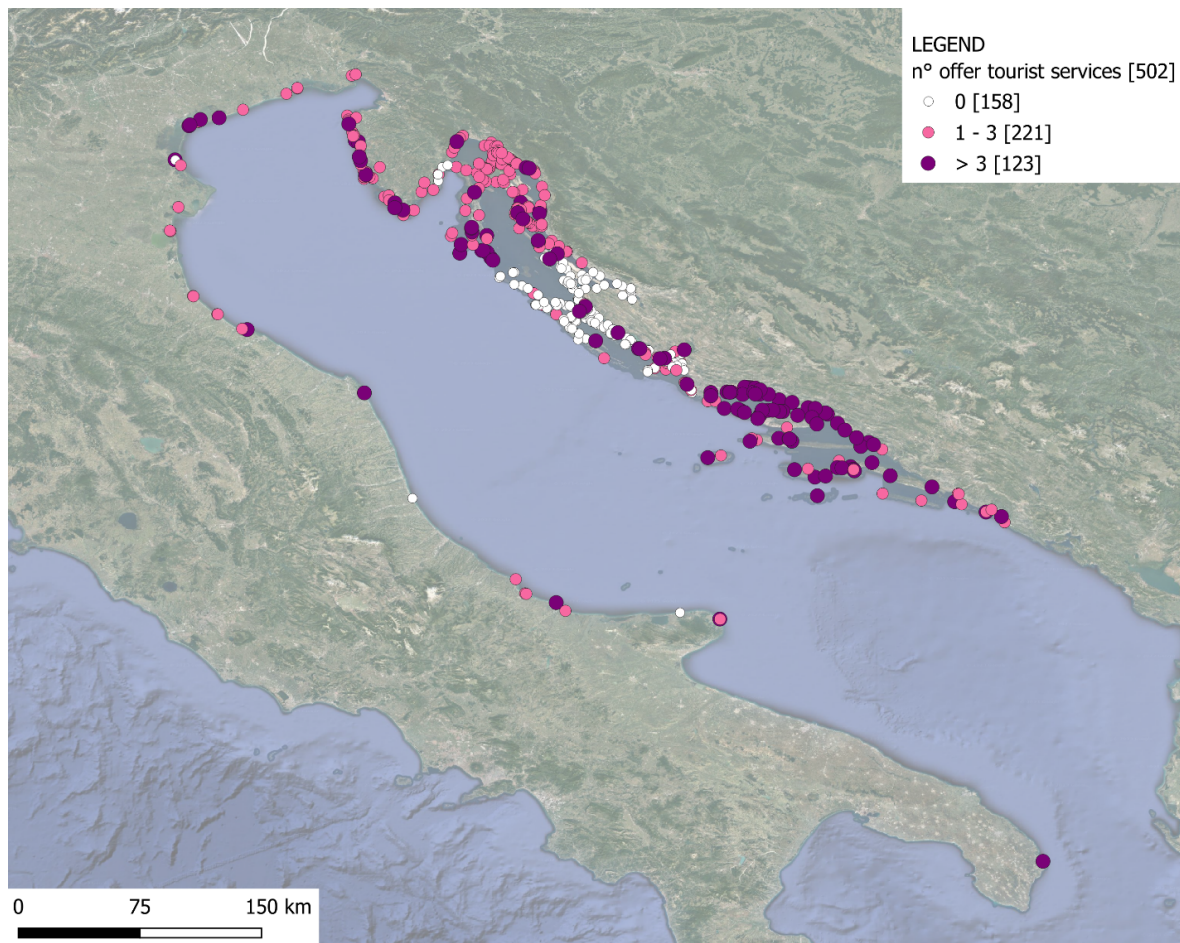


Figure 15: Classification of ports based on the range of tourist services provided

As expected, small ports that only offer mooring services do not provide any tourist services and account for 31% of the total. 44% of the ports offer some services (from 1 to 3), while 25% of the ports offer all the services included in our questionnaire.

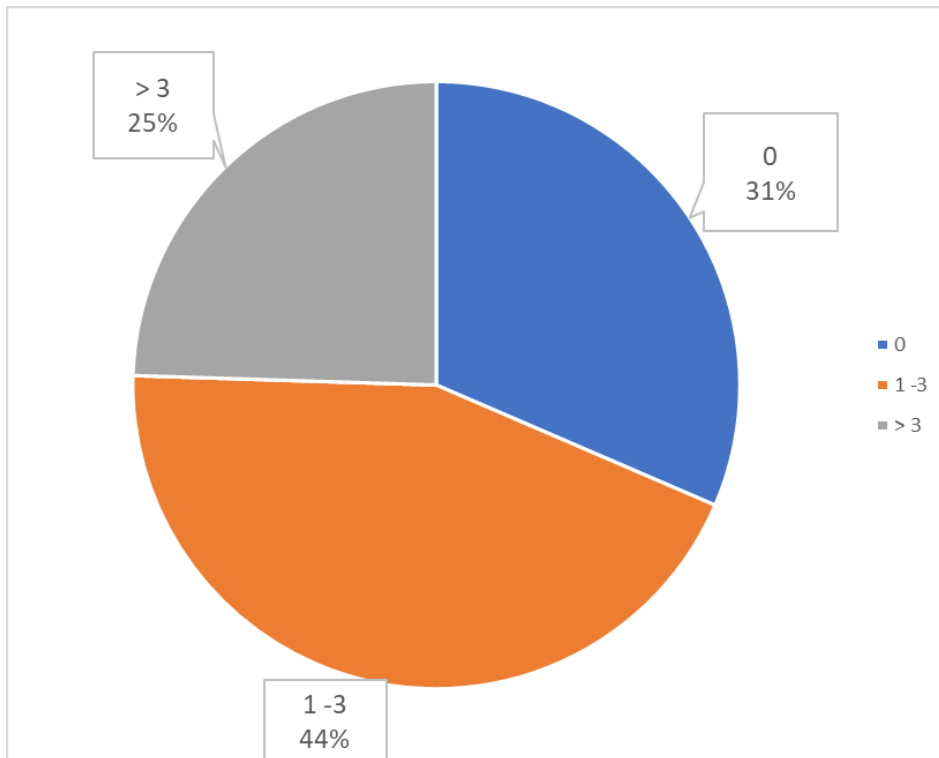


Figure 16: Distribution of responses

3.9 Accessibility

Most of the small ports in the Adriatic are located along the coast, both in Italy and Croatia. There are very few cases where they are positioned inland, along rivers (see docks along the Tagliamento River on the border between Veneto and Friuli). It should be noted that the data collection considered only coastal port facilities.

Historical ports are located within cities, often in the city center (e.g., Ancona, Piran, etc.).

The questionnaire aimed to evaluate the position of ports in relation to inhabited areas, and in particular, it was deemed interesting to assess the location of public transport and security services in relation to the port.

The presence of security services near the marina is essential to ensure the safety of visitors. In case of emergencies or accidents, a quick response from law enforcement can help reduce risks to personal safety and tourists' property. The proximity of the police can also deter potential criminal activities and increase the sense of security for visitors.

The proximity to hospitals or medical facilities can be crucial in case of accidents or health issues that require immediate care. In emergency situations, response time is essential, and having easily accessible medical services can make a difference. A marina that offers healthcare services nearby can attract visitors who want to feel safe during their stay.

A marina located near basic infrastructure such as shops, restaurants, accommodations, and transportation services has greater attractiveness. This improves the tourists' experience as they can easily access necessary services without having to travel long distances. This increases the likelihood of tourists returning in the future.

The presence of security services and healthcare facilities nearby makes the marina more attractive to tourism operators. Access to essential services allows them to provide a safer and more reliable experience to their customers. Proximity to supporting infrastructure simplifies the management of tourism activities and reduces response times in case of issues. This proximity also helps create a positive image of the marina, influencing its reputation and attracting more visitors and investments, both nationally and internationally. A marina considered safe and well-connected to supporting facilities will have greater opportunities for economic growth.

The following maps highlight the distance of the ports from bus and train stations, as well as the distance to hospitals, fire stations, and police stations.

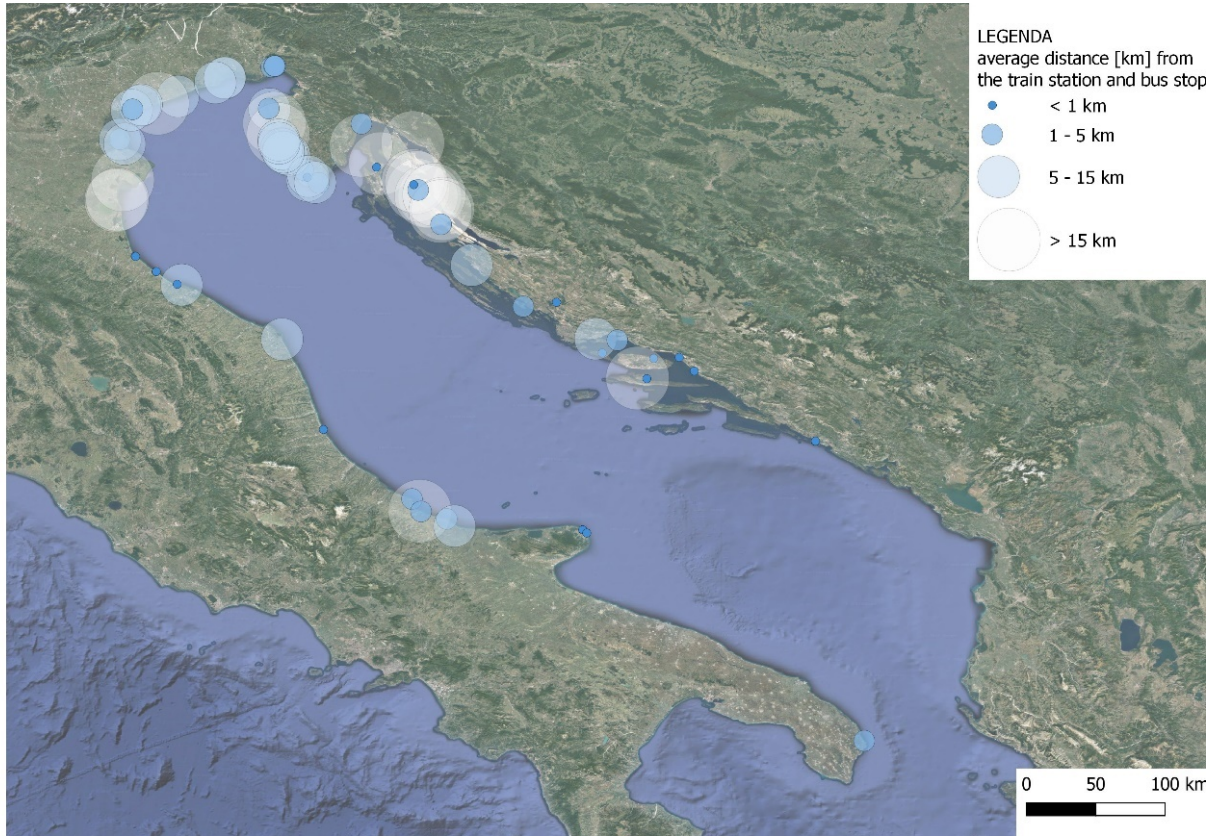


Figure 17: Classification of ports based on their distance from public transportation services

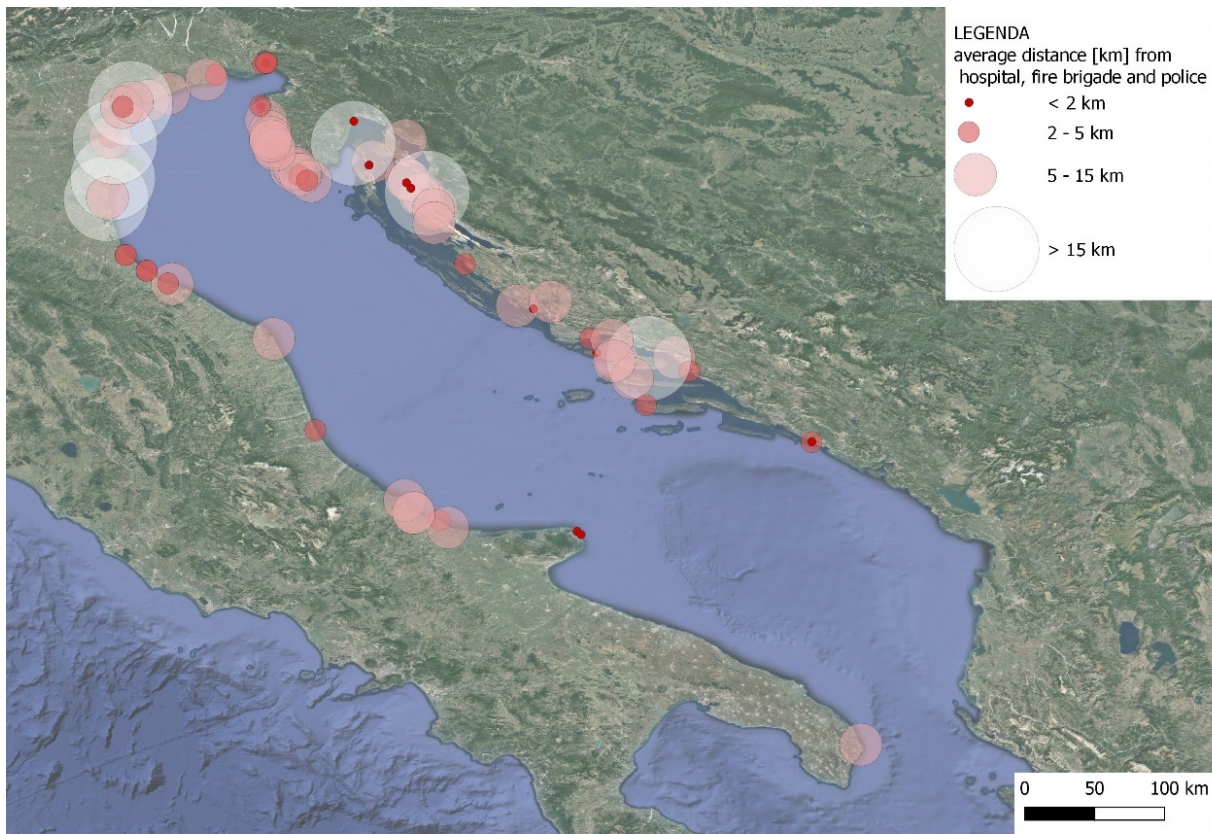


Figure 18: Classification of ports based on their distance from public safety services

These maps, related to the first phase of data collection, highlight, as expected, two critical areas regarding the distance of ports from security, transportation, and health services. One area is in Italy, specifically the Delta del Po region, and the other two are in Croatia, the Quarner Islands area and the northern Dalmatian Islands.

Due to their nature, islands are characterized by slow and exclusively sea-based connections. The small Croatian ports, as previously mentioned, are very basic temporary support structures that do not accommodate long stays and therefore do not offer any additional services. For this type of docking, it makes no difference whether they are well-connected to infrastructure or have security, police, and health services available.

4. Conclusions

This report evaluated the first phase of data collection and involved 502 facilities, 465 of which were Croatian and only 37 were Italian. The first noticeable data difference is the significant contrast in the organization of small ports and marinas between Italy and Croatia. In the former case, these are solely private companies that need to compete in the market by offering the best possible service to their customers. In the latter case we encounter a diverse mix of public and private entities with a completely different management philosophy. The absence of services for both for users and vessels is an index of the widespread presence of berths and a different approach to recreational boating in Croatia.

Italian small ports are all tourist accommodation structures equipped with a minimum set of services and activity offerings, comparable to the "Marinas" in Croatia. In Croatia, numerous simple docking facilities exist, providing only mooring services. This characteristic is undoubtedly favoured by the coastal morphology (with numerous small islands) and the type of boaters in the Croatian territory, who typically spend only one day on various islands, practicing a "nomad" type of vacation.

Services for users, both water sports and non-water sports activities, and tourism-related services are elements that make the marina a place of connection between nautical and inland tourism. Having this type of infrastructure means attracting not only boat owners but also those who want to approach this world as temporary users.

This further reinforces the idea of completely different approaches to tourism. However, there are still common points, such as the age of boaters. In fact, boating is increasingly seen as an activity for individuals who have achieved a certain level of economic stability. Over 60% of boaters are over 40 years old, and it is highly likely that those below this age use family-owned boats.

From a sustainability perspective, various aspects have been investigated. Indeed, it is from this survey that the idea of directing a pilot action towards the recognition of a sustainability certification tool for marinas and small ports has raised. For a detailed analysis of the parameters that need to be addressed to achieve sustainability in the tourist port infrastructures, we recall the documentation related to the Ecolabel. Certainly, one aspect that is immediately perceived as a source of concern for port managers is the issue of waste management and energy supply. During various meetings with stakeholders, this topic consistently emerged, highlighting a potential strategic direction to focus on within the project and beyond.

The possibility of continuous database implementation, both through direct inputs from small port managers and with the contribution of digital data collection techniques, is highly desirable for better describing the characteristics of small ports and the activities implemented within them, as well as in the broader Adriatic area. Updated and comprehensive data and information are key to ensuring the attractiveness and longevity of the FRAMESPORT portal, even beyond the project's closure.