

Regional report on small ports phenomenon in the Primorje- Gorski Kotar County

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1. Introduction

The FRAMESPORT project has the aim to create a coordinated initiative to support the sustainable development of the small ports of the Adriatic basin in a strategic perspective. Therefore, the objective is to turn small ports into a proactive driver of the socio-economic development of this coastal area. This strategic goal requires a multifaceted and interdisciplinary approach, including both the adoption of concrete pilot projects as well as identification of priority themes to be promoted within the overall strategy. These actions are going to be performed by adopting a bottom-up approach, involving local and national stakeholders since the beginning of the project. Also, the various project partners have been selected to guarantee a wide territorial cover. Their aim is to address the planning and management topics, the business models implementation, the enhancement of training and competence, as well as the development of Information and Communication Technologies (ICT) tools and services. In addition, the project aims at developing an ICT platform that collects and systematizes the key data on small ports in order to use this information to drive sustainable development. The portal is going to work as a bridge between the two sides of the Adriatic basin, the Italian and Croatian one. In this way, it is possible to create a more consistent and united network of small ports, businesses and institutions, and promote their sustainable performance, infrastructure and policies in order to favor their development and growth.

The point was to extract the most valuable information regarding the ports and harbors that present a safe haven for many domestic and international passengers. Report has been split into several chapters, each of which had a mission to provide a summary keeping in mind few key points.

The beginning of the document starts with an introduction to the necessity of this report and a description of Primorje – Gorski Kotar region in a nutshell.

Following chapter was based on listing all of the port areas under the management of county port authorities, current state of the art which was illustrated through tables and figures, showing percentage-wise how are ports from PGKC comparing to other regions. The key take-away was to provide the reader with statistic data presenting the levels of adoption of certain trends, port infrastructure and superstructure, as well as an overall offer port has.

After that, a SWOT analysis was made in order to simplify the external and internal elements that these ports have to face. Despite being an up-and-coming competitor on the Mediterranean, PGKC is facing a lot of the opportunities to further develop this segment of business and tourism.

Nonetheless, there are also some threats, therefore during the decision-making process all of the elements have to be considered.

Final chapter focused on some of the key metrics that greatly impacted charts and thus should be considered to place county ports within the current timeframe and final remarks were made.

1.1. Purpose of the document

This document is region-based and has the aim to depict an overall picture of the current state of the ports and harbors within a given territory, by presenting relevant information on the existing facilities and single port characteristics and services, on the basis of the data collected through the questionnaire provided under WP5 ". Each document is regionally based so each individual region gets appropriate attention when describing their initial status. The content of this regional report is extracted and fragmented, so the partner is able to provide a document which consists of a full set of data on ports and harbors under the management of county port authorities inside of a region. The key is, after collecting the data from questionnaires present the baseline information on the existing facilities and individual port characteristics and services it provides.

Such information will then serve as to compose the overall puzzle drawing the detailed picture of the two coastlines of the Adriatic Sea, as well as representing a first source of information for ultimately filling the FRAMESPORT platform.

It has to be mentioned that this report in its statistics does not encompass privately held marinas (e.g., ACI Marina), but only ports of regional and local significance.

2. The region in a nutshell

2.1. Socio-economic description of the region/county

Primorje-Gorski Kotar County is a local self-government unit situated in the western part of Croatia at the point where the Northern Adriatic meets the mountains of the NorthWest Croatia. The county covers the overall area of 3,588 km², which is 6.3% of the total national territory of Croatia and with the sea surface of 4.344 km². The county is bordered in the north by the Republic of Slovenia, in the west with by the country of Istria, in the east by the Counties of Karlovac and Lika-Senj, and in the south-east, at the Gate of Kvarner, it has a naval border with Zadar County. The County also includes a state boundary located some 22 km south-west of the island of Susak.

Figure 1 Map of PGKC in regards to the rest of Croatia



Source: Primorsko-Goranska županija – Wikipedija

The Primorje-Gorski Kotar area is divided into three regions - the mountainous, the coastal and the island region. The island region, characterized by the Mediterranean climate, is made up of two groups of Kvarner islands: the western group with Cres, Lošinj and some smaller islands, and the

eastern group with Krk, Rab and some uninhabited islands between them. Compared to its neighboring counties, Primorje-Gorski Kotar County encompasses a greater land mass than the combined land mass of the permanently inhabited islands of Krk, Cres, Lošinj and the islands of Lošinj’s archipelago: Unije, Ilovik, Susak i Srakane.

Figure 2 PGKC territory



Source: <https://www.pgk.hr/ozupaniji/gradovi-i-opcine/>

The largest of these islands are Krk and Cres – 405.8 km² each, while Krk is twice the width, Cres is twice in length. The length of the coastline is 1,065 km, 133 km of which is coastline of the land and 932 km island’s coastline, and there are 55 islands in this region.

Primorje-Gorski Kotar County is unique due to its geostrategic position and natural diversity which includes islands, coastal and mountainous areas. There are few places in the world where one can with a glance embrace the sea and with another glance face the tame mountains.

According to the most recent census of 2011, Primorje-Gorski Kotar County has a population of 296.195. This is 6,9% of the total Croatian population and is the fifth largest county in the Republic of Croatia (4.284,889) - after Zagreb (790.017), Split-Dalmatia County (454.798), Zagreb County (317,606) and Osijek-Baranja County (305.032). The population density of Primorje-Gorski Kotar County is 82.5 people per km² , while the average population density for all of Croatia is 76 people per km² .

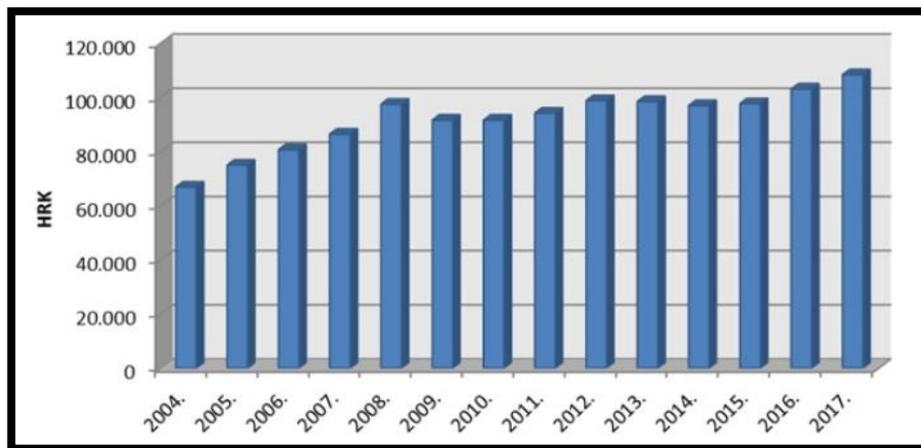
The city of Rijeka, Regional Capital of Primorje-Gorski Kotar County, has a population of 128.624 and is the third most populated city in the Republic of Croatia - after Zagreb (790.017) and Split (178.102). The least populated city in Primorje-Gorski Kotar County is Cres with a population of 2.879 and the least populated municipality is Brod Moravice with a population of 866. In terms of administrative activities, Primorje-Gorski Kotar County has 36 local selfgovernment units, 14 cities, 22 municipalities and 510 settlements.

According to the 2011 census, Primorje-Gorski Kotar County had a population of 296.195, a measured decrease of 3,1% in comparison to the 2001 census. Rijeka and Gorski Kotar have measured a constant decrease in population from 1999 to 2011. However, the littoral zone and islands are measuring an increase in population, the littoral zone leading with an increase of 8,9% in 2011, compared with the 2001 census. According to both censuses, 52 % of the overall populations of the county are women, while 48% are men. Moreover, in every micro-region the percentage of women in the overall population has prevailed. The average age of the population in the county is 43,9, compared to 41 in 2001. This difference points to a demographic ageing problem. In the micro-regions, the average age of the population is highest in Gorski Kotar with 47,2, while in the littoral area it is a bit less, 43,4. Depopulation and demographic ageing pose a significant problem for the further development of the county. Rijeka and Gorski Kotar are the most affected by this problem. The reasons lie in high mortality and low birth rates. The educational structure of the population according to the 2011 census shows that: 17% have only a primary school education; 58 % high school education (grammar school or vocational schools); 7 % have a high school education (vocational schools lasting less than 4 years); 12% have a college degree (RC 9,69%); while 0,4% have a PhD. These statistics show an unwillingness of the population for further education as one of the issues of the county, and as an obstacle for the further economic development of the region. There is a lack of interest in lifetime education as well. Furthermore, Primorje-Gorski Kotar County is characterized by an unfavorable economic structure with high unemployment rates. Even though the unemployment rates are lower than the average national rates, unemployment of youth are very high. The inadequate educational system and its inconsistency with labor market demands accompanied by the current state of the economy is one of the main causes of high unemployment

rate. Measures need to be taken and developing the Creative Sector might be a very useful tool for reducing the unemployment rate.

Primorje-Gorski Kotar County, together with Zagreb and Istria County are the most economically developed counties in Croatia. Gross domestic product per capita in 2014 was 89.936 kunas which places Primorje-Gorski Kotar County on the high 3rd place, right beneath Istria County and Zagreb.

Figure 3 GDP in PGKC



Source: Croatian Bureau of Statistics

The annual unemployment rate has decreased from 14,7% in 2013 to 12,5% in 2014, this is 5,6% of the overall unemployment rate in Croatia. The highest percentage of unemployed people have finished high school or vocational schools, while the lowest percentage of unemployed are those with a university degree. 82,9% of the total number of employed work in companies, 16,9% in craft, manufacturing businesses and freelancing, while 0,2% are working in farming/agriculture. The Port of Rijeka is the largest and most significant Croatian seaport as it represents the front door of Europe to the Far East. Primorje-Gorski Kotar County connects Central and 6 Southeastern Europe, as well as a part of the Western European countries, with the Mediterranean Sea, making it a significant intersection. Depending on the port of departure, the maritime route through the port of Rijeka and between the Far East and Europe is the shortest route, up to 7 days, compared to northern European ports. While the port of Rijeka is of strategic importance, the airport located on the island of Krk is also significant. The most successful export activities are related to pharmaceuticals, shipbuilding, naval architecture and mechanical engineering, forestry based industries. Import activities include mainly the importing of packaging for goods, mechanical processing of metal, electricity imports

and bakery products. The most common activities are those related to tourism and service activities. The most developed economic sectors of the county are: commerce, processing industries, timber industry, tourism, construction industry, transportation and storage, agriculture and fishery. Primorje-Gorski Kotar County is one of the most developed counties in all of Croatia if we take into account the overall GDP and GDP per capita. Further economic development of the county should mainly focus on the activities that increase competitiveness and at the same time, ensure its sustainable development in commerce, processing industries, timber industry, tourism, construction industry, transportation and storage, agriculture and fishery.

2.2. Regional transport and mobility overview and main features

A significant national and international role of this county throughout Europe is how it connects Central and Eastern Europe via the Danube River and the Adriatic Sea. Owing to its excellent geostrategic position, that provides the final and shortest maritime route between the Far East and Europe makes the country especially important.

Air traffic

Rijeka Airport (Croatian: Zračna luka Rijeka, Italian: Aeroporto di Fiume; IATA: RJK, ICAO: LDRI) is the international airport serving Rijeka, Croatia. It is located near the town of Omišalj on the island of Krk, 17 km from the Rijeka railway station. Most of the traffic to and from the airport occurs during the summer months, when it is used by several European low-cost airlines flying tourists to the northern parts of the Croatian coast.

Rijeka airport has a single terminal building which dates back to its original opening in 1970. Over the decades minor upgrades have been made. Terminal has 7 gates, 1 domestic and 6 international. None of the gates have jet bridges and boarding is done by people walking from the terminal directly to the aircraft. Arrivals hall features a single baggage belt. On the upper floor there is a small duty free in the international area, mostly featuring local produced merchandise, as well as a café bar. Another bar with limited selection of snacks is located on before in the entrance hall. Domestic departures have no facilities after security check. Several car rental agencies maintain their offices during the summer season.

Airport has a single 2500 m long and 45 m wide runway. As there are no taxiways, airplane has to turn at the runway end and taxi along the runway back to the terminal. Runway 14 has CAT I ILS landing aids installed.

Figure 3 Location of Rijeka airport (RJK)



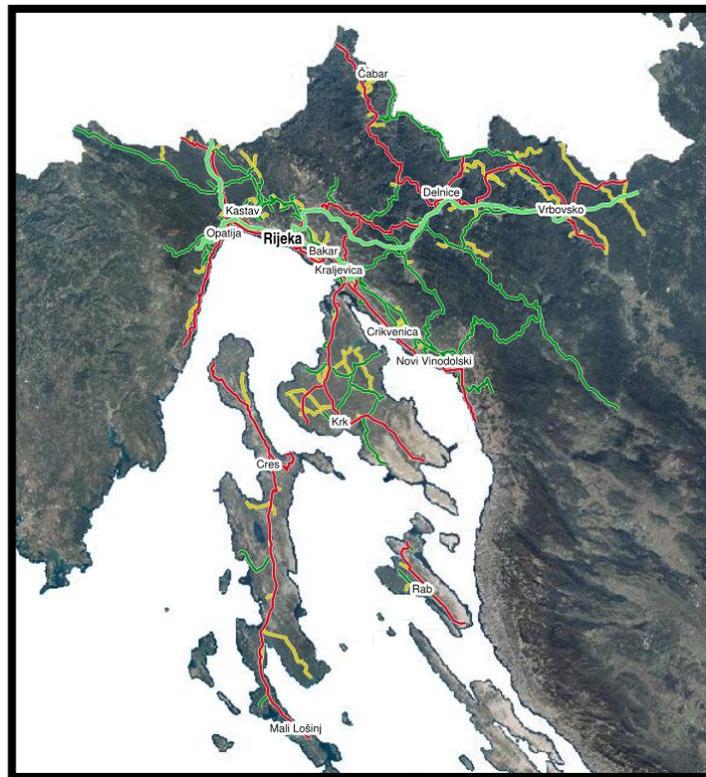
Source: https://en.wikipedia.org//Rijeka_Airport

Since the airport is located on the island of Krk, there is a dedicated bus line from Rijeka and Omišalj which runs as needed, considering the flight arrival times. In case there are no bookings made 24 hours prior to departure the shuttle will not operate.

Road traffic

The road network in the territory of the Republic of Croatia and Primorje – Gorski Kotar County is classified as shown in the following table and chart:

Figure 4 Map of roads on PGKC territory



Source <https://zuc.hr/popis-i-karta-cesta/>

In accordance with the classification of roads and the division of responsibilities over their management, maintenance and construction in the Republic of Croatia and its counties, in accordance with the Decision on the classification of public roads into state roads, county and local roads (Official Gazette 66/13), there is a total of 29,963.90 km of public roads in Croatia. Primorje – Gorski Kotar County accustoms for 9.4% of highways in regards to the rest of Croatia, 5.3% of state roads, 5.9% of county roads, and 3.6% of local roads. Total percentage of roads on PGKC territory is 5.2%. This fact points the significance on geopolitical presence of Rijeka and its surroundings.

Table 1 Roads and road transport

Type of the road	Authorized institution
Highway	Concessionaires (Autocesta Rijeka-Zagreb and Bina Istra)

State roads	Hrvatske ceste Ltd.
County roads	County Administration for Roads of Primorje-Gorski Kotar County
Local roads	County Administration for Roads of Primorje-Gorski Kotar County
Unclassified roads	Local self-government unit (city - municipality)

Rail-road traffic

The Rijeka railway station (Croatian: *Željeznički kolodvor Rijeka*) opened in 1873 and is close to the port of Rijeka. It is operated by Croatian Railways (HŽ).

Following the Croatian–Hungarian Settlement of 1868 the Free State of Fiume was given a special status in Croatia's personal union with Hungary, as well as forcing the expansion of the Port of Rijeka in the form of making it the main commercial port of the Kingdom of Hungary.

In the year of 1873 the railway routes coming from Budapest via Zagreb and Karlovac as well as from Vienna via Ljubljana & Pivka to Rijeka were finished and the station was opened on the 25 June 1873. A year later a direct rail connection to Trieste was established.

In 1882 one of Europe's first oil refineries was founded in Rijeka, and during the 1880s the port and station were expanded with new warehouses. The station building as it stands today was built from 1889 to 1891 after plans of the Budapestian architect Ferenc Pfaff, who build 14 station buildings in total in the Hungarian countries. The in the style of neoclassicism-built building comprises a 150 m long single-story arcaded building, a two-story, centrally placed entrance hall, as well as two head-end buildings placed on its side. Today the station building is under preservation order because of its architectural qualities. In 1899 Rijeka got an electrical tram system which connected the train station and Rijeka's districts.

After the first world war the city was annexed by the Kingdom of Italy and the station became a border station under ownership of the Ferrovie dello Stato Italiane who electrified the Rijeka-Pivka line with a 3000 V DC system. After the second world war the station was connected to the network of the Yugoslav Railways (JŽ) and since 1991 it's owned by the Croatian Railways (HŽ) with their founding.

In railway transport, the backbone of the Rijeka transport hub consists of railways of importance for international traffic on the Vb branch of the Pan-European Corridor, from the state border with Hungary, and in the direction Botovo - Koprivnica - Zagreb - Rijeka - Šapjane. This rail route is important in connecting central Croatia, Gorski kotar and the northern Littoral, but also in connecting European regional roads: Alps - Adriatic, Mediterranean - Danube - Central Europe.

These lines, with their elements and throughput, have long since failed to meet the requirements of the modern passenger and freight traffic. Railway M502 Rijeka - Pivka, inadequately connects the port pools Rijeka with the Republic of Slovenia and the countries of the European Union of Central and Western Europe.

Maritime traffic

Due to its favorable geostrategic position, the Primorje-Gorski Kotar County represents a traffic intersection that connects the Central and Southeastern Europe, as well as a part of the Western European countries, with the Mediterranean Sea. It is one of the seven Adriatic counties in the Republic of Croatia.

The county's excellent geostrategic position stands out as a particularly important point between the Far East and Europe as it makes the maritime route the shortest route – up to 7 days compared to northern European ports, depending on the port of departure. The Port of Rijeka is the largest and most significant Croatian seaport and represents the front door of Europe from and to the Far East.

Its exceptionally favorable geostrategic position and natural diversity, the blend of blue and green, i.e., the mountains and sea, urban and rural, modern and traditional distinguish the county from other counties on the Adriatic and give it a competitive advantage. The Primorje-Gorski Kotar County can very quickly be reached by sea, land and air.

An extremely favorable climate for tourism development began attracting tourists to the County more than 160 years ago, with which the region became a renowned centre of health tourism. The County is also exceptionally attractive due to its rich natural, cultural and historical heritage, as well as its culinary offer.

MODERN TRAFFIC INFRASTRUCTURE

Maritime transport

- Port of Rijeka – a port which holds special economic interest to the Republic of Croatia, sea depth 18m. It encompasses the Rijeka, Sušak, Bakar, Omišalj i Raša basins
- 89 ports open to public traffic (Port of Rijeka, 27 ports open to public traffic at the county level and 61 local ports)
- 4 ferry lines as the continuation of state roads

Railroad infrastructure

- 159,94 km of railroad in the County
- Dissection of the international traffic railway Zagreb – Karlovac – Rijeka – Šapjane – Ilirska Bistrica (Republic of Slovenia) - partially overlapping with the Mediterranean corridor

Road infrastructure

- Rijeka – Zagreb – Eastern/Central Europe
- Rijeka – Trieste – Western/North Europe
- Rijeka – Ljubljana – North Europe
- Distance by road from European centers is about 500 km

Air Traffic

- Rijeka Airport – most significant international airport in the County
- Airports: Mali Lošinj, Unije, Grobnik and Rab
- Vicinity of European international airports at 1 hour by air

2.3. Overall governance and transport planning references

Rijeka, as the hub of the Primorje-Gorski Kotar County, is also a social, economic, transport, cultural, educational and political hub in the region and the largest sea port in Croatia. The area of Primorje-Gorski Kotar County is statistically underdeveloped. The built-up areas cover only 4,2 % of the total area. The built-up areas per micro regions vary. The littoral zone and islands are more built-up than the continental area, even though all three areas have an approximately equal surface. The surface

of the planned construction areas, compared to the overall surface area of Croatia is 7,21 % of the land surface. The trend of strategic investment in the undeveloped areas can be seen.

3. Analysis of regional ports phenomenon

3.1. Overall description of available infrastructures (position, visualisation, berth details and capacities, hinterland connection)

3.1.1. County Port Authority of Opatija-Lovran-Mošćenička Draga



Figure 5 Ports under management of CPA Opatija-Lovran-Mošćenička Draga

- Port of Opatija – 223 berths**
- Port of Lovran – 77 berths**
- Port of Mošćenička Draga – 69 berths**
- Volosko port – 235 berths**
- Opatija port - Portić harbour – 13 berths**
- Medveja port – 40 berths**
- Volosko port - Preluk harbour – 81 berths**
- Opatija port - Ičići harbour – 168 berths**
- Opatija port - Dražica harbour – 44 berths**
- Ika port – 127 berths**
- Opatija port - Admiral harbour – 0 berths**

The County Port Authority of Opatija-Lovran-Mošćenička Draga counts 11 ports of county and local significance contributing to the region with 1077 berths on the eastern side of Istrian peninsula. Like most of the Mediterranean-type ports and

marinas, infrastructural and superstructural elements are sturdy and provide a safe berthing place for its end users. This area provides its offer through landscape which is both for sea lovers and mountain lovers.

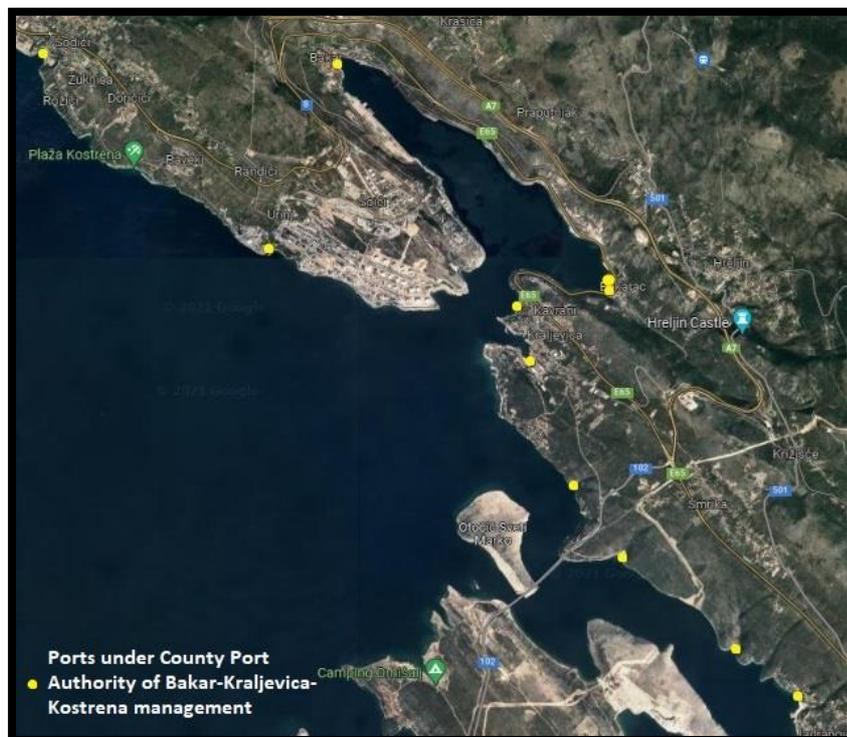
Beautiful nature, parks, old Austro-Hungarian villas, promenades and beaches have been attracting tourists from Europe and the world for 160 years.

Table 2 County Port Authority of Opatija-Lovran-Mošćenička Draga - General information about port area

County Port Authority of Opatija-Lovran-Mošćenička Draga	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Port of Opatija	12	3	400	1622724
2. Port of Lovran	7	3	11	45893
3. Port of Mošćenička Draga	7	3	12	24871
4. Volosko port	10	3	75	55913
5. Opatija port - Portić harbour	4,5	0,5	4	14251
6. Medveja port	9	3	30	14847
7. Volosko port - Preluk harbour	10	3	420	79469
8. Opatija port - Ičić harbour	9	3	31	31116
9. Opatija port - Dražica harbour	6	0,5	15	
10. Ika port	10	3	185	71074
11. Opatija port - Admiral harbour	0	3	26	23042

3.1.2. County Port Authority of Bakar-Kraljevica-Kostrena

Figure 6 Ports under management of CPA Bakar-Kraljevica-Kostrena



Port of Kraljevica – 171 berths

Port of Bakar – Senjska basin and Pod bok basin – 153 berths

Port of Kostrena - Žurkovo basin – 153 berths

Port of Kostrena - Podurinj basin – 204 berths

Dobra port – 0 berths

Neriz port – 58 berths

Dumboka port – 23 berths

Trnova port – 24 berths

Carovo port – 184 berths

Bakarac port – 58 berths

Črišnjeva port – 157 berths

County Port Authority of Bakar-Kraljevica-Kostrena	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Port of Kraljevica	12	1	250	49431
2. Port of Bakar - Senjska basin and Pod bok basin	12	1	1000	48033
3. Port of Kostrena - Žurkovo basin	12	1	150	48664
4. Port of Kostrena - Podurinj basin	12	1	40	26782
5. Dobra port	12	1	1000	11107
6. Neriz port	12	1	1000	14634
7. Dumboka port	12	1	1000	6980
8. Trnova port	12	1	1000	4632
9. Carovo port	12	1	1000	36218
10. Bakarac port	12	1	30	15234
11. Črišnjeva port	12	1	1000	53998

Table 3 County Port Authority of Bakar-Kraljevica-Kostrena - General information about port area

County Port Authority of Bakar-Kraljevica-Kostrena manages 11 ports with approximately 1185 berths mostly around the entrance of Bakar Bay and coast across the island of Krk.

The total length of the operational shores is 285 meters. In the port area as far as the port superstructure is concerned, there are 3 cranes with a capacity of 3-5 tons. There are tanks with a capacity of 500 liters for the disposal of waste oils in all ports.

3.1.3. County Port Authority of Crikvenica

Figure 7 Ports under management of CPA Crikvenica



- Port of Crikvenica – 93 berths**
- Podvorska port – 309 berths**
- Črni Mul port – 128 berths**
- Omorika port – 25 berths**
- Pazdehova port – 46 berths**
- Bršćanovica harbour – 59 berths**
- Jadranovo harbour – 1 berth**
- Perčin port – 190 berths**
- Selce port – 308 berths**
- Slana harbour – 18 berths**

Table 4 County Port Authority of Crikvenica - General information about port area

County Port Authority of Crikvenica	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Port of Crikvenica	40	2	30	275793
2. Podvorska port	16	1	60	23573
3. Črni Mul port	20	0,5	40	26739
4. Omorika port	8	0,5	20	13188
5. Pazdehova port	30	0,5	5	14873
6. Bršćanovica harbour	8	0,5	20	8941
7. Jadranovo harbour	25	2	100	3126
8. Perčin port	16	2	100	34231
9. Selce port	40	1	25	43269
10. Slana harbour	8	1	50	7887

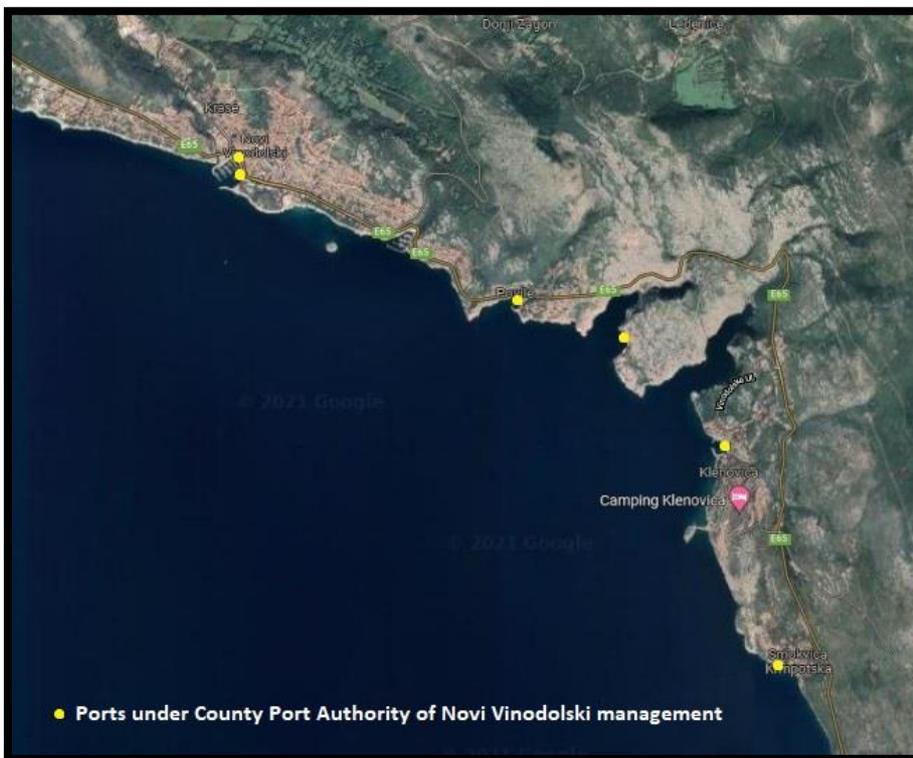
The County Port Authority of Crikvenica manages 10 ports and harbours in the Crikvenica area with the capacity of accommodating approximately 1177 boats along the coast. Crikvenica is located southeast of Rijeka and is the largest settlement on the coast of the Vinodol coastal area.

Towns near Crikvenica include Kraljevica, Selce and Novi Vinodolski.

In the last twenty years, due to urban expansion of Crikvenica itself and expansion of the nearby town of Selce, the two were merged into a mini-conglomerate.

3.1.4. County Port Authority of Novi Vinodolski

Figure 8 Ports under management of CPA Novi Vinodolski



- Port of Novi Vinodolski – 85 berths**
- Klenovica port – 43 berths**
- Porto teplo harbour – 0 berths**
- Povile harbour – 35 berths**
- Smokvica-Krmpotska port – 0 berths**
- Muroskva harbour – 18 berths**

Table 5 County Port Authority of Novi Vinodolski - General information about port area

County Port Authority of Novi Vinodolski	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Port of Novi Vinodolski	12	1	40	35800
2. Klenovica port	12	1	40	40100
3. Porto teplo harbour	-	1	60	10300
4. Povile harbour	10	1	50	9300
5. Smokvica-Krmpotska port	8	1	X	28400
6. Muroskva harbour	12	1	30	11100

County Port Authority of Novi Vinodolski counts 6 ports of county and local significance with 181 berths capable of providing a safe haven mostly for domicile population like the rest of the ports in the county.

The Port Authority of Novi Vinodolski was established for ports of local significance Novi Vinodolski, Klenovica and Porto Teplo, with its headquarters in Novi Vinodolski. She started working independently in January 2000. The total area of the port area is 183,073 m², of which the land part is 18,783 m², and the surface of the sea area is 164,290 m². The total length of the operational shores is 413 meters. Of the port superstructure, the County Port Authority uses two cranes, with a capacity of 3 and 20 tons.

3.1.5. County Port Authority of Krk



Figure 9 Ports under management of CPA Krk

The County Port Authority of Krk has 31 ports under management across the whole island as it can be seen in the provided map. Island is providing over 3000 berths scattered all over the island with largest ports being Krk, Baška, Omišalj, Punat, Malinska and Klimno.

The island of Krk is the largest Croatian island, with a surface of 405,8 km² and around a 190 km long coast. The closest mainland is only about a hundred meters away, and its neighboring islands are the islands of Cres, Goli, Rab, and a few smaller islands.

Krk is very easily accessible, from the land – over the Krk bridge; from the sea – by boats into the ports or small marinas, and by ferry to the Valbiska harbor. If one is traveling by plane, it is possible to fly down to the Rijeka airport near Omišalj.

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Krk has an unusual and varied relief: from picturesque gentle coves and lagoons, along with fertile fields and dense forests with sub-Mediterranean vegetation, to the parts of bare limestone and real mountain landscape. The island of Krk is densely populated and very fertile because the east coast mountains protect the entire island from the cold north wind, also called Bora.

Around twenty small islands, cliffs and reefs are located around the island. Krk is the island with the highest number of inhabited villages, 68 in total. The island's most significant settlements are Krk, Punat, Omišalj, Baška, Vrbnik, Malinska, Njivice, Dobrinj, and Šilo Klimno.

Figure 10 Ports of county and local significance on Krk island

Port of Baška – 305 berths	Glavotok harbour – 22 berths	Soline port – Dobrinj – 32 berths
Port of Krk – 379 berths	Klimno port – 135 berths	Stara Baška port – 38 berths
Port of Malinska – 258 berths	Lokvišća - Šilo port – 73 berths	Sv. Fuska port – 127 berths
Port of Omišalj – 350 berths	Njivice port – 113 berths	Vantačići harbour – Malinska – 37 berths
Port of Punat – 493 berths	Njivice port - Kijac basin – 0 berths	Vela Jana harbour – 162 berths
Šilo port – 33 berths	Njivice port - Pod Rov basin – 0 berths	Voz port – 0 berths
Surbova port - Baška - passenger port – 0 berths	Omišalj port - hotel Jadran basin – 0 berths	Voz port - Peškera basin – 0 berths
Valbiska port - passenger port – 51 berths	Omišalj port - Lučica basin – 0 berths	Voz port - Silvanjska basin – 0 berths
Vrbnik port – 129 berths	Omišalj port - Pod Dubec basin – 0 berths	Vrbnik port - Sveti Marak basin – 34 berths
Čižići port – Dobrinj – 60 berths	Malinska port - Porat harbour – 99 berths	
Dunat harbour – 144 berths	Malinska port - Rova harbour – 24 berths	

The city of Krk is the administrative, political, economic, and religious center of the island of Krk. The city's history and culture are based on more than 3000 years of continuous life in the city.

Seafarers visiting the city of Krk by boat have on disposal two piers, which are often busy. East of the west pier there are several buoys for smaller boats and mooring. The city port has insufficient protection from south winds and Bora.

Punat is situated in the southwest part of the Island of Krk, in one of the most protected bays on the Adriatic.

Marina Punat is one of Croatia's largest nautical centers, with 800 berths in the sea. It is the best starting point for sailing around the Kvarner Bay islands and the North Adriatic. From Punat it is possible to charter a bareboat, skippered or crewed sailboat, catamaran, or motor yacht. In the center of Punat bay is a small island of Košljun with the Franciscan monastery. This small island's size is slightly larger than a 1000 m². As soon as one leaves the bay of Punat, he/she will find gravelly beaches – a landmark of the island.

Omišalj is located on the northwest coast of the island Krk and is the first place south of Krk's bridge. With the city of Krk, Omišalj is the oldest settlement on the island, and today it has about 1871 inhabitants.

Table 6 County Port Authority of Krk - General information about port area

County Port Authority of Krk	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Port of Baška	15	0,5	80	89788
2. Port of Krk	15	0,5	50	129747
3. Port of Malinska	15	0,5	50	98465
4. Port of Omišalj	15	0,5	100	76467
5. Port of Punat	15	0,5	100	140184
6. Šilo port	15	0,5	50	20398
7. Surbova port - Baška - passenger port	-	0,5	-	-
8. Valbiska port - passenger port	7	0,5	150	165350
9. Vrbnik port	7	0,5	50	56818
10. Čičići port - Dobrinj	8	0,5	30	22998
11. Dunat harbour	12	0,5	30	15800
12. Glavotok harbour	6	0,5	5	13247
13. Klimno port	12	0,5	150	42508
14. Lokvišća - Šilo port	15	0,5	50	20687
15. Njivice port	15	0,5	150	99010
16. Njivice port - Kijac basin	-	0,5	-	-
17. Njivice port - Pod Rov basin	-	0,5	-	-
18. Omišalj port - hotel Jadran basin	-	0,5	-	-
19. Omišalj port - Lučica basin	-	0,5	-	-
20. Omišalj port - Pod Dubec basin	-	0,5	-	-
21. Malinska port - Porat harbour	15	0,5	50	27570
22. Malinska port - Rova harbour	6	0,5	10	4987
23. Soline port - Dobrinj	15	0,5	100	27347
24. Stara Baška port	6	0,5	50	12894
25. Sv. Fuska port	15	0,5	150	54127
26. Vantačići harbour - Malinska	6	0,5	20	9597
27. Vela Jana harbour	15	0,5	150	18499
28. Voz port	-	0,5	-	200.039
29. Voz port - Peškera basin	-	0,5	-	-
30. Voz port - Silvanjska basin	-	0,5	-	-
31. Vrbnik port - Sveti Marak basin	6	0,5	40	-

It is built on a cliff about 85 meters high and offers a magnificent view of Kvarner bay and town Rijeka. Omišalj has a rich cultural and historical heritage visible in its old town streets, churches, chapels, and bell towers. If one would like to sail to Omišalj, it is almost always possible to find a mooring in port of Omišalj.

Baška is a coastal village located in the south of the island of Krk, located next to a 2 km long beautiful pebbly beach. The area of Baška has been inhabited since prehistoric times. Baška is especially famous for Croatian history and culture as a Croatian literacy source through Glagolitism and the Baška Tablet. If one is visiting Baška by boat and has luck, maybe it is possible to find a mooring in the city port of Baška inside the breakwater. The harbor has adequate protection from all winds, but will provide an unpleasant swell if there's Bura and Jugo.

Vrbnik is one of the oldest settlements on the island of Krk, located on the island's east coast. The old town is perched on a cliff 48 meters high overlooking Novi Vinodolski on the mainland. Vrbnik's port is a must on anybody's sailing itinerary. Sailing in and out of the harbor is dangerous when bura is blowing.

Malinska is located on the northwest coast of Krk island, in a large bay known as a safe harbor. The city and port of Malinska is on any nautical guest's bucket list. The island of Krk is a sailing paradise of Kvarner bay and North Adriatic.

3.1.6. County Port Authority of Cres

Figure 11 Ports under management of CPA Cres



- Merag port – 18 berths**
- Porozina port – 16 berths**
- Beli harbour – 38 berths**
- Port of Cres – 346 berths**
- Martinšćica port – 98 berths**
- Valun harbour – 51 berths**

The County Port Authority from Cres manages 6 ports with approximately 567 berths capable of providing ultimate nautical experience for its end users.

An island in the western group of the Kvarner islands. It is the second largest island on the Adriatic after Krk. The largest of the bays on the eastern, not very rugged coast, is Koromacna, while larger bays on the western coast include Creski zaliu, Valun, Martinscica and Ustrine. There are noticeable differences in temperature and precipitation between the northern and eastern sides on the one hand, and the western side on the other. There are several preserved forests in the northern part, while they are quite rare in the southern part. The greatest concentration of settlements is on the western side, while they are significantly less numerous on the eastern side.

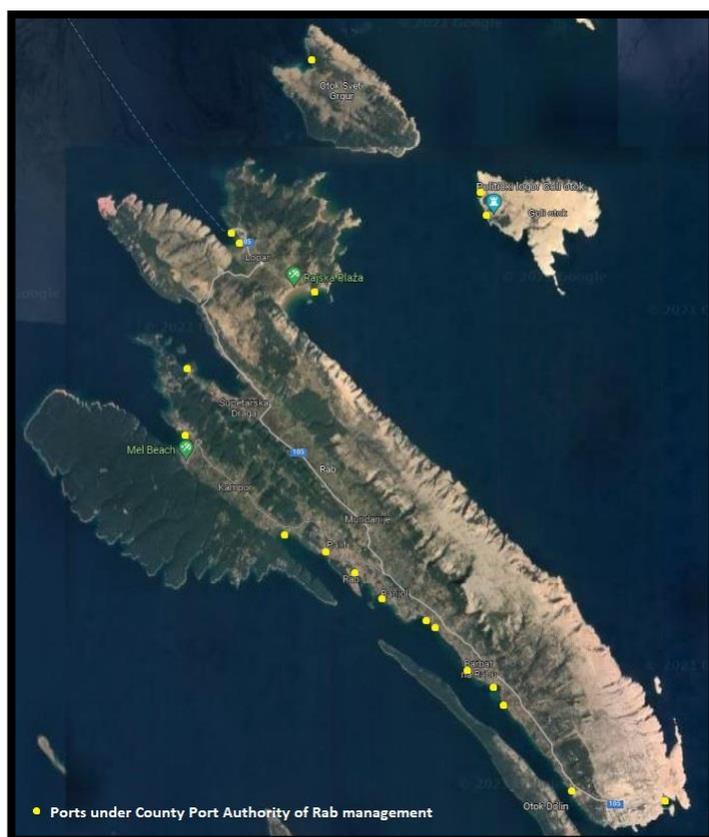
The main settlement of the island is the town of Cres. The most important traffic connection is the road from Porozina in the north across Osor to Veli Losinj. A railway drawbridge across a narrow artificial canal connects the islands of Cres and Losinj. Ferry lines connect the island of Cres with the mainland (Brestova-Porozina) and the island of Krk (Valbiska-Merag). The remains of prehistoric settlements have been discovered on Cres.

Table 7 County Port Authority of Cres - General information about port area

County Port Authority of Cres	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Merag port	110	1	1000	241828
2. Porozina port	95	1	1000	137913
3. Beli harbour	18	1	150	6830
4. Port of Cres	100	1	50	65249
5. Martinšćica port	40	1	160	44063
6. Valun harbour	20	1	150	8568

3.1.7. County Port Authority of Rab

Figure 12 Ports under management of CPA Rab



- Port of Mišnjak** – 0 berths
- Port of Rab** – 365 berths
- Sv. Grgur port** – 0 berths
- Lopar port** – 0 berths
- Goli otok port – Melna** – 0 berths
- Goli otok port – Tetina** – 0 berths
- Pudarica harbour** – 0 berths
- Kamporska Draga port** – 129 berths
- Barbat port** – 76 berths
- Grci port** – 88 berths
- Janići port** – 135 berths
- Banjol port** – 87 berths
- Keki harbour** – 28 berths
- Padova II. Harbour** – 73 berths
- Palit port** – 215 berths
- Sjeverni dio Sv. Eufemije port** – 52 berths
- Dumići port** – 229 berths
- Melak Lopar port** – 112 berths
- San Marino - Lopar port** – 130 berths

County Port Authority of Rab	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Port of Mišnjak	100	2	45	702004
2. Port of Rab	100	2	300	282957
3. Sv. Grgur port	30	0,5	600	41985
4. Lopar port	100	2	1000	26572
5. Goli otok port - Melna	15	0,5	50	35134
6. Goli otok port - Tetina	15	0,5	1000	7184
7. Pudarica harbour	15	0,5	750	8938
8. Kamporska Draga port	15	0,5	600	152700
9. Barbat port	15	0,5	1000	157401
10. Grci port	15	0,5	1000	149400
11. Janič port	15	0,5	1000	166790
12. Banjol port	15	0,5	1000	35990
13. Keki harbour	15	0,5	1000	7010
14. Padova II. Harbour	15	0,5	1000	11785
15. Palit port	15	0,5	400	63889
16. Sjeverni dio Sv. Eufemije port	15	0,5	400	85343
17. Dumič port	15	0,5	1000	192213
18. Melak Lopar port	15	0,5	600	40527
19. San Marino - Lopar port	15	0,5	100	61731

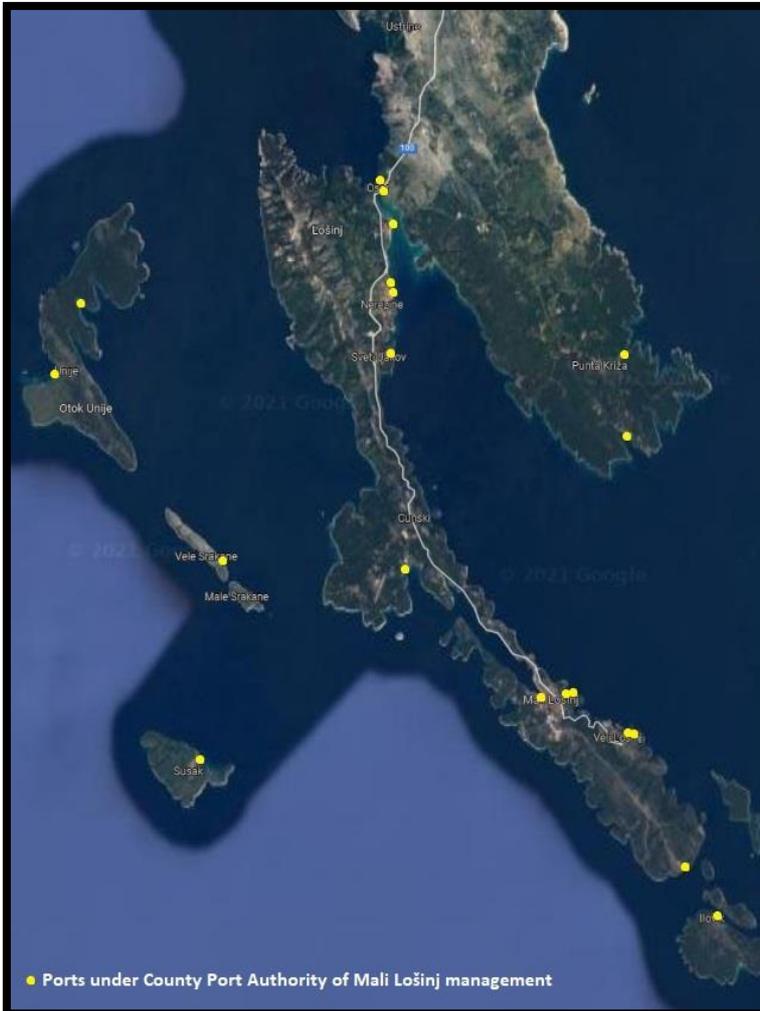
Table 8 County Port Authority of Rab - General information about port area

The County Port Authority of Rab contributes to this document with statistics from 21 ports and harbors it manages with approximately 1719 berths.

An island in the Gulf of Kvarner between the islands of Krk and Pag. There are two hilly areas, Kamenjak in the northeast and Kalifront in the southwest. The central part of the island is arable. The northeastern coast of the island is mostly steep and almost inaccessible, while the northwestern coast is very rugged. The large bays include Lopar, Crnika, Supetarska draga. Kamporska draga and Sveta Fumija. Rab is one of the sunniest islands in the Mediterranean, and the winters are mild. It is connected with the mainland by the regular Jablanac-Misnjak ferry line, and in the summer by the Lopar-Baska-Krk-Senj ferry line as well. The main economic activity is tourism, which has a long tradition. Rab is the largest tourist area in the Kvarner region along with Crikvenica.

3.1.8. County Port Authority of Mali Lošinj

Figure 13 Ports under management of CPA Mali Lošinj



Port of Mali Lošinj (Velopin basin and Poljana-Runjica basin) - 554 berths

Mrtvaška port - 0 berths

Baldarke port - 34 berths

Veli Lošinj port - 46 berths

Rovenska port - 81 berths

Sv. Martin port - 49 berths

Ilovik port - 79 berths

Susak harbour - 78 berths

V. Srakane harbour - 0 berths

Unije port - 0 berths

Maračol harbour - 0 berths

Ćunski (Artatore) harbour - 22 berths

Studenac (Sv. Jakov) port - 19 berths

Ufratar harbour - 26 berths

Nerezine harbour - 48 berths

Nerezine harbour - Biskupija basin - 86 berths

Osor harbour - 42 berths

Bijar harbour - 17 berths

UI (Punta Križa) port - 27 berths

Jadrišćica harbour - 24 berths

Zela harbour - Koromačno (Belej) - 14 berths

Table 9 County Port Authority of Mali Lošinj - General information about port area

County Port Authority of Mali Lošinj	Maximum vessel length in meters	Minimal seabed depth in meters	Width of port entrance in meters	Total port area in square meters
1. Port of Mali Lošinj (Velopin basin and Poljana-Runjica basin)	65	0,5	350	20976400
2. Mrtvaška port	60	0,5	70	319225
1. Baldarke port	12	0,5	100	122500
2. Veli Lošinj port	10	0,5	70	980100
3. Rovenska port	10	0,5	200	562500
4. Sv. Martin port	10	0,5	100	354025
5. Ilovik port	10	0,5	300	6270016
6. Susak harbour	8	0,5	70	1940449
7. V. Srakane harbour	8	0,5	90	198025
8. Unije port	10	0,5	100	275625
9. Maračol harbour	8	0,5	120	369664
10. Čunski (Artatore) harbour	7	0,5	60	265225
11. Studenac (Sv. Jakov) port	6	0,5	50	97344
12. Ufratar harbour	6	0,5	20	132496
13. Nerezine harbour	8	0,5	50	281961
14. Nerezine harbour - Biskupija basin	8	0,5	50	96100
15. Osor harbour	8	0,5	55	1336336
16. Bijar harbour	8	0,5	100	1592644
17. Ul (Punta Križa) port	8	0,5	70	279841
18. Jadriščica harbour	7	0,5	70	705600
19. Zela harbour - Koromačno (Belej)	6,5	0,5	70	88804

An island in the western group of the Kvarner islands. The islands of Cres and Losinj are only separated by an 11-m-wide artificial canal with a drawbridge that connects the two islands. The northern part of Losinj is wider and includes the long Mt. Osorscica (Televrina, 589 m). The middle of the island is only up to 1 km wide. At Privlaka lies a canal which divides Losinj into two parts and is spanned by a bridge. In the southern part, the island becomes wider again. The northwestern coast is rocky and steep, and is not rugged. The central part of the western coast is very rugged and there are off-shore islands of Unije, Susak, Vele Srakane and Male Srakane. The eastern coast is less steep. Its central part is not rugged and is exposed to the bora. The southeastern coast has numerous bays and several off-shore islets. The areas around Veli Losinj, on Cikat Cape and along the southwestern coast are covered with pine woods. In addition to tourism, the main economic activities are navigation and shipbuilding.

The town of Mali Losinj is the centre of the island and has a port which connects it with the nearby islands. There is also an international airport for smaller planes on the island.

The County Port Authority of Mali Lošinj manages 21 port with approximately 1246 berthing places all around the archipelago included in area of Mali Lošinj.

3.2. Overall description of available services for users (technical services, nautical services, waste collection, touristic services)

Port services are one of the essential mechanisms to ensure the proper execution of the different commercial activities taking place inside ports and harbors. Some of the main functions that will be covered in this paragraph include nautical and technical services, ecological aspect and touristic services.

As previously mentioned, services offered inside ports are mostly centralized, meaning that most services are being offered in the ports inside biggest cities, which is not odd as the most services require proximity of other related services.

The following paragraphs will consist of statistical information interpretation based on the data collected through dedicated FRAMESPORT questionnaires. Primorje – Gorski Kotar County consists of 115 ports of local and county significance ranging from ports in city centre, anchorage berths, buoys, berths in autocamps and ferry ports as well. Each port has an individual value which contributes the ultimate goal of providing and serving of nautical users while trying to maximize the offer and services.

3.2.1. Nautical technical services

The Port services are the provision activities needed to ensure the running of the Port, aimed at enabling the operations associated with maritime traffic to be carried out in conditions of safety, efficiency, regularity, continuity and non-discrimination.

Mooring and unmooring services - Its function is to pick up a vessel's mooring lines, take them and attach them to the elements arranged on the docks or moorings for this purpose, following the instructions of the vessel's captain, in the mooring sector designated by the Port Authority, and in the order and layout convenient for facilitating docking unmooring and undocking operations.

The unmooring service is understood as being the function whose aim is to detach the mooring lines of a vessel from the fixing elements to which it is moored, following the sequence and instructions provided by the captain and without affecting the conditions of the vessels moored next to it. **30.4%** of Primorje – Gorski Kotar County's ports and harbours provide the service of mooring and unmooring of the incoming/departing vessels. The reason this number being lower in regard to other counties is because of predominance of berths belonging to domicile population who don't

need mooring assistance as opposed to the end users who enter and dock in these ports presumably maybe even a first time.

Given the fact that a fair number of small harbours are located in remote places built solely of basic infrastructure needs and an economically tested thesis of more employees, it is physically not possible to provide a 24/7 service of mooring activities (73% of ports does not provide a 24/7 mooring service).

63.3% of ports will manage to provide a mooring service to a berthing need in case of an emergency.

Presence of basic services in the port:

Table 10 Statistic representation of basic services in ports

Lowering and lifting of the vessel into the sea – 35.6%	Vessel storage space – 0%
Hull washing – 26.9%	Trailer for moving the vessel – 6%
Temporary storage space – 11.3%	Cranes (self-propelled, land) – 16.5%

Availability of boat repairing service/overhaul shipyard falls under the segment of high-end port level of equipment due to the fact that port has to ensure a large enough area for vessel manipulations with all the appropriate infrastructures and superstructure elements.

Table 11 Statistical representation of boat services/maintenance offer in PGKC ports

Sales of technical products for vessels in shops and / or warehouses – 10.4%	Electrical services – 7.8%
Hull repair – 6%	Supervisor – 6%
Manufacture and repair of sails and awnings – 1.7%	Dry dock/Slipway – 17.3%
Sales of technical products for vessels (custom) – 7.8%	Electronic services – 4.3%
Upholstery services – 2.6%	Warehouse – 0%
Rope fitting and adjustment services – 6.9%	Plasticization of vessels / glass plastic – 10.4%
Marine engine service – 2.6%	Ship joinery – 7.8%

From the table above, it can be seen that the overall size and relatively small area on which the ports are built on are fairly constricting regarding the developmental needs. Weighted average corresponds to **6.54%** meaning that the aforementioned services are available in approximately 7.52 ports out of 115. Percentages are defeating but they were not unexpected taking into the consideration that most of these ports are improvised and were built in a way to ensure a safe haven for vessels without spending too much of resources on anything other than basic needs.,

Technical diver service – service providing the expert in sub-aquatic work who is available when the emergency situation arises (slashed ropes/buoys, concrete weight at the bottom...) – **58.3%**.

Fire protection system on the berths – **35.6%**

3.2.2. Environmental aspect

The greatest environmental effects of the small ports, according to the boaters, concern fuel and different types of waste, such as litter, septic tanks emissions, toxic antifouling paints and grey waters from boats. Too few places to empty septic tanks, or tanks being out of order, increases the risk of boaters emptying tanks into the sea. Due to ongoing incremental of eco-friendly movements, ports should also be able to follow trends to improve their offer and business overall. Interesting idea suggests ports could use recyclable and environmentally friendly products and maybe even provide ideas on how boaters could act more environmentally friendly.

Overall ecological impact could be decreased in couple of different ways:

- Taking better care of the waste management infrastructure (emptying containers regularly, locating them close to the ports and enabling waste sorting),
- Better maintenance of shore pump-out stations (checking and repairing them regularly, providing proper instructions on how to use them and ensuring sufficient shore pump-out stations that are safe and easy to use),
- Generally increasing boaters' environmental consciousness
- Limitation of single-use plastic items and favor the use of more sustainable materials
- Marking visitors' berths better, to make them easier for boaters to find.

Table 12 Statistical representation of ecological aspect in ports and harbors in PGKC

Presence of a port wastewater monitoring system – 0.009%	Presence of desalination equipment – 0.009%
Presence of a separate waste collection system in the port – 20.1%	Presence of air purification system in the shipyard (within the port) – 0%
Presence of a sewage treatment plant in the port – 1.7%	Presence of water purification plant inside the shipyard – 1.7%
Presence of ecological tanks for collecting waste oils and wastewater – 62.6%	Level of environmental education and activities promoted for users and staff – 85.2%
Presence of a proper battery disposal service – 36.5%	Level of promotion of sustainable modes of transport – 43.5%
Existence of Environmental Management System Certification (renewable annually) – 52.2%	Fuel distribution centers/Pump out stations – 6.9%

3.3.3. Touristic services

Touristic services can be defined as an overall offer to port's end users enriching the existing offer beyond basic needs. Tourist services encompass the whole array of fields in which costumers search for individual satisfaction which in turns affects the entire perception of available ports.

Welcoming tourists in their own language carries a certain dose of respect and welcoming feeling. Knowledge of Italian and English is at **100%** in ports and harbors all over the Primorje – Gorski Kotar County. Slovenian and German are following with high **90-95%** because of the vicinity and overall presence of tourists from these countries.

Sport fields and facilities also play a huge role in enrichment of tourist offer. Cities in PGKC are fairly developed in terms of cultural events and infrastructural needs, but ports are mostly in secluded places, sometimes even a bit harder to reach for by land, thus, are consequently slightly “under-equipped”. By no means that alludes those ports are struggling to find their end users but exactly opposite, people are running away from crowded places to those a bit more secluded. In the category of sports activities approximately **1/3** of the ports in PGKC have some kind of a sport club

in the port vicinity, while **3.4%** of ports have a sailing school and only **1.7%** of ports have diving schools. Other sports and wellness facilities are similarly distributed (mostly ports in bigger cities within the county are sufficiently equipped while the smaller harbors are often not). **12.2%** of ports have a tennis court in a close vicinity, while **18.3%** are within a 1 km from soccer fields. **2.6%** of ports are close to a pool facility while only **10.4%** of ports are in the km range from a form of a gym facility.

Wellness facilities are an essential accessory in modern day's world with the ever-rising demand for various forms of SPA and beauty centers. Only **13.5%** of PGKC ports have at least one of the forms (SPA center, health resort, medical center, beauty center, hair saloon or barber shop) of wellness facilities in their near vicinity.

Availability of port facilities for people with limited movement abilities is a big advantage as the social inclusion does not represent an obstacle when it comes to visiting county's ports and harbors. Regarding the facilitation of accommodation to people with reduced mobility, **15.6%** of ports have at least some kinds of ramps, bridges or lifts to ease the movement of those whom it may concern.

To facilitate the movement on land, various modes vehicles for rent are available throughout ports and harbors. Quad vehicles and cars are available in only **5.2%** of ports, bikes in **6%** of ports and motor bikes and electric scooters in **8.6%** of ports. The following table summarizes the average distance from ports to important facilities such as police station and fire department. Presumably, this has to be one the biggest factors while choosing the port. Vicinity of these institutions provide an end-user with valuable information regarding the first steps after some kind of emergency ensures.

Proximity of other transport related facilities provide an average distance (from all of the ports -> institution/facility) to end users that might want to explore other options of travelling through Croatia while still being based in chosen port.

Table 13 Average distance (PGKC ports - facilities)

Train station	69.3 km
Airport	39.9 km
Bus station	36 km
Freeway	61.9 km
Police station / Fire department	10.9 km
Hospital / Medical service	13.8 km

As for pet-friendly facilities, it should be noted that they're not guaranteed in the investigated harbors and ports. On the contrary, most of the marinas (privately managed and not included into this survey) do so, thus underlining the opportunity to further investigate such aspects for marinas due to ever-increasing demand from end users with facilitation of accommodating their pets.

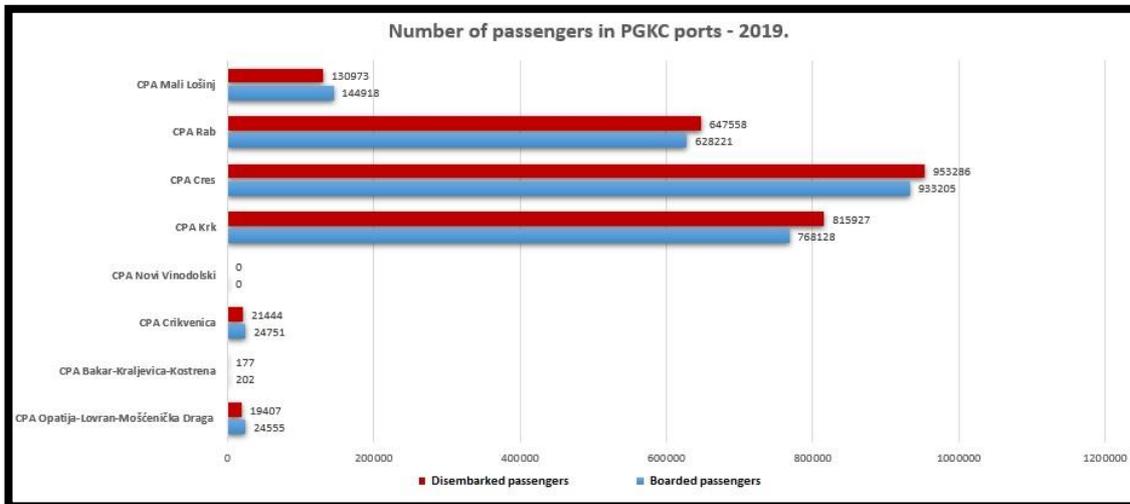
Catering facilities such as restaurants and coffee shops are a necessity within any kind of touristic hotspot. Most of the ports and harbors are in a walking distance from facilities like such, even though they do not technically belong to the port areas (concessions).

3.3. Overall information on annual traffic data (cargo/ro-ro/passengers/locals)

As the most represented category in nautical sector in Primorje – Gorski Kotar County, passenger traffic refers to the traffic made mostly by ferry lines connecting the mainland with islands and islands connecting other islands. Nautical tourism including foreign boats does not represent a significant number due to the fact that most of the ports and harbours in the county are made for domicile population to cover their basic needs regarding owning a small vessel.

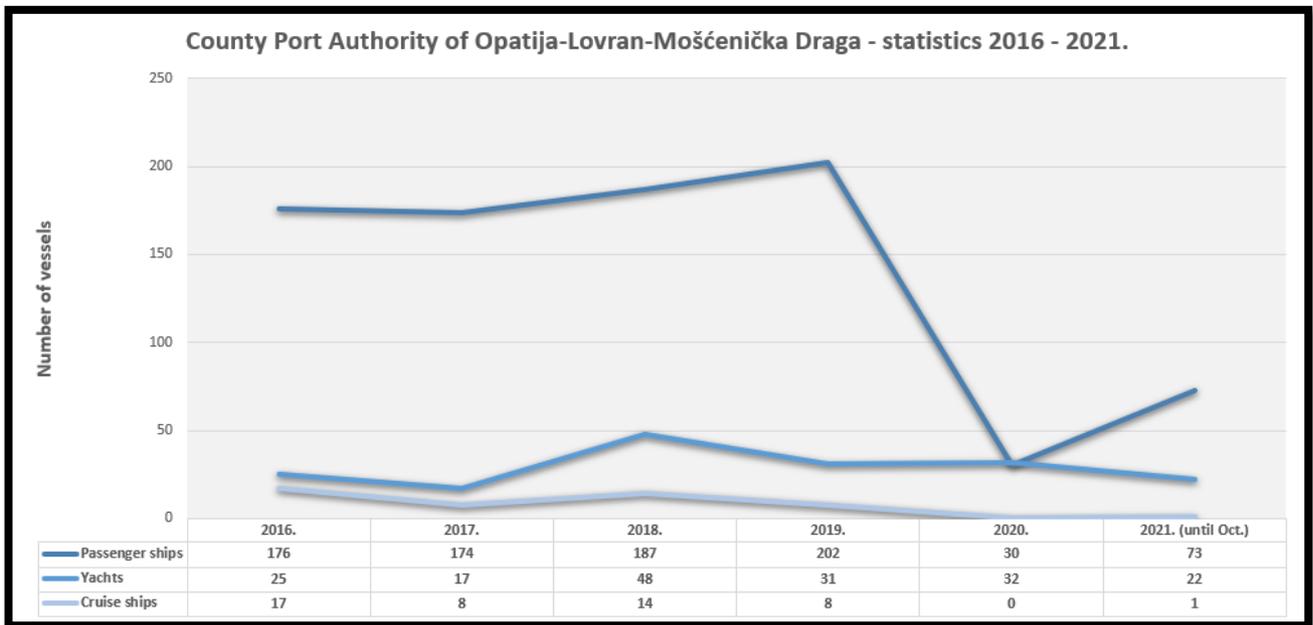
The nautical tourism has its place in this report but it has to be noted that as the classical, privately-held marinas designated for this kind of tourism are not included in statistics during making of this report, but as a tourism-oriented country in general, couple of ports and harbours provide berthing services during the peak, seasonal months

Figure 14 Cumulative number of passengers according to CPA-s in PGKC in 2019.



The chart above provides a graphical representation of number of passengers in the county for the year 2019. Chart elements are divided into 8 parts representing 8 county port authorities in the Primorje – Gorski Kotar County and the cumulative number of passengers taken into account depending on the port area they visited. It can be seen that the 3 biggest islands on this territory make up approximately 92.3% of all recorded passengers. For instance, CPA of Novi Vinodolski ended the year with 0 due to size and purpose of its ports and harbours. Opatija as one of the most famous places in Croatian coast cannot compete with island attractiveness and focus on nautical experience for tourism needs. While the record list cannot possibly be obtained, tourist boats doing the local excursions aren't taken into the account and while that may represent a big number, it isn't comparable with ports that operate and accommodate regular ferry ships (mostly RO-RO ships). CPA Opatija-Lovran-Mošćenička Draga is put on map with elite ways of sea-travel solutions (yachts and cruise ships) – chart provided below.

Figure 15 Vessel statistics for CPA Opatija-Lovran-Mošćenička Draga



As in most of the ports around the world, trend line for the year 2020 has left its mark on most of the charts. It can also be seen that certain element such as yachting tourism has its own fundamentals and can present itself in this situation unscathed.

Nonetheless, other segments of the sector suffered pretty sharp drops last year. As an example, listed below is a chart showing the trend line for the county line Crikvenica – Šilo (Krk island) with a distance of about 3.64 kilometers. Number of passengers peaked in 2017 with 12669 passengers only to suffer a 68% drop in 2020 to a low of 4079 passengers. In 2021 certain growth trend is seen and a cumulative number of passengers in first 8 months surpassed the number from the previous year thus indicating a slow recovery is advancing.

Figure 16 Passengers boarded in port of Crikvenica on a county line from Crikvenica - Šilo

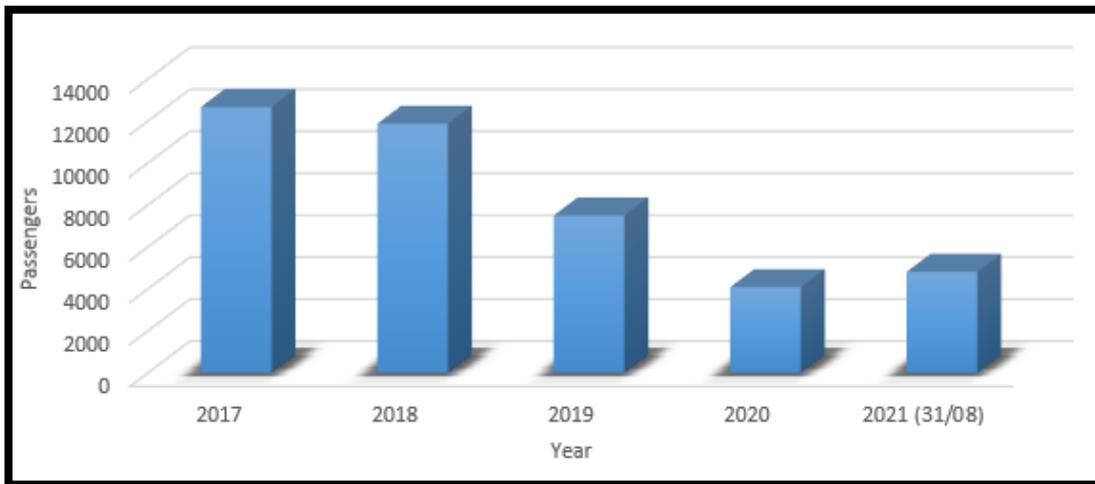


Figure 17 Graphical representation of dockings in ports under management of CPA Cres

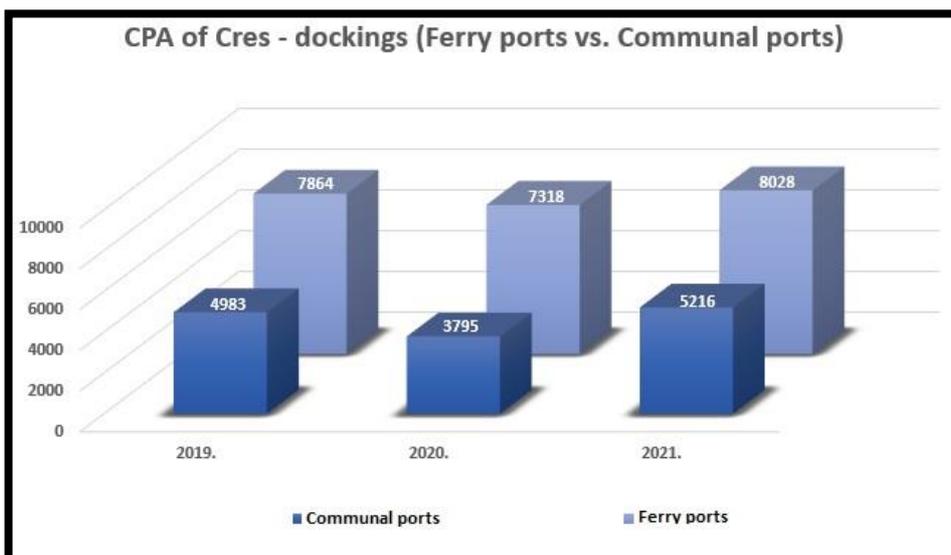
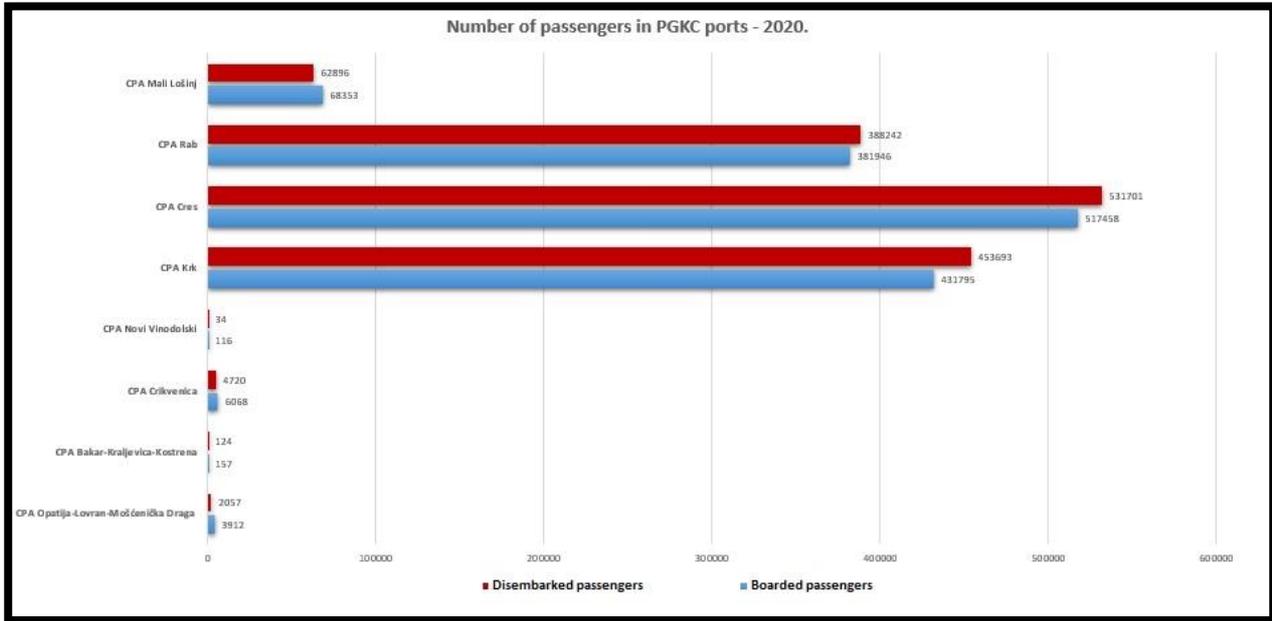


Figure above represents a number of dockings in two types of ports and harbours on Cres island. First type is a ferry port (on Cres – port Porozina and port Merag). Ferry port Porozina is a port connecting Cres with port Brestova on the eastern side of Istrian peninsula, while the Merag port connects Cres with Krk island (port Valbiska). Second type are communal ports whose main purpose is providing safe berths for domicile population.

Figure 18 Cumulative number of passengers according to CPA-s in PGKC in 2020



Similarly to the chart from the beginning of this chapter where the passenger number reflected on the year 2019, this chart shines the light on effect pandemic had on ports in PGKC. In the overall number of boarded passengers it can be seen that a drop of 44.2% ensued, while the number of disembarked passengers represents only 55.76% of the previous year.

4. SWOT analysis on small ports phenomenon

<p>Strengths</p> <ul style="list-style-type: none"> • Natural beauty, clear sea, indented coast and numerous islands • Favorable climatic characteristics • Ecologically preserved landscape and underwater world • Strategic position • Traffic connection / accessibility • Supporting tourist infrastructure (service activities) • Hospitality • Educational structure of staff • Nautical infrastructure (nautical ports tourism) • Personal safety and safety of navigation • Possibility of expanding existing ports and harbors 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Insufficient number of berths • Lack of berths for larger yachts • Content of the offer in marinas and level of service • Level of technical service in marinas • Seasonality of demand • Content of the destination offer and quality of services • Need for a more sustainable management and improvement of services for waste collection and water treatment • Inconsistency of legal regulations • Administrative barriers • Inadequate categorization of ports of nautical tourism • Lack of nautical development strategy
<p>Opportunities</p> <ul style="list-style-type: none"> • Opening new markets • Uptrends in tourism • PGKC is becoming an increasingly popular tourist destination • Improving traffic accessibility • Adoption of a nautical development strategy tourism • Climatic conditions favorable for significant season extension • Increase in the quality of another tourist offer • Foreign investment 	<p>Threats</p> <ul style="list-style-type: none"> • Recession in the world market • Marine pollution • Reconstruction of the coast • Insufficient awareness of the need for protection of environment and biodiversity conservation • Inadequate legal and other regulations • World pandemic • Wide urbanization of natural beauty

For the purposes of analyzing the development of nautical tourism in this county, a research tool known was used called SWOT analysis. SWOT analysis, also known as situational analysis,

it is an intuitive method of examining and evaluating the internal (strengths and weaknesses) and the external (opportunities and threats) of the environment or factors in the function of observing the condition and possible development of a particular phenomenon, in this case small port phenomenon.

The SWOT analysis presents a matrix of questions and answers related to factors that could affect the development and business result of ports. Such an analysis is carried out with a certain nautical tourism experts and managers, as well as coordinators and moderators. SWOT analysis is a tool that helps to identify, detect and identify key development factors, development potentials, and development constraints and as such is a key step from the analysis of the present status to think about the future, desired and possible, determining the development vision, strategic goals, measures and projects.

Competitive advantage can only be built on available potentials if these are rare and have no suitable substitutes among the competition. If the competitors are in know of that and they cannot imitate the advantage but rather have to focus on their external opportunities and neutralization of the threats. Because of the above fact, nowadays more and more attention is paid to intangible assets (knowledge and skills, technologies, patents, organization, reputation, etc.).

Nautical tourism ports still do not provide the required level of structure and the quality of the offer that boaters expect, especially compared to natural and ambient characteristics and benefits we're gifted with. Due to the lack of additional content, from the accommodation facility in the ports and sports fields to restaurants, nautical equipment shops, supermarkets, boat services, cranes, slipways, etc., the income of the ports is significantly smaller than which is possible, and its structure is unfavorable.

The biggest advantages are favorable natural features, i.e., a high degree of indentation of the coast, connectivity and complementarity of the island and coastal belt, the existing tourist infrastructure and capacities from other activities, as well as the benefits of locations for the construction of various types tourist ports and other nautical - tourist capacities. However, with all the above-mentioned advantages that nautical tourism has, there are also some shortcomings that need to be minimized in order to successfully compete in the global nautical market.

Some negative factors, respectively the shortcomings of nautical tourism and the limiting factors of its development are: seasonal character activities in nautical tourism, occupation of the sea and the coast, usurpation of the coast, sea pollution with oil and its derivatives, bacteriological pollution of

the sea by wastewater and substances, devastation of biological resources of the sea, pollution of the sea with various wastes and impurities and the destruction of fish and water resources.

5. Summary and conclusions

The aim of this regional report was to provide an overview of the current state of the Port Authorities in Primorje – Gorski Kotar County and port areas under their management thanks to the processing of data collected through the questionnaire filled by the county port authorities.

Though PGKC ports have one of the best predispositions for success due to favorable geolocation in the Mediterranean area with vast number of ports being tied to island tourism, as well as vicinity to neighboring states that share a similar view on the sector, even development is far out of the reach. Most of the small Adriatic ports belong to a category of “satellite ports”, meaning they serve a purpose as a temporary seclusion place, as some of the berths are improvised with homemade equipment. Some of them are illegally made and artificially prolonged so there isn’t any kind of structural cohesion between berthing piers.

It isn’t possible to make investments in all of the ports at once, thus, process of becoming sustainable and self-persevering is scheduled as a long-term goal.

As stated throughout the report, centralization seems to be the biggest obstacle that isn’t going away any time soon, as most of the content and tourist offer is concentrated in bigger cities (and ports). The natural flow of development would have to be in a form of an outflow when the levels of overcapacity hit in bigger ports. This has been proven as correct in the years before the COVID-19 pandemic. PGKC ports started to achieve peak numbers in docking and passengers, and in that point of culmination, every available place that remotely resembled a berth started to attract nautical clients.

Ports in Primorje – Gorski Kotar County are targeting to be one of the greatest assets to the Croatian tourism which desperately needs to be properly addressed and valued. Following trends and socially acceptable movements are key to achieve a first step towards becoming a sustainable port.