

ISSUES OF THE DEVELOPMENT OF NAUTICAL TOURISM ON CROATIAN RIVERS

Problematika razvoja nautičkoga turizma na hrvatskim rijekama

Mirjana Kovačić, Ph. D.

Primorsko-Goranska County
Department of Maritime Affairs, Transportation and Communication
Expert Assistant for Maritime and Concession Affairs
Rijeka, 5100 Adamićeva 10
E-mail: mirjana.kovacic@pgz.hr

Srećko Favro, Ph. D.

Sworn Court Marine Expert Assessor
Split 2100, Jobova 28
E-mail: srecko.favro@adriatic-expert.hr

Ana Gundić, Bacc.

Studentica Pomorskog fakulteta u Rijeci

UDK 338.48:797.1(497.5)

Summary

Tourism is today one of the most important economic activities and nautical tourism as a selective form of tourism has a special significance for the development of Croatia. It is expressed with constant revenue growth and physical index of accomplished tasks as well as with socio-economic results in the milieu.

Croatia has a well-indented coast and attractive insular area. All these natural potentials contribute to extraordinary possibilities for further development of nautical tourism. Nautical tourism on Croatian rivers isn't developed and it still isn't recognised as the economic potential. Systematic approach to the development is missing and as a result it is manifested only in several recreational forms.

The authors define and analyse the issues that halt the development of nautical tourism on Croatian rivers. Geophysical and natural characteristics of Croatian rivers, navigability along their waterways as well as possibilities to use these rivers in order to develop nautical tourism are examined. Authors devote special attention to direct and indirect benefits of nautical tourism in areas where it could be developed but they also pay attention to the benefits for the whole country.

Key words: nautical tourism, rivers, Croatia, economic development

Sažetak

Turizam je danas jedna od najvažnijih gospodarskih djelatnosti, a nautički turizam, kao njegov selektivni oblik, ima posebno značenje za razvoj Hrvatske. To se izražava kontinuiranim rastom prihoda i fizičkim pokazateljima ostvarenja, kao i pozitivnim socio-ekonomskim učincima u okruženju.

Hrvatsku karakterizira razvedena obala i atraktivnost otočnoga prostora. Upravo zbog takvih prirodnih potencijala nautički turizam ima iznimne mogućnosti za daljnji razvoj. On na hrvatskim rijekama nije razvijen, pa još uvijek nije prepoznat kao gospodarski potencijal. Nedostaje pritom sustavni pristup razvoju, zbog čega se očituje samo u nekoliko rekreativnih oblika.

Autori u radu definiraju i analiziraju probleme koji uzrokuju usporen razvoj nautičkoga turizma na hrvatskim rijekama. Istražuju se geofizička i prirodna obilježja hrvatskih rijeka, plovnost njihovih putova i mogućnosti korištenja za razvoj nautičkog turizma. Autori naglašavaju neposredne i posredne koristi što bi ih razvoj nautičkog turizma na rijekama omogućio područjima u kojima se može razvijati, ali i koristi za cijelu državu.

Cljučne riječi: nautički turizam, rijeke, Hrvatska, gospodarski razvoj.

INTRODUCTION / Uvod

The territorial sea of the Republic of Croatia stretches across 31,067 sq. km. with its indented, 6,176 km long coastline and 1,246 islands, islets and reefs that represent the natural basis for the development of nautical tourism. Nautical tourists find the most attractive the areas under different categories of protection on account of their high natural value and specific environmental and biological diversity: nature reserve, national parks, nature parks and others.

In the last four decades, nautical tourism has become one of the most expansive forms of tourist recreation that has multiple economic importances. Nautical tourism in comparison to stationary tourism has a more dynamic growth rate so its position in the whole tourism sector holds a more significant place. Nautical tourism is being developed on the sea, rivers, and lakes, their coastal areas, on own or somebody else's vessels for recreation, leisure and sport while the vessel is anchored or is sailing. The authors examine issues of development of nautical tourism on Croatian rivers and its waterways. Geographic and climate characteristics that Croatia has are the basis for the development of nautical tourism on Croatian rivers. The purpose of this paper is to analyse geophysical potential of Croatian rivers and its surrounding area as a potential for the development of nautical tourism. The general aim of this paper is the evaluation of nautical tourism on rivers, especially cruising, in comparison to nautical tourism at sea.

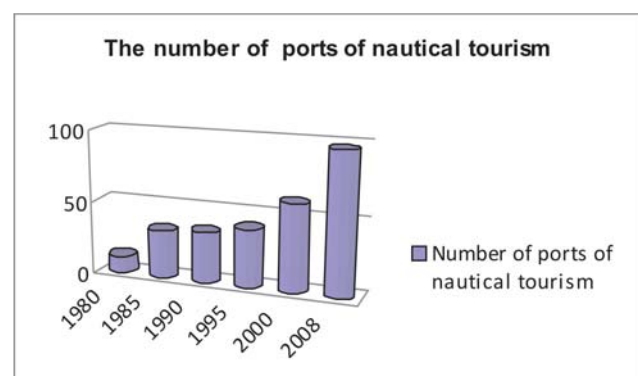
Specific aim is to point out to socio-economic and other positive effects of nautical tourism.

RECEPTIVE CAPACITIES OF NAUTICAL TOURISM IN CROATIA / Prihvatni kapaciteti nautičkoga turizma u Hrvatskoj

The first beginnings of the development of nautical tourism in the world are recorded in the 16th century. During the two World Wars, nautical tourism is on the increase even though it still doesn't have characteristics of mass tourism. In the 1960s, the dynamics of mass attendance on vessels is on the increase due to leisure and recreation. It results in the development of modern

nautical tourism.¹ According to the modern terms, tourism on yachts (navitourism) arose and developed the most in North America (the USA and Canada) where there were more than 11 million tourist yachts in 1976². Nautical tourism in Croatia arose in the 19th century. Its development was gradual till the 1980s when the majority of today's marinas and sailing associations were established.

Concurrently with the beginnings of systematic approach to the development of nautical tourism, awareness of building new receptive capacities has increased. There were less than 20 marinas of nautical tourism in Croatia during the period of 1980 to 1985. The number of marinas was continually on the increase. There were more than 60 marinas in 2000 and there were 97 nautical marinas (graph 1) in Croatia in 2008. Referring to the last number, 48 of them are marinas, 10 are dry marinas and all others are moorings and anchorages. However, the real expansion is still expected.



Graph 1. Dynamics of the development of nautical tourism in Croatia from 1980. to 2008.

Grafikon 1. Dinamika razvoja nautičkog turizma u Hrvatskoj od 1980. do 2008.

Source: Authors

Receptive capacities of nautical tourism are situated in nautical tourism ports, ports opened for public transport, sport ports, industrial and fishing and ex

¹ J. Šamanović, *Nautički turizam i management marina*, Visoka pomorska škola u Splitu, Split, 2002, str. 157

² *Pomorska enciklopedija*, Jugoslavenski leksikografski zavod „Miroslav Krleža“, Zagreb, 1989, dio 8 (Šo – Ž), str. 262

military ports. According to Central Bureau of Statistic, the supply of capacities for reception of yachts in 2008 was:

- the number of sea moorings - 15.834 moorings;
- the number of berths for land storage - 5.189 berths;
- the number of buoys at anchorages.

Statistical reports are extensive and beside receptive capacities they include: the number of yachts at permanent mooring (at sea and ashore), the structure of yachts at permanent mooring based on their flag, the number of yachts in transit and their structure based on the type of yachts used at a sea mooring, the structure of yachts in transit based on their flag, seasonality, the number of arrivals and overnight stays of nautical tourists, their structure based on tourism generating countries, the proportion of constant nautical tourists, as well as the number of issued permits for navigation of foreign yachts in the territorial sea for a period of one year and their structure based on arrivals.

In the year 2008, the survey of Central Bureau of Statistics covered 97 nautical ports on the Croatian coast, as follows: 58 marinas (of which 10 land marinas) and 39 other nautical ports. The total water surface area was 3 387 879 m² and there were 16 403 moorings. On 31 December 2008, there were 14 665 vessels permanently moored in nautical ports, which was by 4.0% more than on 31 December 2007. Out of the total number of stationed yachts, 87.3% used water moorings, while 12.7% used land moorings. By type of permanently moored yachts that used water moorings, there were 46.5% motor yachts, 48.9% sailboats and 4.6% other yachts. By flag, the largest number of permanently moored yachts came from Croatia (35.3%), Austria (17.8%), Germany (17.0%), USA (6.1%), Slovenia

(5.7%) and Italy (5.0%), which makes 86.9% of the total number of permanently moored yachts. In 2008, there were 217 024 yachts in transit in nautical ports, which was by 1.8% less than in 2007. By type of yachts in transit that used water moorings, there were 33.8% motor yachts, 63.6% sailboats and 2.5% other yachts. In the same period, the largest number of yachts in transit came from Croatia (40.9%), Italy (22.3%), Germany (11.7%) and Austria (8.6%) and Slovenia (5.0%), which makes 88.5% of the total number of yachts in transit. Croatian coast is twice as larger than its share in the number of moorings which means that Croatia has unused possibilities to increase the number of commercial moorings.

Enactment of physical plans on local level is the first step toward the increase of the number of needed moorings. However, investments in new marinas are modest. These modest investments are the result of the overall financial politics and constant legal changes. Instability on the market in new investments has a negative influence on one part of Croatian marinas that have outdated infrastructure and superstructure that doesn't meet demands of nautical tourists. Croatian marinas need reconstruction of existent nautical ports that by expanding would become marinas. In this way, marinas would develop on the existing infrastructure and concreting of natural areas would be avoided. Building new marinas would enable an advance in quality and quantity of nautical tourism offer and profit growth.

Diagram 1 and 2 indicate the growth dynamics of the number of registered foreign yachts and boats designed for sport and pleasure for the period 2006-2009. A continual growth in number of nautical tourists is noticeable. There were more nautical tourists in 2007 than in the following years.

Table 1 Ports of nautical tourism in 2008

Tablica 1. Luke nautičkog turizma u 2008.

	Total	Anchorage	Mooring	Marinas				Uncategorised nautical ports
				Land marina	1 st category marina	2 nd category marina	3 rd category marina	
Republic of Croatia	97	15	18	10	6	24	18	6
County of Primorje-Gorski kotar	32	8	7	8	1	3	4	1
County of Zadar	24	7	9	-	-	4	4	-
County of Šibenik-Knin	11	-	-	-	2	4	5	-
County of Split-Dalmatia	11	-	1	2	-	5	2	1
County of Istria	14	-	1	-	3	6	3	1
County of Dubrovnik-Neretva	5	-	-	-	-	2	-	3

Source: Central Bureau of Statistics

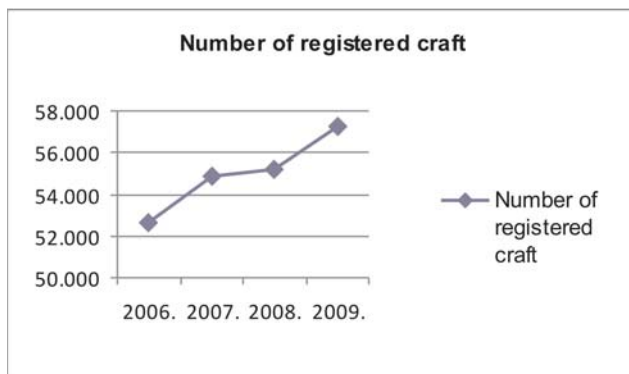


Diagram 1. The growth dynamics of the number of registered foreign yachts and boaters designed for sport and pleasure for the period 2006 – 2009

Dijagram 1. Dinamika rasta broja registriranih stranih jahti i brodova dizajniranih za šport i zabavu za vremensko razdoblje od 2006. do 2009.

Source: Authors according to the data of Central Bureau of Statistics

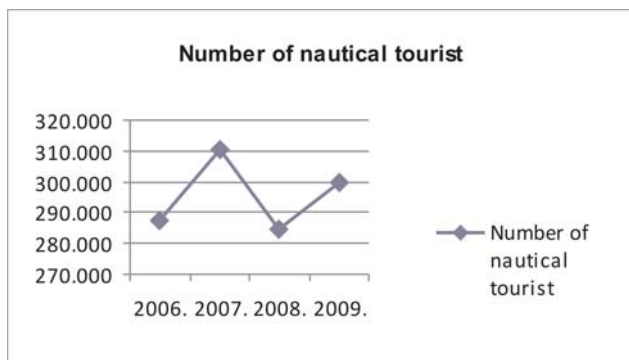


Diagram 2. The growth dynamics of the number of registered foreign yachts and boaters designed for sport and pleasure

Dijagram 2. Dinamika rasta broja registriranih stranih jahti i brodova dizajniranih za šport i zabavu

Source: Authors according to the data of Central Bureau of Statistics

EVALUATION OF NAUTICAL TOURISM EFFECTS IN THE ECONOMIC DEVELOPMENT OF THE REPUBLIC OF CROATIA / Vrednovanje učinaka nautičkog turizma u gospodarskom razvoju Republike Hrvatske

Croatia has indented coastline and attractive islands. The island archipelago with more than a thousand islands is a distinguishing marketing symbol of Croatian tourism and a comparative advantage in its

development. Because of such natural assets, nautical tourism is especially valuable and successful segment of Croatian tourism.

About 60 percent of capacities for reception of yachts are situated in the local waters of Kvarner, Zadar and Dubrovnik. However, the most attractive ones are the local waters of Šibenik because of National Park Kornati and National Park Krka after which follow areas of Istria and Zadar. Data on economic effects of nautical tourism still aren't gathered and analysed properly. Approximate equivalent data can be obtained from various statistical and other sources. One possible starting point is data on total profit from tourism that indicate general and simplified evaluation. It should be pointed out that certain number of special incomes is being earned in nautical tourism. These incomes come from:

- yachts with permanent yearly mooring in nautical ports;
- available moorings that owners during the year don't use;
- seasonal daily moorings in numerous ports and marinas;
- maintenance and repair of boats and engines in nautical ports and other service shops
- yacht renting;
- cruising and sailing ships (old-timers).

In 2004, profit gained through yachts with permanent yearly mooring in nautical ports amounted to approximately 342 million Kuna and profit gained through available moorings that owners during the year don't use to approximately 36 million Kuna. Profit gained through seasonal daily moorings amounted to approximately 50,4 million Kuna and the one from maintenance and repair of boats and engines in nautical ports and other service shops to approx. 340 million Kuna. Profit realised through yacht renting amounted to approx. 720 million Kuna and profit from sailing and cruising ships to approximately 144 million Kuna. The total profit realised in nautical ports in 2008 (table 2) amounted to 491,3 million Kuna, out of which 366,3 million Kuna was realised through the renting of moorings which makes 74,6% of the total profit realised in nautical ports. As compared to the year 2007, the total profit increased by 11.9% while the profit gained through renting of moorings increased by 9.7%. A continual profit increase gained through basic services is noted while profit gained through renting of cruising ships and sailing yachts has a steady growth.

Table 2. Earned income from nautical ports not including VAT

Tablica 2. Prihod od nautičkih luka bez PDV-a

Earned incomes					
Year	Mooring renting	Permanent	Transit	Services	Other incomes
2008.	363 889	282 100	81 789	44 675	80 338
2009.	405 590	322 034	83 656	46 553	91 153

Source: Authors according to the data of Central Bureau of Statistics

The total profit realised in nautical ports in 2009 amounted to 543.3 million Kuna. As compared to the year 2008, the total profit increased by 11.1%. Comparing it to the year 2007 it increased by 22%. In 2008, 1,283 persons were employed, out of which only 224 persons during the season. As during 2009 and 2010 new moorings were opened, the number of employed persons slightly increased.

Profit gained through approved concessions on maritime domain and profit in function of nautical tourism should be added to direct profit. As this overall data is not available, the realised profit is estimated at more than 5 million Kuna. To draw valid conclusions on stated sizes and indicators it is necessary to define and assure the implementation of the comprehensive and complete statistical base. In that way, established importance values and profit in nautical tourism as a part of total tourist offer in Croatia could be given.³

POSSIBILITIES AND LIMITATIONS FOR THE DEVELOPMENT OF NAUTICAL TOURISM ON CROATIAN RIVERS / *Mogućnosti i ograničenja za razvoj nautičkog turizma na hrvatskim rijekama*

When the Inland Ports Act (the Official Gazette of the Republic of Croatia */Narodne novine/* no.142/1998) entered into force a major development of inland navigation in Croatia has begun. Port Authority of Sisak, Slavonski Brod, Osijek and Vukovar were established.

The Danube River is the most significant river for inland transport in Croatia because of its length and natural characteristics of the coastal area that enable navigation to the largest river ships during the whole year. Special significance has its location with regard

to the international transport corridors. Vukovar is situated on VII corridor and it is near Vc corridor (Budapest-Osijek- Sarajevo- Ploče). The Sava and Drava Rivers are less favourable for navigation because of low water levels. The Sava River is navigable all the way to Sisak and the Drava River all the way to Belišće. There is a winter port in Osijek intended for mooring of small fishing ships. There are no moorings for yachts. During 2005, there were 15 yachts that exceptionally got authorisation for the mooring by Harbour Master's Office in Osijek. The usual length of yachts is 10 – 18 m and countries from which they come are Belgium and Netherlands. According to the available data, during 2005 there were two foreign yachts in Vukovar. Having examined newer data a slight increase in the number of ships is noted as well as one day putting to shore cruising ships in the Port of Vukovar.

There are no nautical ports with adequate infrastructure and superstructure on Croatian rivers that is the result of sporadic approach to the development of nautical tourism and evaluation of natural and geographical potentials of Croatia.

Characteristics of Inland Waterways / *Obilježja riječnih plovni putova*

Much more effort and means are to be invested in inland waterway transport than in seawater transport. Inland waterway transport depends on water level, waterway depth and etc. Inland waterway transport is cheaper than other ways of transports such as road, rail and sea shipping. However, maintenance of inland water infrastructure is a very complex and expensive work (diagram 3). Rivers in Croatia are favourable for the development of tourism, the classic one but also small nautical tourism. This type of tourism includes log floating, rafting, canoeing but also various sport and competitive types of nautical tourism such as regattas, sport and competitive fishing or canoeing competitions. Rafting is a sport with a long tourist tradition where people go down the river in rafts made of logs. The most popular rafting is the one on the Cetina, Zrmanja and Kupa Rivers. Canoeing is a tourist activity in which tourists or other participants sit in kayaks⁴ or kneel in canoes⁵ and row with faces turned in the direction of the river flow. There are two types of canoeing: canoeing on fast-flowing and slow flowing rivers.

⁴ Kayak is a small boat with a special paddle with two blades and with covered deck

⁵ Canoe is a small boat with a paddle with only one blade. Canoe is generally differentiated from kayak by noticeable waterline, higher and sharper bow and stern and it doesn't have covered deck.

³ Strategija razvoja nautičkog turizma Republike Hrvatske za razdoblje 2009.-2019., Ministarstvo mora, prometa i infrastrukture/Ministarstvo turizma, Zagreb, 2008

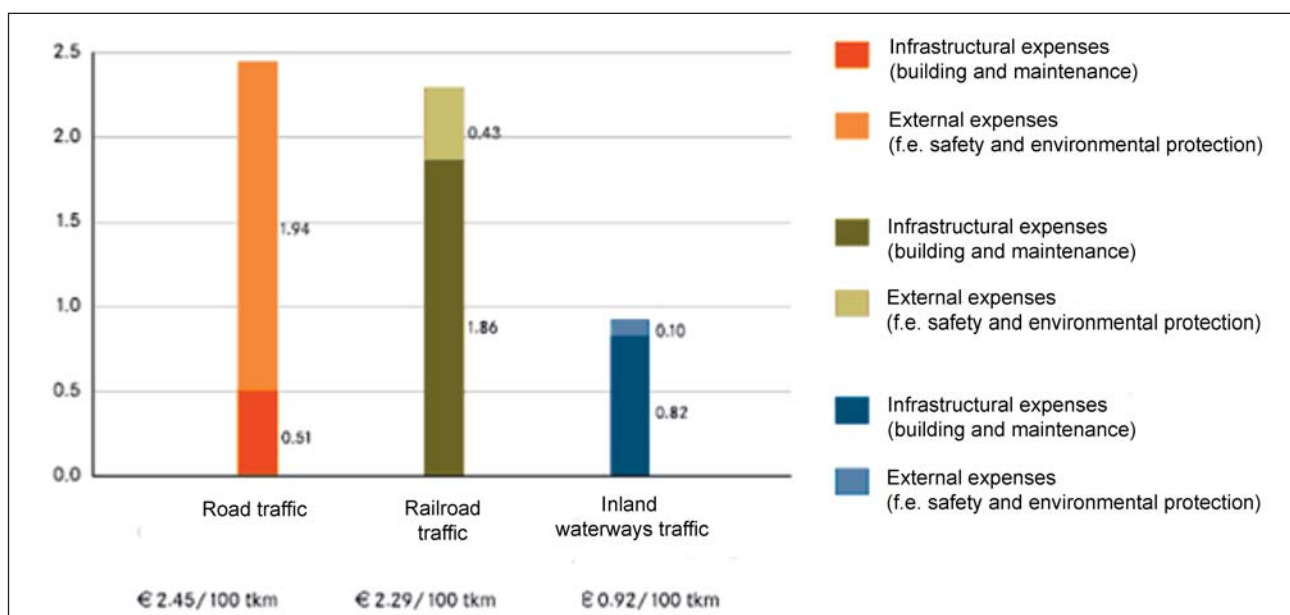


Diagram 3 Infrastructural and external costs of good transport

Dijagram 3. Infrastrukturni i eksterni troškovi prometa roba

Source: *The power of Inland Navigation; The social relevance of freight transport and inland shipping 2004-2005*, Bureau Voorlichting Binnenvaart

Natural and Geographic Basis for the Development of Nautical Tourism on Rivers / Prirodno-geografske osnove za razvoj nautičkog turizma na rijekama

The most important natural precondition for building ports, nautical ports included is its geographical location and its connections to hinterland and other ports. As geographical location determines port location in a wider framework it is more important than geomorphologic and topographic conditions that have local importance and can be modified relatively easily if these conditions are unfavourable for the development of the port.⁶

Inland waterways of the Republic of Croatia are integrated in the European Network of Waterways VII (Danube) corridor⁷.

The total length of inland waterways is 936 km. Table 3 indicates data on internal waterways area, network density, number of citizens living in that area and population density.

⁶ *Pomorska enciklopedija*, Jugoslavenski leksikografski zavod „Miroslav Krleža“, Zagreb, 1989, dio 4 (Ko – Mit), str. 275.

⁷ Corridor VII is 2,300 km long and it comprises of the Danube waterway with its components: a) Danube inland waterway, b) the Black Sea – Danube Canal, c) Danube branches Kilia and Sulina, d) Danube – Sava Canal, e) Danube – Thissa Canal, f) Relevant port infrastructures situated on these inland waterways

Table 3 Network density of waterways in Croatia
Tablica 3. Gustoća mreže plovnih puteva u Hrvatskoj

Network density of waterways in Croatia	
Area (sq. km)	56.414
Waterways (km)	595
Network density (km/1000 sq. km)	11
Corridor	SE
Population (mil.)	4.391
Population density (number of citizens/sq. km)	78

Source: *Authors according to the data of PINE, Final Report, 2004*

The Danube River is the most significant river in Croatia for inland transport because of its length and natural characteristics that enable navigation to the largest river ships during the whole year and for its significant location with regard to the international transport corridors.

Vukovar is situated on VII corridor and it is near Vc corridor (Budapest-Osijek- Sarajevo- Ploče).

The Sava and Drava Rivers are less favourable for navigation because of low water levels. The Sava River is navigable all the way to Sisak and the Drava River all the way to Belišće (picture 1).



Picture 1 Croatian inland waterway
Slika 1. Unutarnji plovni putevi u Hrvatskoj

Source: HHI, *Strategy of nautical tourism development of the Republic of Croatia, 2006*

The Danube Waterway / Plovni put rijeke Dunava

The Danube River is formed from much smaller Brigach and Breg rivers, it passes through several countries and it enters the Black Sea. The Danube River is Europe's second longest river and it is also the river with the largest water supply in Europe. It connects Central Europe with SE Europe. The Danube River is 2,857 km long and 2,400 km are navigable. Navigation along the Danube began in Roman times. With the coming of steamship its economic importance largely increases. In the same time shipbuilding and construction developed. Today, navigation on the Danube is regulated by the principle of free navigation.⁸ Convention regarding the regime of navigation on the Danube was signed on The Danube Convention⁹ held in Belgrade in 1948. The convention imposed regulations regarding navigation on the Danube and regarding ways maintenance works of the Danube waterways are carried out. Because of different dimensions, obstacles and river flow speed the Danube is divided into (picture 2) the Upper Danube, the Central Danube, Đerdap and the Lower Danube. The Upper Danube, from Regensburg to Gonyu, is 588 km long. The high-altitude difference in that part was overcome with a certain number of technical devices. Central Danube, from Gonyu to Moldava Veche, is 743 km long. This area has favourable characteristics for navigation of all kinds of river ships. Đerdap, from Moldava Veche to Turn Severina, is 117 km long. Navigation on this part of the Danube was particularly complicated, but, that problem was solved by modern technical devices. The Lower Danube, Turn Severina to the river mouth, that is 931 km long has relatively favourable conditions for navigation. The problem is low water although navigation during the low water is greatly facilitated thanks to some specific

⁸ The principle of free navigation –vessels navigating the Danube have the right to load and discharge goods, embark and disembark passengers, to refuel, to take on supplies; sanitary and police regulations are administered without discrimination; vessels employed by Danubian States may navigate only within the frontier of the respective States whose flags they fly; navigation on the Danube by the naval vessels of any non-Danubian country is prohibited.

⁹ The aim of the Danube Conference is discussion on issues of transport, energy, urban areas, environment and information society.

hydretechnical works.

The Danube has numerous ports. According to the European Economic Community the Danube waterway within Croatian border belongs to the IV class¹⁰ of waterways. Till now, all projects launched to regulate the Danube can be divided into three periods: projects planned till 1918, projects planned between two wars and projects planned after the World War II.

The most important studies were published in the first period, till 1918, while during two wars were published only necessary interventions. Croatia has one of the smallest shares in the Danube waterways-only 137 km of its length. That part of the Danube is especially attractive and it can be used to develop nautical tourism.



Picture 2 The Danube flow
Slika 2. Protok Dunava

Source: <http://www.pfri.uniri.hr/~poletan/RT/prezentacije>

The following parameters of waterway with regard to the low navigation level¹¹, in accordance to the waterway parameters¹² for Croatian Danube and other parts where the regime of nature navigation is applied, are defined:

- 1) the waterway width in direction B = 180 m
- 2) the waterway width in curvature B - 200 m
- 3) the depth under the low navigable level h = 2,5 m
- 4) the minimal radius of curvature R = 1000 m ; Rmin= 750 m

¹⁰ Class IV of waterways – bottom width is 24 m, water depth is 3,5 m, and width of water level is 45 m, for 1,500- ton vessels.

¹¹ Low navigation level is defined according to statistic calculations on water level duration during the period of 25 years of observations and it matches the water level of 95% of durability.

¹² Navigation parameter is a designed rectangle in transversal cut of waterway where vessels constantly navigate; it is one part of the waterway section that vessels can reach while navigating by width and depth. Horizontally it is determined by navigation lanes and safety space between them. There is only one navigation lane in one way navigation. Vertically it is determined by draught and speedy immersion of the vessel during the navigation.

The lowest construction point in navigable opening of the bridge:

- 1) above high navigable level $H = 9,0$ m
- 2) on the off-speed part of the waterway $H = 10,0$ m

The width of the navigable opening of the bridge at low navigable level:

- 1) part from the border to the mouth of the Drava River $L_{m/n} = 80,0$ m
- 2) downriver from the mouth of the Drava River $L_{min} = 150,0$ m

The height of electric wires at 110 KW voltages:

- 1) above high navigable level $H-9,0$ m
- 2) for each further kilowatt, the height is higher for 1 cm

On the Croatian part of the Danube waterway it is necessary to assure the width of 180 m on the depth of 2.5 m under the navigable level. Wherever there are curves, the minimal waterway width of 200 m is essential.

The biggest and the most important city on the Croatian part of the Danube is the baroque Vukovar. There are numerous attractive edifices such as the Eltz Castle from the 18th century, baroque edifices in the centre of Vukovar, Franciscan monastery, etc. Besides sights in the city centre, an interesting sight for nautical tourists can also be the rich archaeological site Vučedol situated on the Danube shore toward Ilok. Vučedol is also a popular fishing resort with a sandy beach on Orlov Otok (Eagle's Island). During the whole year, sport and recreational activities are being held and the most important one is fishing.

The Port of Vukovar is situated on the right coast of the Danube. It stretches toward East and West and it is 850 m long and 45 m wide. The port is navigable during the whole year regardless the water level, so there are no natural impediments to build a nautical port that would greatly contribute to city development.

Another attractive site on this part of the Danube is Nature Park Kopački Rit. Nature Park Kopački Rit is situated in the area where the mouth of the Drava flows into the Danube. It is one of the largest and most significant authentic marsh areas in Europe that is visited during the whole year by many tourists and scientists from all parts of Europe.

Despite beautiful scenery and numerous sights that can attract nautical tourists, this region isn't put in use enough. The situation can change by investing in construction of marinas that should have the basic programme and means assured. Tourists who mainly navigate on the Danube are the ones of the so called middle class. They usually navigate on ships for river cruising. Slovakia, Austria and Hungary make the best of their river potentials and today on that part of the Danube almost million nautical

tourists navigate. Croatian access to the Danube would be improved by constructing the Danube-Sava (picture 3) Canal. In that way Croatian river ports from Sisak to Vukovar would be connected.



Picture 3 The Danube – Sava Canal
Slika 3. Protok Dunava – Savski kanal

Source: <http://www.pfri.uniri.hr/~poletan/RT/prezentacije>

The Sava Waterway / Plovni put rijeke Save

The Sava River is the longest Croatian river. It is 900 km long of which 450 km flow through Croatia. The river originates in Slovenia by joining the Sava Dolinka and the Sava Bohinjka in one flow that flows through Croatia and it joins the Danube near Belgrade, Serbia.

The most important port on Croatian side of the Sava is Slavonski Brod that is also the most important river port in Croatia. The river port would be well connected with the hinterland by building the overall port area with all supporting buildings.

Sava is divided in three sectors: the Upper Sava that flows from Sisak to Bosanska Gradiška, the Middle Sava that flows from Bosanska Gradiška to Srijemska Mitrovica and the Lower Sava that flows from Srijemska Mitrovica to Belgrade (picture 4).

For larger ships Sava is navigable from Sisak to the Danube mouth. In that area transport is enabled for 700 to 1,000-ton ships and floating systems.

The main transport on the Sava River is transportation of petroleum (oil) from Slavonian plain to refinery in Sisak. Goods traffic is approximately 1 000,000.00 t per year. For smaller ships the Sava is navigable from Rugvica (Zagreb) to the Danube mouth (Belgrade). Although, from the view of transport, it has a favourable location because its waterway is parallel with the X paneuropean corridor that passes through Croatia but it isn't completely adapted to navigation so navigation during the whole year

isn't possible.

There are curves on the waterway that slow down the navigation, shallow spots during minimum water level and various obstacles such as bridges that aren't placed well and sunken vessels that obstruct the navigation. Besides it, during the high water level the river destroys the coast and expands the bed. The result is lower depth.

Signal signs are put up only in some parts and modern information system that would enable night navigation and navigation in bad weather conditions aren't put up. All this directly affects normal navigation.

Navigable class and waterways parameters for the Sava River haven't been defined yet. There were some attempts to define waterway parameters in the past. Various parameters were mentioned but till today precise parameters of this waterway haven't been defined.

The revival of navigation on the Sava River can be expected when conditions of this waterway improve as well as safety conditions and when the depth of $h = 2,5$ m under the low navigable level at 95% of flow constancy is defined.

It all points to the conclusion that firstly the Sava waterway should be renewed and modernised and daily and night navigation without obstructions should be enabled in order to make possible the development of nautical tourism and construction of nautical ports.



Picture 4 The Sava Waterway
Slika 4. Plovni put Save

Source: <http://www.prometna-zona.com/vodni-infrastruktura-006sava.html>

The Drava Waterway / Plovni put rijeke Drave

The total length of the Drava River is 749 km of which 330 km flow through Croatia. Greater part of this waterway isn't put in order for navigation. From the safety point it can be stated that the Drava is relatively safe for navigation. The

waterway along 198 km has only 8.2 km of curves with the radius smaller than 500 m.¹³ The problem is low water level and ice during winter months that according to years-long observations lasts 20 days in a year.

The Drava can be divided into sector from rkm 66 to rkm 198 and sector from rkm 140 to rkm 198. The Drava is navigable along the whole sector for 104 days, long the section from rkm 66 to rkm 140 for 173 days and along the section from rkm 140 to 198 is navigable for 138 days. There are several ports on the Drava. The most significant one is in Osijek. It can accept larger ships. Taking into consideration potentials that the port in Osijek has it isn't used enough. The Drava River is appropriate for fishing, sport fishing, cycling, swimming, boat and canoe ride, etc.

Efforts to popularise rowing tourism (kayak-canoe) exist. One day or several days rowing tours are being organised. A night's accommodation is possible on camping spots near the river or in inhabited places also near the river. Cruising is organised on the Hungarian part of the river while on the Croatian part cruising isn't developed.

Cities Varaždin and Osijek with rich cultural and historical heritage are situated on the coast of the Drava River. Minimal services such as telephone and water should be provided to nautical tourists in those places. It should be pointed out that 90 years ago, Osijek had a constant travel line on the Drava River from Osijek to Barč in Hungary and two times a week it was connected with Budapest and Vienna by ship lines. Besides its cultural and historical heritage, Varaždin and Osijek can offer to nautical tourists plenty of other cultural events.

It all points to the conclusion that places near the Drava River have rich cultural and historical heritage but they also have natural preconditions to develop rich cultural offer.

Analysis of the Cruising on Rivers all around the world and in Croatia / Analiza krstarenje rijekama u svijetu i Hrvatskoj

Special segment of nautical tourism market are various types of circular cruises. They include nautical clientele that knows a little bit or nothing on navigating and don't have the intention to purchase the ship.

Cruises on ships of various sizes and with different offers and attractions and different cruise duration are offered to such tourists on all seas, large lakes and rivers in the world.¹⁴

Cruising on river has a symbolic share in the total cruising market but the demand for this type of tourism is on the increase in the last years.

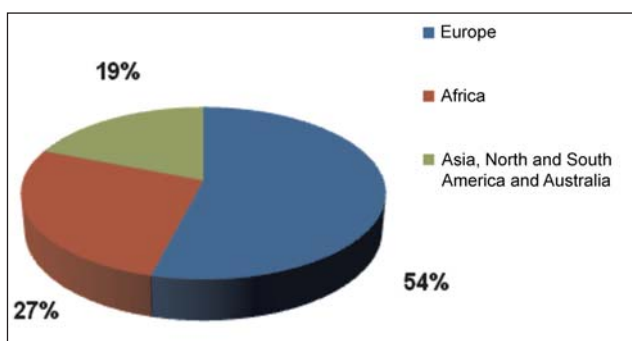
¹³ <http://www.prometna-zona.com/vodni-infrastruktura-005drava.html>
¹⁴ A. Dulčić, Nautički turizam i upravljanje lukom nautičkog turizma, Ekokom Split, Split, 2002, str. 79.

The Nile River characterises cruising on the African continent, the Yangtze River on Asian continent and the Mississippi and Amazon Rivers on American continent while in Europe even though there are many rivers none of them is dominant.

An overall and continual monitoring of this kind of service on global level doesn't exist. The data on the demand is derived from the data from countries that have highly developed and documented river system. These countries are: Germany, Great Britain and the United States of America. Although river cruising is similar to the sea cruising, there are some differences. Vessels for river cruising are smaller than the ones for sea cruising because river waterways have depth limits and cannot accept larger vessels. Ship's size influences the number of attractions and other services that are offered to passengers. The most common ship is the one that can accept 400 passengers. It is not known for river ships to be categorised as ships for sea cruising.

River cruises mainly last 8 days and they are organised in the period from March to November. Cruises during winter months are avoided because of often ice so the offer is limited to a particular period that is not the case with sea cruising. Choosing the itinerary that includes adequate offer is a very important segment of sea and river cruises.

According to the data from the 2005, world fleet for navigation on rivers had 528 ships and the capacity of 67,874 couchettes in cabins that is 20 % higher rate regarding the number of ships and the capacity of 26 % in 2003 (442 vessels with 53,716 couchettes in cabins). Domination of European (54 %) and African (27 %) market is noticeable, while the rest of 19 % refers to the area of Asia, North and South America and Australia.¹⁵ Presented data are shown on Graph 2.



Graph 2. Comparison of market in river cruising
Grafikon 2. Usporedba tržišta krstarenja rijekama

Source: authors according to K. Vojvodić, "Krstarenja europskim rijekama", *Naše more, Znanstveni časopis za more i pomorstvo*, Vol.53 No.1-2 June 2006

¹⁵K. Vojvodić, "Krstarenja europskim rijekama", *Naše more, Znanstveni časopis za more i pomorstvo*, Vol.53 No.1-2 June 2006, str. 50.

Recent statistic data on all rivers in the world indicate that Europe is the most popular destination accounting for the largest number of travels. More than 50 sleek boats ply eight of Europe's rivers, cruising into the heart of cities and villages with rich cultural and historic tradition. By far the most popular itineraries in Europe are the ones on the Danube and the Rhine River tributaries, the Rhine-Main-Danube Channel and the Netherlands waterways that make 45% of the market in cruising European rivers. What follows are cruises on rivers of the former Soviet Union (32%), cruises on French waterways (10%) and various north European waterways (6,5%). The importance of river cruising in the world is increasing. Australians have taken to European river cruising, making it one of the fastest-growing sectors in the travel industry. Passenger numbers have almost tripled, increasing from 11,760 river cruisers in 2007 to 27,645 in 2008.¹⁶ In 2009 this increase continued.

In international cruising at the sea, Croatia is included with approximately twenty destinations along the coastline and on islands. In accordance to the growth of cruises and passengers on those tours in the world and on the Mediterranean, Croatia has also recorded a significant increase in the number of foreign cruisers. This increase is particularly reflected in the number of passengers that in recent years has doubled. Cruisers mainly visit ports and cities along the coastline that have conditions to accept them and in the same time are very attractive to its visitors. It should be pointed out that Croatian cruising still has seasonal characteristics of management.¹⁷ On world cruise market top destinations in 2009 were the Caribbean (40.5%) and the Mediterranean (20%).¹⁸

Cruising on Croatian rivers isn't developed and the reasons are poor offer and inadequate infrastructure. Contrary to Osijek, Vukovar and Ilok have more cruise entrances. The first cruise entrances started in 2000. However, tourists remained on their cruisers. The first sightseeing of Vukovar and Ilok started in 2004.

In 2007, there were only 141 passengers in Ilok and in 2009 the number of passengers increased on 741 passengers. In 2007, only one ship docked, and in 2009 nine vessels docked.

Only a few cruisers with a small number of tourists docked during the season in 2009 in Osijek. These data are the result of objective circumstances that

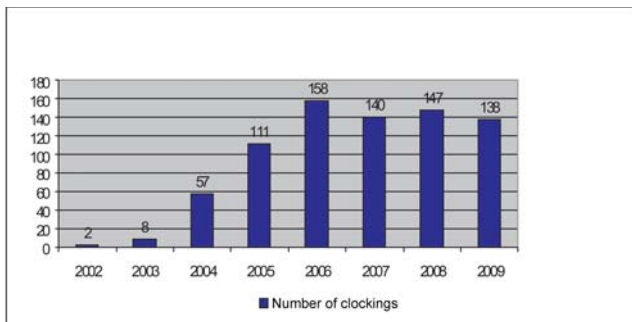
¹⁶ Travel guide to **river cruises** in Europe /Best river cruises.../

¹⁷ T. Luković, M. Kovačić, Seasonality of World and Croatian Cruising. // 28th International Conference on Organizational Science Development. „New Technologies, New Challenges“ 28 (2009); Portorož, 890-898.

¹⁸ I. Benić, "Analiza najpoznatijih krizing destinacija u svijetu", *Ekonomski misao i praksa*, Dubrovnik No. 2, 2010.

couldn't be predicted and couldn't be influenced. Water level problems particularly affect the navigability on waterways.

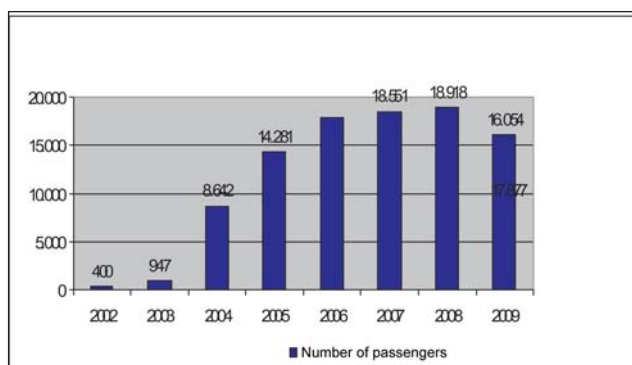
The expected number of docked ships in Vukovar in 2010 is equal to the year 2009 when 138 cruisers entered the port. In the year 2008 entered the port 147 cruisers but the cruisers weren't completely full (graph 3).



Graph 3. Number of dockings in the Port of Vukovar for the period of 2002 to 2009

Grafikon 3. Broj pristajanja u luci Vukovar ta razdoblje od 2002. do 2009.

Source: Port Authority Vukovar



Graph 4. Number of passengers in the Port of Vukovar for the period of 2002 to 2009

Grafikon 4. Broj putnika u luci Vukovar za razdoblje od 2002. do 2009.

Source: Port Authority Vukovar

It is also evident the growth in the number of passengers, from 400 passengers in 2002 to 16,054 passengers in 2009. During first 7 months in 2010 more than 17,000 passengers were recorded (graph 4). This is the beginning and the basis for the increase in the number of passengers in the future because besides guests from the USA, Canada and Germany guests from Denmark, Norway and Australia also show interest.

Possibilities of Development of Nautical Tourism on Croatian Rivers / *Mogućnosti razvoja nautičkoga turizma na hrvatskim rijekama*

Croatia has ideal conditions for the development of nautical tourism and it becomes a very desirable destination. Today, nautical tourism is the most competitive Croatian tourist brand. Conclusion that development of nautical tourism on rivers, especially cruises, would bring to Croatia new profit from nautical tourism is based on data referring to profit that is realised from nautical tourism. Sociological and economic effects that will appear parallel with stronger development of nautical tourism aren't irrelevant. That is visible through the employment of residents and development of various services. The influence of culture is also very important. In that sense, Croatian rivers represent additional nautical potential and their geophysical characteristics enable the realisation of that potential. Croatian rivers don't have the required infrastructure and superstructure that would enable putting in ships especially the ones for cruises and the offer of additional services hasn't been developed yet. Recreation and sport activities (rafting and kayak) are the most common sport activities that attract numerous tourists. Cruising on rivers is wide-spread all over Europe while in Croatia this type of tourism is completely neglected. There is a considerable interest for putting to shore passenger ships, especially in Vukovar and Ilok. These ships are luxurious and they usually navigate on the route Hungary-Romania and vice versa. Vukovar Port Authority achieves positive results thanks to the investments in passenger terminal and all other necessary infrastructure to accommodate this type of ships.

In the future it will be possible to develop the market in cruises on the Sava, the Drava and the Danube Rivers. There are natural preconditions and numerous interesting and attractive locations along the waterway of the above mentioned rivers. But, it is necessary to modernise and renovate waterway and enable unobstructed day and night navigation to start the growth of the market in cruises on Croatian rivers.

CONCLUSION / *Zaključak*

Long coast and rich island resources represent natural predispositions for intensive and sustainable development of nautical tourism that is gaining on the importance in Croatia even though the profit doesn't respect its possibilities. It is accomplished by construction of necessary infrastructure and stable legal provisions that will enable unobstructed development.

The most attractive locations for nautical tourists are the ones under various protection categories such as national parks, nature park or reservates. From the tourist point of view, Croatian rivers have been completely neglected till the present day but it is possible to develop classical and so called "small" nautical tourism.

The most significant waterways in Croatia are the Danube waterway, the Sava waterway and the Drava waterway. Areas along those rivers are characterised by numerous beauty spots and natural attractions that can attract numerous nautical tourists. Therefore waterways should be regulated, unobstructed daily and night navigation should be enabled and supporting infrastructure with minimal services should be built.

High quality infrastructure requires significant financial resources that in one part should be provided by foreign investors and financial institutions.

Special segment of nautical tourism market are various types of circular cruises. Cruises on rivers are popular all over Europe and beyond while this type of tourism in Croatia is completely neglected. Croatia has potentials for the development of nautical tourism on rivers in all its forms. Interest for navigation and docking of passenger vessels on Croatian rivers express tour operators but also tourist even thou these initiatives aren't adequately valorised.

REFERENCES / Literatura

1. I. Benić, "Analiza najpoznatijih kruzing destinacija u svijetu", Ekonomska misao i praksa, Dubrovnik, br. 2, 2010.
2. Dulčić, A., *Nautički turizam i upravljanje lukom nautičkog turizma*, Ekokom Split, Split, 2002, str. 79.
3. Luković, T., Kovačić, M., Seasonality of World and Croatian Cruising. // 28th International Conference on Organizational Science Development „New Technologies, New Challenges“ 28 (2009); Portorož, 890 - 898
4. Luković, T., Šamanović, J., *Menadžment i ekonomika nautičkog turizma*, HHI Split, 2007.
5. *Pomorska enciklopedija*, Jugoslavenski leksikografski zavod „Miroslav Krleža“, Zagreb, 1989, No 8 (Šo – Ž).
6. *Port Authority Vukovar*, 2010
7. "Strategija razvoja nautičkog turizma Republike Hrvatske za razdoblje 2009.-2019.", Ministarstvo mora, prometa i infrastrukture/Ministarstvo turizma, Zagreb, 2008.
8. "Studija razvoja nautičkog turizma u Republici Hrvatskoj", Hrvatski hidrografski institut sa suradnicima, 2006.
9. Šamanović, J., *Nautički turizam i management marina*, Visoka pomorska škola u Splitu, Split, 2002.
10. The power of Inland Navigation; The social relevance of freight transport and inland shipping 2004-2005, Bueau Voorlichting Binnenvaart.
11. Vojvodić, K., "Krstarenja europskim rijekama", Naše more, Znanstveni časopis za more i pomorstvo, god. 53, br. 1-2, 2006.
12. "Zakon o lukama unutarnjih voda" (NN, 142/1998., 65/2002.)
13. <http://www.dzs.hr>
14. <http://www.prometna-zona.com/vodni-infrastruktura-005drava.html>
15. Travel guide to river cruises in Europe / Best river cruises... 31 Jan 2010 ... River cruises are a great way to take in the sights of Europe. ... While the statistics represent all rivers in the world, Europe is the...www.brisbanetimes.com.au/travel/settle-in-for-a-wild-glide-20100201-n7q5.html <http://www.brisbanetimes.com.au/travel/>

KRATAK OSVRT / Abstract

Turizam kao gospodarska djelatnost ima sve veću važnost za svjetsku ekonomiju, pa tako i za gospodarstvo Republike Hrvatske. Turizam direktno utječe na zapošljavanje i razvoj područja u kojima se odvija, pri čemu razvoj selektivnih oblika turizma kao što je nautički turizam, posljedično sa sobom povlači razvoj i drugih privrednih grana, poput poljoprivrede, prometa, trgovine, građevinarstva, male brodogradnje, bankarstva, osiguranja i drugih. Na taj način potiče se zapošljavanje lokalnog stanovništva, povećava osobni standard građanstva, potrošnja, i utječe na rast BDP – a. Prirodna obilježja nekoga kraja, pored ostalih elemenata presudno utječu na razvoj turističke djelatnosti i određuju vid turizma kojem treba pokloniti posebnu pažnju. Nautički turizam zahvaljujući prirodnim obilježjima Hrvatske koju karakterizira razvedena obala, atraktivnost otočnog prostora i plovni riječni putovi ima izuzetne mogućnosti daljnjeg razvoja. Na hrvatskim rijekama nautički turizam nije razvijen. Nedostatak sustavnog pristupa te vrednovanja gospodarskog značaja nautičkog turizma na rijekama usporava njegov razvoj i rast. Činjenica je da se nautički turizam na rijekama manifestira samo kroz nekoliko rekreativnih oblika te kruzinga u manjem obimu.

Rijeke u Hrvatskoj imaju odgovarajuće plovne putove, no ne raspolažu dovoljnim prihvatnim potencijalom. Prateća ponuda i sadržaji su nedostatni, što predstavlja značajan problem u privlačenju novih nautičara i gostiju s kruzera. Opravdana očekivanja daljnjeg razvoja temelje se na statističkim pokazateljima i pokazateljima rasta. Naročito vrijedni podaci su

kretanja na susjednim turističkim tržištima i iskustva ostalih mediteranskih zemalja u razvoju nautičkog turizma.

Zbog svega, nautički turizam u Hrvatskoj, na rijekama i na moru, ima materijalnu i drugu osnovu da postane jednom od najvažnijih gospodarskih grana koja ostvaruje visoke učinke.

Rukopis primljen: 12. 10. 2010.

