

Multidisciplinary  
SCIENTIFIC JOURNAL OF  
MARITIME RESEARCH



University of Rijeka  
Faculty of Maritime  
Studies Rijeka

Multidisciplinarni  
znanstveni časopis  
POMORSTVO

## Market competitiveness of Croatian seafarers

Emil Marinov<sup>1</sup>, Lovro Maglić<sup>2</sup>, Juraj Bukša<sup>3</sup>

<sup>1</sup>Vessel Traffic Monitoring and Information Service, 51000 Rijeka, Croatia

<sup>2</sup>University of Rijeka, Faculty of Maritime Studies Rijeka, Studentska 2, 51000 Rijeka, Croatia

<sup>3</sup>Secondary Maritime School Bakar, Bakar, Croatia

### ABSTRACT

Competitiveness of Croatian seafarers can be determined according to the criteria of economy, competence and numerosity. It is very challenging to assess the quality of education and training as well as the influence of seafaring tradition in coastal countries all over the world in order to be able to claim that certain nationality seafarers are more competitive than others. The International Convention on Standards of Training, Certification & Watchkeeping for Seafarers (STCW) is applied globally with the aim of having the same quality of seafarers, the only difference being the fact that certain seafarers acquire knowledge faster and more successfully than others. It is hard to say that the system of education and training in one country is better than in another because each signatory to STCW Convention should have a standard education procedure setting the minimum needed seafaring competency. This paper presents an analysis of the current structure and number of Croatian seafarers as well as that of seafarers in other coastal countries around the world, as well as an analysis of the most prominent indicators of competitiveness such as current and the most common terms of agreement and wages. In addition, an assessment of the demand for seafarers in the world and in the European Union has been made as well as the assessed competitiveness of Croatian seafarers on the world market.

### ARTICLE INFO

Review article

Received 6 May 2015

Accepted 12 June 2015

#### Key words:

Seafarer

Competitiveness

Seafarer's wages

Number of seafarers

### 1. Structure and number of Croatian seafarers on the seafaring market

A seafarer is a person who signs an employment agreement or contract to work on a ship, a floating object, an off-shore facility, a yacht or another facility or vessel for special purposes. In Croatia there are approximately 20,000 seafarers, 15,184 of which take part in international navigation and the rest of them take part in national navigation [1].

A part of seafarers have not officially been registered in the Republic of Croatia, and part of the registered number of seafarers is not active and thus irrelevant for determining competitiveness. The seafarers in national navigation can potentially become part of the international seafarer labor force market i.e. join the seafarers in international navigation.

The data above show a large diversity of seafarer's jobs. Most Croatian seafarers have graduated from a secondary maritime school or a faculty of maritime studies: deck officers (5,540), engineers (4,439)<sup>1</sup> and an unknown number of electricians, electrician officers, and electro-technical of-

ficers. In fact, electrician and electro-technical officers can be employed as seafarers when they graduate from a secondary school of electrical engineering or from a faculty of electrical or electronic engineering, as well as faculty of maritime studies, marine electronic engineering and information technology course with corresponding certificates.

The number of Croatian seafarers who have graduated from a secondary maritime school or a faculty of maritime studies makes about two thirds of the total number of seafarers. The rest of Croatian seafarers come from other sectors, such as the hotel management, electrical engineering, medicine, social sciences and other trades and professions. Such data show how important the Croatian education system is for the quality of Croatian seafarers. Besides the education system, the quality of Croatian seafarers is also affected by courses defined by the STCW Convention and national regulations attended by seafarers in order to acquire knowledge, gain certification or meet the employer's demands.

The ratio of deck and engine officers in the total number of registered Croatian seafarers amounts to 70.5%, or more than two thirds, while the ratio of non-officer crew in all departments amounts to 29.5%. Analyzing just the deck department, officers make up 73.1%, and non-officers 26.9%.

<sup>3</sup> In accordance with the prescribed conditions in the Republic of Croatia to reach the rank of Deck Officer on Watch or Engine Officer on Watch.

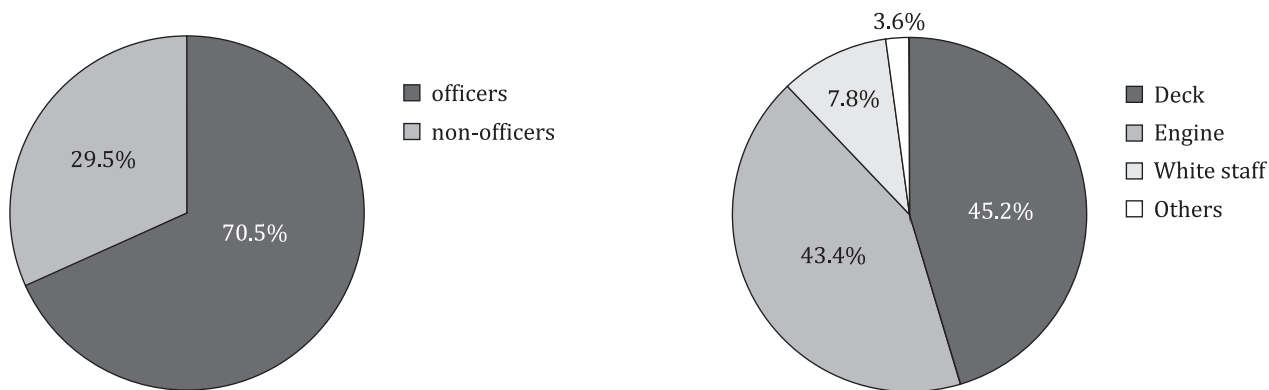


Figure 1 Ratio between officers and non-officers in all categories (left) and ratio between the number of seafarers by category (right)

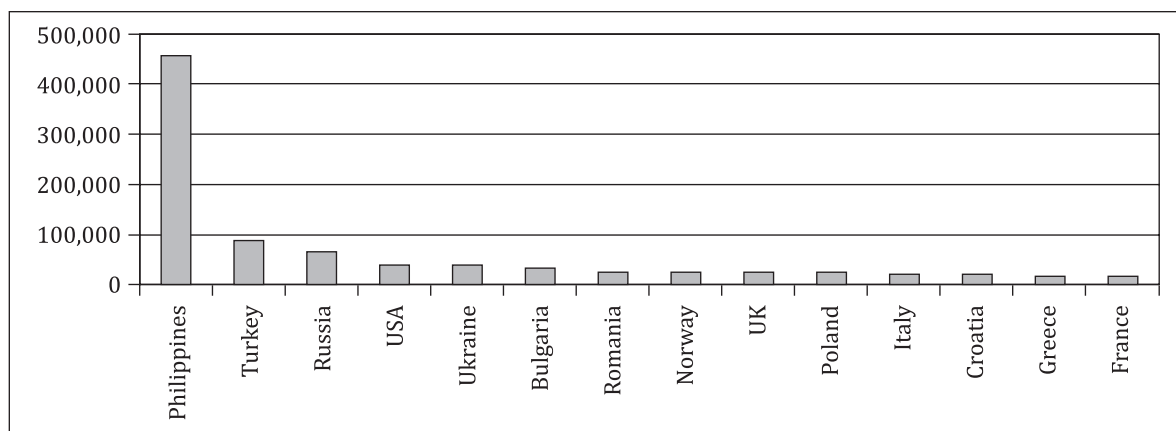


Figure 2 Number of seafarers in distinctive countries

Source: the authors based on the data from [7].

Table 1 The number of registered Croatian seafarers in international navigation

Deck crew		Engineroom crew		Catering crew		Others	
Master	1,589	Chief Engineer	1,336	Hotel Director	1	Chief Security officer	40
First officer	1,518	Second Engineer <sup>2</sup>	1,571	Hotel Manager	6	Environmental Officer	19
Second officer	1,054	Third Engineer	797	Hotel Management Staff	30	Driller	61
Third officer	576	Fourth Engineer	254	Hotel Staff	72	Pipeman	14
Deck Apprentice Officer	504	Engine Apprentice Officer	330	Auxiliary hotel Staff	307	Crane Operator	40
Deck Officer on Watch <sup>3</sup>	33	Engine Officer on Watch	26	Chief Cook	296	Radio officer	24
Bosun	279	Donkeyman	37	Second Cook	13	Welder (Deck Fitter)	5
Able Seaman	661	Oiler	216	Chief Steward	184	Technical Staff	78
Ordinary Sailor	307	Wiper	52	Second Steward	258	Liquefying System Operator	120
Yacht Master	164	Yacht Chief Engineer	52	Gallyboy	1	Other Apprentices	121
Off-shore Master	4	Engine Staff Captain	46	Steward	3	Technical Assistant Staff	20
Staff Captain	50	Yacht Engine Officer	27	Doctor	3	Diver	2
Floating object Master	5	Electrician	852	Nurse	3		
Yacht First officer	32	Electrical Officer	364				
Pumpman	86	Electro Technical Officer	145				
DP officer	11	Electrician assistant	126				
		Mechanic	359				
Total	6,873		6,590		1,177		544

Source: The authors based on the data from [1].

<sup>2</sup> In the table is not listed First Engineer due to english terminology customs in ranking "Second Enginner" (meaning First Engine Officer), "Third Engineer" (menaning Second Engine Officer), etc.

<sup>3</sup> For Seafarers ranked as Deck Officer on Watch and Engine Officer on Watch it is not known which position precisely they held.

Furthermore, in the engine department officers make up 67.9%, and others make up 32.1%. A conclusion can be drawn from the above analysis that Croatian seafarers are mostly officers with a chance of getting the highest ranks on board.

Analyzing the ranks of seafarers in each department, the largest number of registered seafarers are in the deck department or 45.2%, followed by those in the engine department with 43.4%, which is again followed by the white staff department with 7.8%, and all the other seafarers 3.6%.

## 2. The analysis of the number of seafarers

The estimated number of seafarers in Croatia according to the Ministry of Maritime Affairs, Transport and Infrastructure, which is 20,000, compared to the population according to 2011 Census in Croatia, which was 4,290,612, make up merely 0.47% of the total population, which means that four or five people out of a thousand are seafarers in Croatia. Taking into consideration the data from the previous heading that only two thirds of seafarers are maritime professionals, the proportion of seafarers in the total population is three people out of a thousand inhabitants. The total number of seafarers in the world is estimated to approximately 1,800,000<sup>4</sup>, which means that Croatian seafarers make up approximately one percent of the total number of seafarers<sup>5</sup>.

Comparison of the above ratio with the ratio in other countries in the world points to a relatively large discrepancy. Thus, for instance, in the USA, the country with highly developed economy and a large population, almost completely circled by the seas, oceans and lakes, with its inland waterways and with the state of Hawaii in the ocean, and the isolated territory of Puerto Rico, the number of registered seafarers is merely 38,454. At the same time in Ukraine, which only has part of the coast of the Black Sea, there are 38,172 seafarers. Croatia is the tenth country in Europe (including Turkey) by the number of seafarers, after Turkey (87,743), Russia (65,000), Ukraine (38,172), Bulgaria (33,269), Romania (24,343), Norway (23,382), United Kingdom (23,193), Poland (22,669) and Italy (20,950). Interestingly, Croatia has a higher rank than the nations which are well-known as maritime nations such as Greece (12,963) and France 13,696 [7].

The data published by the International Labour Organization from Geneva completely correspond to those published by ISF/BIMCO<sup>6</sup> for European countries, while the data for the Philippines is significantly different. According to the International Labour Organization, in the Philippines there are 81,180 seafarers, while according to the data by the Filipino employment agencies and maritime schools there are 460,000 seafarers, 347,150 of whom sail worldwide.

<sup>4</sup> Assessed using different sources.

<sup>5</sup> The data refer to the total number of seafarers in national and international navigation.

<sup>6</sup> ISF – International Shipping Federation, BIMCO – The Baltic and International Maritime Council.

**Table 2** Ratio between number of seafarers and population of country

Country	Total population (mil.)	Proportion of seafarers (%)
Croatia	4.3	0.47
The Philippines	98.4	0.47
Bulgaria	7.3	0.45
Norway	5.1	0.45
Romania	19.9	0.12
Turkey	77.6	0.11
Greece	11.0	0.11
Ukraine	45.5	0.084
Poland	38.5	0.059
Russia	143.5	0.045
UK	64.1	0.036
Italy	59.8	0.035
France	66.0	0.021
USA	318.9	0.012

**Source:** The authors based on data from [7] and official web sites of statistical institutions of respective countries.

The absolute number of Croatian seafarers is not large, but in relation to the population of the country a conclusion can be drawn that Croatia is one of the countries worldwide with the highest incidence of seafaring profession. Such a ratio shows the importance of seafarers and the seafaring profession altogether, which indirectly affects the higher quality and better competitiveness of Croatian seafarers. In contrast, a relatively small total number of seafarers indicate a short supply, and consequently a lower interest of ship-owners in employing a significant number of Croatian seafarers.

## 3. Demand for seafarers worldwide and in the European Union

According to the study conducted by ISF/BIMCO "Manpower update for 2010" it was expected that the demand for seafarers worldwide was approximately 624,000 officers and 747,000 crew members for the year 2010. The supply of officers worldwide is lower than the demand by 2%, while the supply of crew members corresponds to the demand. The biggest discrepancy between the demand and the supply is with senior officers, especially engine officers. An increase in the demand in 2010, after the crisis in 2009, was compensated by a well-organized seafarer market in the Philippines, which responds very quickly to an increased demand for seafarers due to a large number of educational institutions offering seafaring education and training, well-organized agencies, a high increase in the population and a high rate of unemployment. According to the above study and a moderate assessment (considering an increase in the world fleet and the number of seafarers) a short supply of seafarers amounting to 5% is expected in 2015.

In the European Union, including Norway, there are 254,219 seafarers, 143,967 of whom are officers and 110,252 crew members. On board ships with national flags there are usually seafarers from the vessel flag country.

**Table 3** Ratio of seafarers from the vessel flag country

State	Officers [%]	Crew [%]
Bulgaria	100	100
Finland	98	95
France	88	81
Sweden	88	72
Italy	99	66
Greece	92	55
Denmark	77	42
The Netherlands	53	7

**Source:** The authors according to [7].

The ships flying EU flags mostly have the crew consisting of their national seafarers. That is understandable because a large number of their national vessels are used in coastal navigation or in national navigation thus making national seafarers more competitive than foreign ones. In addition, according to national regulations of certain countries their national seafarers have employment priority over others. Such vessels are for example tugs, local ferries, RO-RO passenger ships, floating cranes, high speed crafts, feeder container ships etc. The demand for foreign seafarers (or even seafarers of a different EU nationality) on board the vessels flying EU flags is relatively poor. However, local employment of EU seafarers on board vessels with their own flags keeps them engaged in their own fleet and that is the reason why only a small number of them compete for employment on board vessels flying a flag which is not an EU flag.

#### 4. Seafarer's wages and contract duration

Seafarer's wages and contract duration largely depend on the labour costs, i.e. on the ship owner's business policy. Commonly, the minimum seafarer's wages are determined by the International Transport Workers' Federation (ITF) Uniform 'TCC' Collective Agreement. According to that agreement for the period from 2015 to 2017 the minimum total<sup>7</sup> wages of an able seaman are \$ 1,806 USD, i.e. the basic pay is \$ 850 USD. Other minimum wages are calculated using coefficients relative to the unit of the basic pay of an able seaman, thus the maximum wage of the Master is 3.369, and the minimum wage of the deck boy is 0.599 of the basic pay of an able seaman [5].

Additionally, on board vessels where the ITF Collective Agreement is not applied, the minimum basic wage of an able seaman is prescribed by International Labour

Organization. In 2015 the minimum basic monthly wage of an able seaman was \$ 592 USD and in 2016 it is \$ 614 USD [8]. The wages of other seafarers are determined by the market and they are lower or higher than the prescribed minimum basic wage of an able man depending on the seafarer's position on board.

The wages of Croatian seafarers, according to the data received from the Tax Administration and crew manning agencies Zorović d.o.o., Globtik express d.o.o. and Azalea Maritime d.o.o. are the following<sup>8</sup>:

**Table 4** Monthly wages of Croatian seafarers in EUR

	General cargo vessels		Tankers	
	Minimum	Maximum	Minimum	Maximum
Master	4,000	11,000	7,000	14,000
Officer	1,800	8,000	2,000	11,500
Able seaman	1,000	1,500	1,000	2,100

**Source:** The authors based on the data received from the Tax Administration, Zorović d.o.o., Globtik express d.o.o. and Azalea Maritime.

The wages for a month of work consist of total annual income divided by the number of months of work. In that way it is possible to compare the wages of seafarers who are paid only while they are on board with the seafarers who receive wages all year round.

The wages of seafarers from other countries are presented in the Table 5.

Their longer stay on board poses a higher risk of human error. Shipping operators rather hire a ship with shorter onboard employment durations of officers to avoid unnecessary risk of accidents. In principle, Croatian officers are mostly employed for a period of four months<sup>9</sup>, while the Filipino and Indian officers are mostly employed for a period of six months.

#### 5. Conclusion

Competitiveness of seafarers on the world market can be determined by their competence, expertise, availability and numerosity. Seafarer's competence is partly standardized and uniform to a certain degree in most of the countries which provide seafarers for the free market. Expertise and experience is gained by working on board. The seafarers who have had a chance to work for a company with high standards are more likely to gain high expertise knowledge, unlike those who have not had a chance to work in an organized environment where the procedures of certain ship operations are not followed or controlled in a safe and expert way.

<sup>8</sup> The aforementioned agencies employ approximately 2,000 Croatian seafarers on different shipping companies so their seafarers' wages can be taken as representative.

<sup>9</sup> The study has been conducted in the three largest Croatian manning agencies (Zorović, Globtik, Azalea)

<sup>7</sup> Total wages consist of the basic wage, overtime and paid leave.



**Table 5** Wages of seafarers in EUR according to the nationality

Country <sup>10</sup>	Master		Officer		Able seaman	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Romania	4,200	12,250	2,100	4,200	700	1,400
Poland	4,900	14,000	1,960	5,250	1,260	1,400
Denmark	6,500	11,000	3,980		2,000	
UK	10,000	14,000	3,700	6,300	3,700	4,550
Greece	10,073	11,458	5,283	6,250	3,000	3,300
France	5,000	9,000	3,500	5,500	2,000	2,500
The Philippines	4,550	9,800	2,310	2,800	700	1,260
India	5,600	11,200	1,750	3,360	560	1,050
China	4,200	8,750	1,540	2,100	420	700

**Source:** The authors based on data from [7] for European countries, i.e. based on [9] for Philippines, China and India.

That is the advantage of Croatian seafarers who have traditionally been present on seafarer market and due to their adequate education and training have had a chance to sail on board ships owned by the most successful companies worldwide and acquire the highest applied standards and thus gain high expertise.

The labour price of a Croatian seafarer is not too high. Croatian seafarers' wages are in the middle on the world market because Croatia entered the EU labour market later than other Eastern European countries. The price of the Croatian seafarer's labour is currently identical to the Polish, and it's a little higher than the Bulgarian or the Romanian seafarer's labour. Taking into consideration indications that the world crisis is coming to an end and the fact that it is expected that in the years to come there will be a shortage of officers of about 5% worldwide, it can be expected that there will not be a decrease in seafarers' wages.

The annual number of new young seafarers in Croatia compared to that in other seafaring countries is unfavorable, which could diminish the importance Croatia for shipping companies. The evidence for that is non-existence of shipping companies' manning agencies that employ seafarers in Croatia. The manning agencies that operate in Croatia are private representing ship-owners or shipping operators. This is understandable because Croatian seafarers (especially officers and experienced seafarers) are highly employed and there are few of them looking for employment. It is for that relatively small number of seafarers looking for employment that ship-owners look for seafarers using manning agents and not through their own crewing agencies. There is also a political factor that is favorable for Croatian seafarers, and that is the fact that Croatia has become an EU member, which means that now it is easier for Croatian seafarers to find employment in any of the EU member countries. It means that Croatian seafarers have the same right as any other EU citizen to apply for a position on board vessels registered in the EU member states.

<sup>10</sup> The wages of Croatian, Romanian, Polish, British and Greek seafarers are expressed in gross amount. The wages of Dutch and French seafarers are expressed in net amounts.

Croatian seafarers are still competitive on the world seafarer market with their education and training, competence and expertise, as well as with the labour price. However, that can be jeopardized by progressive development and higher competitiveness of the seafarers coming from the countries providing large supplies of labour force (Philippines and the Far East). Another threat can pose an inadequate adjustment of Croatian seafarers and the Croatian education and administrative system to the dynamic changes on the world seafarer market.

## References

- [1] *Broj hrvatskih pomoraca*, a report by the Ministry of Maritime Affairs, Transport and Infrastructure, 2014.
- [2] Ćorović, B.; Pejaković-Kovačević, S.; Šekularac-Ivošević, S.; *Analysis of Recent Supply and Demand of Educated Seafarers in Montenegro and Worldwide*, Transaction on Maritime Science-TOMS, Split, 2012.
- [3] *Future Global Supply and Demand for Seafarers and Possible Measures to Facilitate Stakeholders to Secure a Quantity of Quality Seafarers*, Japan International Transport Institute and the Nippon Foundation, 2010.
- [4] Galić, S.; Lušić, Z.; Pušić, D.; *Seafarers Market*, International Journal of New Trends in Arts, Sports & Science Education, Vol 1/3, 2012.
- [5] *ITF UNIFORM "TCC" COLLECTIVE AGREEMENT for Crews on Flag of Convenience Ships – 1 January 2015 – 2017*, ITF, 2014.
- [6] *Manpower 2010 update, The Worldwide Demand for and Supply of Seafarers*, BIMCO/ISF/DMU/IER.
- [7] *Study on EU Seafarers Employment, Final Report*, European commission, Directorate – General for mobility and transport, Directorate C – Maritime transport, 2011.
- [8] *Subcommittee on Wages of Seafarers of the Joint Maritime Commission, Updating of the minimum monthly basic pay or wage figure for able seafarers: Seafarers' Wages, Hours of Work and the Manning of Ships Recommendation*, International Labour Organization, Geneva, February 2014.
- [9] *Ship Operating Costs Annual Review and Forecast 2009 – 2010*, Drewry Market Research, 2009.