SPLITSKA VRATA – MARITIME TRAFFIC AND ACCIDENTS

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ABSTRACT

In this paper we will analyze geographical position, historic and traffic importance and problems related to safety of navigation through the Splitska vrata. The Splitska vrata (the Strait of Split) is narrow passage between the island of Brač and island of Šolta and allows the shortest ship route from the Port of Split to the open sea. Through the Splitska vrata passing many merchant and passenger vessels, on routes that are connecting Port of Split with the islands of the Central Adriatic and with open sea of the Adriatic. Besides large ships, there is intense traffic of small boats and yachts, especially in summer season. Because of that, navigation through the Splitska vrata requires extraordinary precautions and adherence to safety rules of navigation, which is often not the case. The number and characteristics of maritime accidents confirms that violations of navigation rules and recommendations is very frequent, also indicate the need for additional measures regarding marking of waterways and regulation of navigation through the Splitska vrata.

KEYWORDS

Splitska vrata, ship’s traffic, ship’s accidents, safety of navigation.
1. INTRODUCTION
The main theme of this paper is Splitka vrata, their geographical position and traffic importance. Looking through the history, Splitka vrata had a very important military strategic position and significance as a very important trade route that linked the city of Split with the nearby islands and Italy. This work besides geographical features and historical significance of Splitka vrata is showing marine meteorological conditions that are prevailing in this area and main problems that are concerning the safety of navigation. Also, this paper will show examples of search and rescue operations for ships that have experienced an accident in this area and thereby endanger themselves, other traffic and the environment. The majority of accidents occur during the summer months when there are in some cases a large number of vessels in Splitka vrata. Most of these accidents are the result of non-observance with International Regulations for Preventing Collisions at Sea.

2. GEOGRAPHIC CHARACTERISTICS
Split doors are located between the islands of Brač and Šolta, landing points are:
- on north clip Solta east Cape (east of Cape Livka) and Cape Zaglav on the island of Brač,
- on south clip Cape Motika on the island of Solta, Cape Kobila on the island of Brač, Position (φ = 43° 19′43″ N, λ = 016° 24′12″ E).

The length of Splitka vrata is approximately one nautical mile (1 NM), and on the narrowest place their width is approximately 800 meters. Objects of Navigation safety marking the passage, and are located:
- On the island of Brač, lighthouse Ražanj 575 E3342, (φ = 43°19.2′N; λ = 16°24.9′E) (W FI 5s 17 m 13M), (1+4) vid 340-175 (195) (4+2; 4+10) reso. 10 M. Large stone tower near the house. This lighthouse was built in the second half of the nineteenth century, dates from the time of the Austro-Hungarian monarchy.
- On the island of Solta there is coastal light Livka 575 E3338 (φ = 43°19.8′N; λ = 16°24.0′E), (W FI 5s 11 M 8 m) (0,5+1;0,5+3) vid 168-058 (250) Red tower with the construction and gallery on the white cottage.
- Navigational safety object that denotes entrance on the north side of Splitka vrata is situated on island Mrduja, white tower with a column and gallery 576 E3340 (φ = 43°20.3′N; λ = 16°24.9′E) (G FI 3s 14m 4M).

Sea depths in Splitka vrata are in the range from 5 to 42 meters. The biggest shallow waters are in front of lighthouse Ražanj and Cape Livka, so it should adapt navigation on these places. It is also important to note that the anchoring and fishing is prohibited in Splitka vrata, which is marked by prohibiting anchoring. Submarine cables and pipelines were laid between islands of Brač and Solta [3].
Figure 1. Splitska vrata – between islands: Šolta (left) and Brač (right)
Source: http://www.google.com/earth/index.html

Figure 2. Splitska vrata – maritime traffic in Splitska vrata
Source: http://www.google.com/earth/index.html
Figure 3. The amount of maritime traffic in Split-Dalmatia county
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2.1. Effect of currents and winds
In Split, there is appearance of changing current speeds of 0.5 knots which winds can accelerate up to 2 knots. Split's wind is often border of two opposing winds. In fact, it happens that a wind is blowing from two different directions. That means Mistral wind can blow both from Solta Channel and from the open sea southwest of the island of Solta. It is not uncommon to see that one sailboat is approaching from the island of Vis through Split's wind under sail, and the other sailboat with same sail is approaching from Split. The Split's wind is more or less protected from strong winds and waves except in the case of the west wind Lebic which creates rough seas and makes navigation difficult.

3. THE HISTORICAL IMPORTANCE
Split doors were of great importance throughout history. All merchant ships were passing through Split's wind with their trade routes from Split or from Milna to islands or to Italy. In Split's wind famous battle was occurred in 1806 between the Russians and French. The French are on Rt. Battery near Zaglav build a fort in time of the Napoleonic wars, which in itself speaks about the strategic importance of Split's wind throughout history.
In fort there were 10 guns which should prevent the entry of a strong Russian fleet in the waters of Split and Makarska. Russian reconnaissance vessel was anchored near the fort, so the French were told to their command in Split. General Marmont ordered the ships to sail from the port and to capture the Russian ship, so that five ships went on the attack. But before that people from Split were told to ship Lieutenant Ivan Skolavski about French preparations. When the French vessel sailed from Split, on island of Brac was torched five signal fires for Russians to get accurate information on the strength of the French fleet. And Russians attacked them first [2].
In the battle two ships were destroyed, and the Russian ship destroyed the French fort, a battery of four guns. This opens the way for the Russian Navy to the island of Brac. It should be noted that during the Croatia war, battery was set up to coordinate defence of the city of Split from the sea.
Split's wind next to a strategic has a sporting character, traditionally the famous regatta Mrduja is organized on that place, and in recent times the manifestation "Potokanje Mrduje" is organized and is based on story whose Mrduja belongs to Brač or Solta.

4. SEARCH AND RESCUE
One of the most important tasks of Port Authorities Branch Office Milna is search and rescue operations at sea (SAR Operations). In last five years there was 20 search and rescue actions taken with boats 3-ST "MILNA" and RH 3-ST "MARJAN" by Port Authorities Branch Office Milna. Most of the search and rescue operations occurred in the area of Split's wind. Statistically speaking (data from MRCC RIJEKA - The National Maritime Rescue Coordination Centre Rijeka) Port Authorities Branch Office Milna is five years among the three branches in the Republic of Croatia with the largest number of actions in the search and rescue operations at sea.
A large number of search and rescue actions are not recorded or shown through statistical reports, because the greater number of actions was routed through the company "EMERGENSEA", which has a base in Milna, and also a large number of actions are coordinated with telephone (coordinated by Port Authorities Branch Office Milna). Such a large number of maritime accidents occurring in the area, talks about the importance and intensity of traffic in Split's wind.
Most of the accidents happen during the summer months. Failure to comply with regulations for Preventing Collisions at Sea is the main cause of such accidents.

4.1. Examples of Stranding
In the last three years there have been four stranding: three ships and a yacht, which we can show in the following examples:
Example 1.
M/V: Ivona
Type = ro ro cargo vessel
IMO number: 9345154
Call sign: 9AA2278
LOA (Length Overall): 35 m
Power: 662 kW
Gross tonnage: 197 GT
Draft: 2.2 m
Navigation area: small coastal navigation

On day 3 August 2007, around 04:30 pm cargo vessel "Ivona" carrying gas bottle run aground on Cape Livka on the island of Šolta. Insufficient attention of the master near the entrance of the Splitska Vrata, led to the stranding.
The ship sailed in the first quadrant from the island of Vis to Split. Ship was carrying seven crew members, and the investigation proved that they have not respected the rules of navigation. Using tugboats, the ship was successfully moved.

Figure 4. M/V Ivona
Source: Petar Poklepović

Example 2.
M/V: Murat Hacibekeiroglu III
Flag: Turkey
IMO number: 8127323
Call sign: TCNZ
LOA (Length Overall): 84.2 m
Power: 1244 kW
Gross tonnage: 1957 GT
Year built: 1983.
Type: general cargo ship

On day 5 February 2011 at 13:35 am the ship "MURAT HACIBEKEIROGLU III" sailed from the northern port of Split, from berth Silos to the port of Bar, loaded with 1429 tons of wheat and 1587 tons of corn. On day 7 February 2011 at 0:10 pm the ship ran aground on the east side of the island Mrduja. The ship was sailing under the Turkish flag, shipping company "HACI IBRAHIM HACIBEL", port of registry Istanbul.
On the same day after the pilot disembarked from the ship at 15:00 am, the ship proceeds to the port of Milna Bay anchorage because of bad weather conditions. After leaving the anchorage, in the front of the port of Milna (auxiliary anchorage port of Split) in the direction towards the Splitska vrata there was an error in the estimation of navigation entering the channel. They did not respect rules of navigation, which led to the stranding on the eastern side of the inlet Mrđuja. 13 of 13 crew members were on board all 13 of them were hurt, and there were no signs of pollution.

Figure 5. M/V: Murat Hacibekiroglu III
Source: Petar Poklepović

Figure 6. M/V: Murat Hacibekiroglu III – stranded
Source: Petar Poklepović
Example 3.

M/V: Alfa Dragon  
Flag: Panama  
Year built: 2005  
IMO number: 9368637  
Call sign: 3EDIS  
LOA (Length Overall): 80.6 m  
Power: 1323 kW  
Gross tonnage: 1997 GT  
Type: bulk carrier

On day 18 November 2011 around 06:00 am, there was a stranding of a ship “Alfa Dragon” on the island of Brač, when she was passing through Split Vrata. The ship sailed from the Italian port of Porto Empedocle to the port of Split. The ship ran aground on portside and she was tilting about four degrees on the right. At the time of the accident there were fourteen crew members on board and 3150 tons of salt. There was no penetration of seawater into ship’s hold.

An obvious example of non-compliance with safety rules of navigation occurred during stranding of a Turkish ship when passing through Split Vrata. Inspection showed that the error of determining the waypoint caused stranding of a ship on Cape Zaglav. Instead of putting ship’s turning point awhart on Ražanj lighthouse, officer was decided to put ship’s turning point on coastal light Livka (island of Šolta), which led to delay of altering the ship’s course through the strait. There was not enough time to alter the ship’s course in $\theta = 000^\circ$ to pass through the middle of the strait.
Figure 8. M/V: Alfa Dragon

Figure 9. M/V: Alfa Dragon – stranded on the Cape Zaglav
Source: Petar Poklepović
Example 4:

Yacht name: Maca
Year built: 2005
LOA (Length Overall): 12.83 m
Power: 41 kW
Port of registry: Šibenik

The need for reading and understanding charts and publications to pass through the Splitstka vrata is shown in next example of stranding of yacht "Maca". The yacht was ran aground on Cape Ražanj because they did not read the depth charts which show that in this place there are shallows to be avoided at sea.

5. PROPOSED MEASURES TO INCREASE SAFETY OF NAVIGATION IN SPLITSKA VRATA

Statistics in the special purpose ports (including marinas), in an environment of Splitstka vrata, are confirming an increase in traffic of yachts and smaller boats. Those boats are gravitating to passing through the Splitstka vrata. Also, most of the traffic occurs during the summer months, in some weekend days when is an exchange charter boats in marinas (Kaštela-Trogir-Split) and the tourist boats are going on cruise travels, in that moment there can be more than a hundred boats in Splitstka vrata. Additional threat presenting navigators that are using sails when passing through the Splitstka vrata, because of increased risk of collision. All these vessels are crossing routes of larger ships on the way to Split, or from the Split, and they are preventing their maneuverability significantly.

Taking into consideration all the above, it seems necessary to establish appropriate measures to increase the general safety of navigation. Proposed measures include the following:

- mark the area of lateral markings along the entire channel,
- limit the ship’s speed to a maximum of 10 knots (at present the speed limit in force for the fast craft company SNAV is 7 knots),
- introduce a mandatory Pilot Service,
- to improve traffic control, and
- in nearby marinas to establish appropriate information and additional training for yacht masters that have no experience in navigating in this area.

6. CONCLUSION

Number of vessels is increasing every year, thus increasing the number of maritime accidents, especially in traffic narrow passages and straits such as Splitstka vrata. Accordingly, it should take appropriate measures to improve supervision and traffic safety in Splitstka vrata. Reasonable predictions are that the tendency of traffic in Splitstka vrata in the coming years are going to grow, which generates the need for regulation of maritime traffic through this strategic passage, in order to avoid accidents and situations previously mentioned in this paper.

It means primarily to establish an adequate navigation guidance system, combined with active supervision system. Also it must be taken maximum efforts for yacht masters and skippers to comply with the International Regulations for Preventing Collisions at Sea with additional education or with the better supervision of the credibility of the authority.

REFERENCES