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# Comparative Analysis of the Dominant Models of Coastal Guard Structures in Europe with Access to Semi-Enclosed Seas

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## ABSTRACT

The paper presents different models of the organizational functioning of the coast guards of European countries with access to semi-enclosed seas. The subject of research is the Coast Guards of the Republic of Italy, the Hellenic Republic of, and the Kingdom of Norway with respect to different functional organizational models. Similarities and differences have been analyzed in terms of their organizations, capacities, roles in ensuring maritime security, and protecting the sovereignty of their countries. Special attention is paid to the organizational structure and operations of the Coast Guard of the Republic of Croatia. The paper also explores and analyses the management model of the Coast Guard of the Republic of Croatia in the context of operational efficiency in protecting rights and interests in the maritime areas of the research geographical region, the semi-enclosed Adriatic Sea – eastern part. A comparative analysis of the considered coast guards is presented.

## 1 Introduction

The navy is responsible for the protection of sovereignty over the maritime space of all the world's seas. The primary task of the navy is the constant implementation of sea and coastal control and the tracking of the navigation of foreign warships. In case of war, the navy's tasks include defending its coastline, islands, maritime traffic, carrying out offensive operations on the enemy's coast, strategic targets on land, and supporting the army in amphibious operations. [1]. A special role in this is played by the coast guard (hereinafter: CG) of coastal states, along with the geographical and geostrategic deployment of its resources. The scientific research problem is defined in the context of the stated issues. The paper investigates different organizational models of European coast guards with access to semi-enclosed seas, focusing on the coast guard of the respective coastal state

[Coast Guard of the Republic of Croatia (hereinafter: CGRC)]. The geographical area of the research is the semi-enclosed Adriatic Sea – eastern part. The research subject is the characteristics and features of coast guards in semi-enclosed seas. The problem and subject of the research refer to the objects of the research: the coast guards of the considered European countries and the coast guard of the respective coastal state.

The purpose of the research is to analyse the functional correlation between the organizational and operational structure of coast guards in semi-enclosed seas in the system of controlling and protecting the rights and interests with the CG of the respective coastal state in the respective semi-enclosed sea. The aim of the research is to systematically define the models of CG structure. To achieve the goal, the following research tasks were set: to analyse existing research on the organisational models of the coast guards of Europe and

the Republic of Croatia, and to analyse and compare the functional and organizational form of the coast guards of the Republic of Italy, the Hellenic Republic, the Kingdom of Norway and the Republic of Croatia.

The paper is organized in such a way that the introductory chapter defines the research area, while the second chapter presents the methods used for conducting the research as well as existing relevant studies that supported the work. The third chapter describes the organizational models of the Coast Guards of the Republic of Italy, the Hellenic Republic, the Kingdom of Norway, and the Coast Guard of the Republic of Croatia, including their organizations, tasks, and operational forces, as well as a cross-comparison of the three selected countries with CGRC. The research results with suggestions for further studies are given in the fourth chapter.

## 2 Literature review

Inductive and deductive methods, classification methods, description methods, and compilation methods for adopting external knowledge were used in the development and interpretation of the research results. The expected contribution of the research is in determining the significance and role of the coast guard in performing key tasks in the function of national security of coastal states of semi-enclosed seas, enhancing the evaluation and effectiveness of the coast guard system, and contributing to the development of knowledge of the role of the CG in the maritime security system in the sovereign maritime areas of and sovereign rights the respective coastal states in the respective semi-enclosed sea. The operational models of the selected coast guards of maritime states with access to semi-enclosed seas are presented with regard to different functional organisational models.

An extensive literature search was conducted using databases such as PubMed, Google Scholar and Scopus. Search terms included "Coast Guard", "Semi-enclosed sea", "Control and protection", "Adriatic Sea - eastern part", "Republic of Croatia". The authors of the paper checked the relevance of the titles and abstracts of the collected literature. A range of sources published in the form of Open Access for Journals has been reviewed, and the source that best covered the research topic of this paper was utilized. The relevance of these sources is supported by reviews that are mandatory for publication in Open Access Journals. An approach based on the area and specific thematic units has been employed.

Numerous authors investigate the organization and functioning of the coast guard from the legislative, theoretical and practical aspects. Author Luburić (1998) [2] singles out three global models of coast guard organization: a unified coast guard model, a model without a coast guard but with organized maritime police forces, and a model where coast guard tasks are performed by the maritime border service. The Norwegian coast guard or-

ganization model of was investigated by Solvik (2014) [3], detailing the coast guard within the navy and examining all civil authorities within the military structure. The establishment, description and analysis of the core tasks and analysis of the legal, statutory and subordinate regulations of the CGRC are the subjects of works by several authors (Amižić Jelovčić, Primorac, Mandić, 2017; Barić-Punda, Juras, Kardum, 2017) [4,5]. Bolanča and Amižić Jelovčić give an insight into the relevant legal regulations with reference to the role of the CGRC in the fight against maritime terrorism (Bolanča, Amižić Jelovčić, 2018) [6]. Sunko, Komadina, Mihanović, (2018) [7] analyse the structure and activities of the CGRC in the implementation of control and protection of the rights and interests of the Republic of Croatia at sea with the aim of increasing the efficiency in protecting national security and responding to security threats at sea. Author (Kubiak, 2019) [8] analyses the organizational model and activities of the Norwegian Coast Guard in controlling and protecting the rights and interests.

Gustafsson (2019) [9] clarifies the difference between the term's general maritime security and safety and security at sea in the context of coast guard responsibilities. The geostrategic position of Norway and the security issues related to the maritime space along the Norwegian coast have led to the functional and military strengthening of the coast guard with the aim of more effective implementation of the control of national security, as emphasised by Höglund (2019) [10]. Dibenedetto (2019) [11] analyses the role and significance of the Italian Navy and Coast Guard in the Mediterranean Sea, while author Pedace (2022) [12] explains interconnections between national and local humanitarian structures within the Italian civil protection system. Østhagen (2020) [13] provides an overview of the reasons for the formation and specific design of the coast guards in different countries, focusing on the coast guards of six Arctic-operational states: Norway, Denmark, Russia, Canada, Iceland and the US Coast Guard. The significance and role of the Greek coast guard in preventing illegal migration as a phenomenon that increasingly troubles the countries of the European Union and their societies and creates tensions at political, economic and social levels is highlighted by author Korontzis (2022) [14]. The paper includes a qualitative analysis of the coast guard organizational models in four European countries with access to semi-enclosed seas and a comparative analysis of various functional examples of organization [15].

## 3 Results: Models of Coast Guard Organization of Maritime States with Access to Semi-Enclosed Seas

The chapter presents models of the coast guard organization of European countries with access to semi-enclosed seas (Republic of Italy, Hellenic Republic,

Kingdom of Norway and Republic of Croatia). A comparative analysis and comparison of the functional and organizational forms of the coast guards of the mentioned countries with the CGRC will be carried out.

### 3.1 Relevant features of the Coast Guard of the Republic of Italy

The Republic of Italy (hereinafter: RI) is the only one with defined maritime borders in the Adriatic Sea. The total length of the RI coastline is 7,600 km. In the Adriatic Sea, this length is 1,272 km (15.4% of the total length of the coastline of the countries in the Adriatic Sea), with 1,249 km being mainland and 23 km being island coastline, the second longest coastline in the Adriatic Sea [16,17]. The total area of the exclusive economic zone (hereinafter: EEZ) of the RI comprises about 538,216 km<sup>2</sup> (The area of the EEZ around RI is 315,943 km<sup>2</sup>, around Sardinia 117,400 km<sup>2</sup>, and around Sicily 104,873 km<sup>2</sup>). The Coast Guard of the Republic of Italy (hereinafter: ICG) was established in 1865 and, accord-

ing to its functional organisational model belongs to CGs operating together with the national Navy, and according to its character, it has the status of a paramilitary formation. In peacetime, it is under the administrative and financial supervision of the Ministry of Transport and Infrastructure. In wartime, it is a component of the Italian Royal Navy. The ICG headquarters is located in Rome, at the headquarters of the port authorities. It functions as the maritime coordination centre for search and rescue operations (hereafter: SAR) at sea. The ICG commander is a vice admiral who directly reports to the Minister of Transport and Infrastructure and the Government of RI. The ICG has more than 11,000 members. The main tasks of the ICG are: conducting SAR at sea, ensuring navigational safety, systematic control of the entire national and foreign commercial, fishing and recreational fleets, preventing pollution and contamination of the marine environment in coordination with the Ministry of the Environment (hereinafter: ME), control of fisheries in synergy with the Ministry of Agriculture (hereinafter: MA), and the

**Table 1** The naval and air component of the ICG

Ship classes	Coastal ships	Offshore ships	SAR	Fisheries inspection	Logistic support	Air forces
Coastal patrol boat Class CG	89					
Coastal patrol boat Class CG A	56					
Coastal patrol boat Class CG B	99					
Coastal patrol ship 500	69					
Coastal patrol ship	12					
Coastal patrol ship 760	12					
Coastal patrol ship 2000	44					
Coastal patrol ship Class <i>De Grazia</i>		2				
Odob Coastal patrol ship Class <i>Fiorillo</i>		3				
Coastal patrol ship Class <i>Datillo</i>		2				
Coastal patrol ship Class <i>200</i>		26				
Search and Rescue boat Class <i>300</i>			22			
Search and Rescue boat Class <i>329 Admiral Pollastrini</i>			4			
Search and Rescue boat Class <i>600</i>			12			
Search and Rescue boat Class <i>800</i>			93			
Fisheries inspection ship Class <i>Gregoretti</i>				1		
Fisheries inspection ship Class <i>400</i>				5		
Fisheries inspection ship Class <i>713</i>				24		
Logistic support ship Class <i>CG L</i>					19	
Logistic support ship Class <i>450</i>					3	
Airplane <i>Piaggio 180 Avanti II</i>						1
Airplane <i>Piaggio 166 DL3</i>						3
Airplane <i>ATR42 MP</i>						3
Helicopter <i>Agusta Westland 139</i>						1

**Source:** Created by the lead author based on available data according to [18].

implementation of administrative activities in cooperation with the Ministry of Transport. Joint coordination is established with the Ministries of Defence, Culture (underwater archaeology), Internal Affairs (prevention of illegal border crossing), Justice and Civil Protection in the implementation of the protection of national and economic interests of the RI at sea [12].

The protection of the RI's interests of at sea is also ensured by state administration bodies (hereinafter: SAB) [customs, carabinieri (military-police organization) and maritime police units] and before all by the Navy. The ICG is functionally organized at harbour master's offices (hereinafter: HMO), operationally deployed across 113 ports and structured at two levels. The first level is under the command of the HMO General Command. There are seven departments: human resources, legal affairs, planning and operations, fleet, administrative affairs and logistics, navigation safety and the research and development department. The second level of the ICG structure consists of operational organizational units organized into 16 maritime administrations, which command 16 operational Maritime Rescue

Sub-Centre commands in maritime zones, 38 HMOs, 51 maritime district offices, 128 local maritime offices and 62 beach delegations. In addition to the aforementioned, the ICG also includes naval aviation units, the components of which are shown in Table 1, (the air department deployed across three aviation bases), COSPAS/SARSAT (Cosmicheskaya Sistyema PoiskaAvariy-nich Sudov/Search and Rescue Satellite Aided Tracking) satellite station, three groups for underwater operations, the Diving Department is divided into five units, the Marine Protection Department of the HMOs at the ME and the Fisheries Department at the MA [19,20].

### 3.2 Relevant features of the Coast Guard of the Hellenic Republic

The Hellenic Republic (hereinafter referred to as HR) has an indented coastline of 13,676 km long, making it the second most indented coastline in Europe after Norway. The total area of the HR's territorial sea (hereinafter: TS) (with six-nautical mile wide TS belt) is about 92,095 km<sup>2</sup>. The HR has not yet declared its own EEZ (96,568

**Table 2** Naval and air component of the HCG

Ship classes	Coastal ships	Offshore ships	SAR	Fisheries inspection	Logistic support	Air forces
Missile boat Class <i>Foruni</i>	3					
Offshore patrol ship Class <i>Gavdos, Dilos, Arkoi</i> and <i>Marinos Zampatis</i>		12				
Coastal patrol ship Class <i>Javelin, Lambro</i> and <i>Lambro Mk.II/I</i>	51					
Coastal patrol ships Class <i>CB-90HCG</i> and <i>Olympic D65/74/ D-45M/ D-45/ D-44</i>	19					
Coastal patrol ships Class <i>Wellcraft, Madera MRCD-1250, MIL-40/38 Fabio Buzzzi, Halter Marine HSB, Boston Whaler, Outrage-280, Magna Onda</i> and <i>Super Onda</i>	15					
Coastal patrol RIBs Class <i>Rafnar 1100, Naval Special Warfare (NSW), Magna 110 Hurricane Mk.I/II., Magna 31, System 33, Nemesis RIB, Gibli-1025</i> and <i>Mostro Top Gun 964/864</i>	57					
Coastal patrol RIB Class <i>Oceanic Interceptor/ Oceanic 9000 Stealth</i>	18					
Medical ship Class <i>Viking Norsafe Munin S1200 Ext.Cabin</i>			8			
Search and Rescue ships Class <i>Lambro Halmatic 60</i> and <i>Arun Halmatic</i>			11			
Pollution control ships Class <i>LMPA-29</i> and <i>Pollcat</i>					9	
Airplane <i>Cessna 172-RG; Reims Cessna/Reims F-406</i>						5
Airplane <i>Socata TB-20 Trinidad</i>						2
Helicopter <i>Eurocopter AS365N3</i>						6
Drone <i>IAI Heron 1</i>						1

**Source:** Created by the lead author based on available data according to [18].

km<sup>2</sup>). The total area of the HR's continental shelf (hereinafter: CS) (including the island of Crete) is about 72,497 km<sup>2</sup> [21]. The Hellenic Coast Guard (hereinafter: HCG) was founded in 1919. According to its functional model of the organization, it collaborates with the national Navy, and according to its character, it has the status of a paramilitary formation. In peacetime, it is under the control and administrative management of the Ministry of the Merchant Marine, while in wartime, it provides support to the HR Navy and is under the administration of the Ministry of Defence [22]. The HCG's headquarters is located in Athens, and it is in charge of the regional command centres. The regional command centres are branched out to nine ports where the HCG regional commands are located, which supervise the assigned geographical areas under their command. The main tasks of the HCG are: control of compliance with legal regulations at sea; prevention and suppression of illegal actions at sea; fisheries supervision; control of the state border at sea; SAR at sea; prevention of pollution of marine environment; implementation of maritime measurements and surveys and tasks related to the implementation of administrative activities for operations at sea [14].

The HCG fleet consists of ships of various categories: Coastal patrol ships, patrol ships, fast patrol boats, SAR ships, ships for combating marine pollution, multi-purpose ships, auxiliary ships and special purpose ships, as shown in Table 2. HCG has 7,370 members [23,24].

### 3.3 Relevant features of the Coast Guard of the Kingdom of Norway

The land coastline of the Kingdom of Norway (hereinafter: KN) is 25,148 km long, and with the island coastlines, the total length of the coast is 83,281 km. The area of internal waters (hereinafter: IW) of the KN is 125,313 km<sup>2</sup> (the continental part of the KN at sea 89,091 km<sup>2</sup>, around the Svalbard archipelago 36,188 km<sup>2</sup> and around the island of Jan Mayen 34 km<sup>2</sup>). The area of the KN's TS is 114,701 km<sup>2</sup> (continental part of the KN at sea 56,367 km<sup>2</sup>, around Svalbard islands 54,053 km<sup>2</sup> and around Jan Mayen island 4,281 km<sup>2</sup>). The total area of the ISW and TS of the KN is 240,014 km<sup>2</sup> (continental part of the KN at sea 145,458 km<sup>2</sup>, around Svalbard islands 90,241 km<sup>2</sup> and around Jan Mayen island 4,315 km<sup>2</sup>). The area of the KN's EEZ includes 787,640 km<sup>2</sup> [25].

The Coast Guard of Norway (hereinafter: NCG) was founded in 1977 in Sortland due to the need to protect the national and economic interests of the KN in its TS (12 M from the coast), EEZ (200 M from the coast) and fixed maritime zones (hereinafter: FMZ) around the Svalbard archipelago and the islands of Jan Mayen and Bjørnøya. The NCG is a unit of a military nature, organized according to the "navy as coast guard" model, in which the Navy and CG work together functionally. It is

**Table 3** Naval and air component of the NCG

Ship classes	Coastal division	Offshore division
Patrol ship icebreaker Class – Svalbard		1
Patrol ship class Nordkapp		3
Offshore patrol ship Class Jan Mayen		1
NH90 helicopters		6
Offshore patrol ship Harstad		1
Offshore patrol ship Class Barentshav		3
Offshore patrol ship Class Alesund		1
Tugboats		2
Patrol ship Class Nornen	5	

**Source:** Created by the lead author based on available data according to [18].

an integral part of the Norwegian Armed Forces and is administratively under the Ministry of Defence. It is one of the components of the Navy of the Kingdom of Norway (hereinafter: NKN).

It operates independently in accordance with the Coast Guard Act [8]. The commander of the NCG is an admiral who reports directly to the Norwegian Government and the King. NCG ships are designated with the abbreviation KV, while NKN ships use the abbreviation KNM. As part of the organizational structure of the NKN, serving as its separate functional department, the NCG performs tasks with other state agencies and institutions responsible for controlling and protecting the rights and interests of Norway at sea. This arrangement arose from the need for a model that combines relatively low maintenance costs with high efficiency.

NCG is responsible for tasks of high frequency but low intensity, such as enforcement of legal regulations and maintenance of safety at sea in the Norwegian TS, EEZ, FMZ and CS (conducting SAR actions at sea, boarding and inspections of vessels within its area of responsibility, etc.). Tasks of high intensity (defence of national security and sovereignty) are solely the responsibility of NKN. The NCG participates in NKN's war scenario exercises, and in case of war or an immediate threat of war, the NCG becomes combat support forces of the NKN [26]. The main task of the NCG in peacetime is the control and protection of marine fisheries. The NCG headquarters is located in the naval base in Sortland in the north-west of Norway. Another NCG naval base is located in the southwest of Norway in Haakonsværn (the main naval base and headquarters of the NKN). NCG operations are carried out through operational naval and air forces, which are divided into two divisions whose composition is shown in Table 3. The Coastal Division operates within the Norwegian TS and provides assistance to fisheries inspectors, maritime police and, if necessary, other SABs at sea. The offshore division operates in the EEZ and FMZ [3,8,26].

### 3.4 Relevant characteristics of the Coast Guard of the Republic of Croatia

The length of the coastline of all the islands, islets, rocks and reefs in the eastern part of the Adriatic Sea under the jurisdiction of the Republic of Croatia (hereinafter: RC) is 4,398 km (70.1% of the total island coastline of the RC; 97.2% of the total length of island coastline of the entire Adriatic). The total length of the coastline of the Adriatic Sea of the RC is 6,278 km (75.8% of the total length of the coastline of the Adriatic Sea countries). In terms of coastline length, the RC is the third country in the Mediterranean, behind the HR and RI. The total sea surface of the Adriatic Sea is 138,595 km<sup>2</sup> (comprising 5.5% of the total surface of the Mediterranean Sea) including the island areas, while without the islands the surface is 135,418 km. The marine area of the Adriatic Sea under the jurisdiction of the RC is divided into: the area of the IW of the RC which amounts to 12,498 km<sup>2</sup>, the TS of the RC which covers 18,981 km<sup>2</sup> and the EEZ of the RC with an area of 23,870 km<sup>2</sup> [27].

The increased traffic of ships (especially those transporting hazardous or polluting substances), the discharge of ballast water, the growth of nautical tourism, fishing and poaching of fish stocks, the migrant crisis, illegal trade and maritime terrorism represent security challenges in the context of the national security of the RC. The previously mentioned reasons require a strong and unified response of all relevant factors with the aim of developing an organization whose engagement would be concentrated on more effective protection of all the interests of the RC. In 2007, a decision was made on the promulgation of the ACT on the Coast Guard of the Republic of Croatia (hereinafter: ACGRC), which determines the structure and operation of CGRC, as well as its powers, duties and tasks that it will be authorized to perform. In matters not regulated by the ACGRC, the provisions of the Act on Service in the Armed Forces of the Republic of Croatia are applied to members of the CGRC [28]. The CGRC is a body organized within the Armed Forces of the RC (hereinafter: CAF), as an integral part of the Croatian Navy (hereinafter: CN), responsible for controlling and protecting the rights and interests of the RC at sea [29].

The CGRC is fully integrated within the CN and operates under the Ministry of Defence's jurisdiction. The CGRC is organized according to the "navy as coast guard" model (a functional organization model where the CG works together with the national Navy). The structure of the CGRC is adopted by the President of the Republic of Croatia through the organizational structure proposal of the Government of the Republic of Croatia [4,5,29]. The Commander of CGRC is a CN officer of an admiral rank, appointed and dismissed by the President of the RC at the proposal of the Government of the RC for a four-year term with the possibility of extension for two years. The duties of the CGRC are: control and protection of the EEZ and CS over which the RC exercises sovereign rights and

jurisdiction, enforcement of the RC jurisdiction in marine scientific research and protection of the marine environment in the EEZ and CS of the RC, enforcement of the RC jurisdiction on the high seas in accordance with international law, search and rescue at sea, in accordance with special regulations, prevention, preparedness and intervention in the event of sudden pollution of the sea, control of the implementation of regulations governing sea fishing in IW, TS and EEZ, suppression and prevention of transnational organized crime and the proliferation of weapons of mass destruction, piracy and other forms of using the high sea for non-peaceful purposes in accordance with international law, control of the implementation of regulations on established safety zones around devices and installations at sea for the purposes of the seabed and subsoil research and exploitation in the CS of the RC, control of the implementation of regulations on the navigation of foreign of warships through the IW and TS of the RC, elimination of national security risk, in accordance with the law regulating the homeland security system, and implementation of other tasks in accordance with special laws.

In Croatian internal and territorial waters, the CGRC supports relevant SABs in implementing Croatian maritime laws. In the event of an imminent war threat or war, the CGRC forces become an integral part of the combat forces of the CN and thus fulfil their constitutional role in protection against enemy military aggression [29]. The CGRC Command is the headquarters of the CGRCs Commander, with the authority to plan and execute tasks and to coordinate with other state agencies and institutions responsible for controlling and protecting the rights and interests of the RC at sea. The CGRC Command consists of the Commander's personal group, the Support Department, the Operations Department, and the first and second division commands. The CGRC resources include mobile and stationary components: ships and boats, airplanes, helicopters, unmanned aircraft systems, floating and anchored objects and other means and equipment. The CGRC operates through the operational naval and air forces of the first and second divisions, whose components are visible in Table 4. The first division of the CGRC is operationally and logistically located in the "Admiral flote Sveto Letica-Barba" barracks in Split. In 2014, the operational deployment of the second division of the Croatian Armed Forces from the "Admiral flote Sveto Letica-Barba" barracks in Split to the "Vargarola" barracks in Pula was carried out, which increased the operational capability of the CGRC in performing its basic tasks. The Minister of Defence of the RC determines by decision the airplanes, helicopters, unmanned aircraft systems and other resources of the CAF that are used to perform the duties of CGRC. The 93<sup>rd</sup> Aviation Wing is a unit of the Croatian Air Force stationed at the Zemunik barracks with the 395<sup>th</sup> Transport Helicopter Squadron deployed to the "Knez Trpimir" barracks in Divulje near Split [30].

**Table 4** Operational naval forces of the CGRC

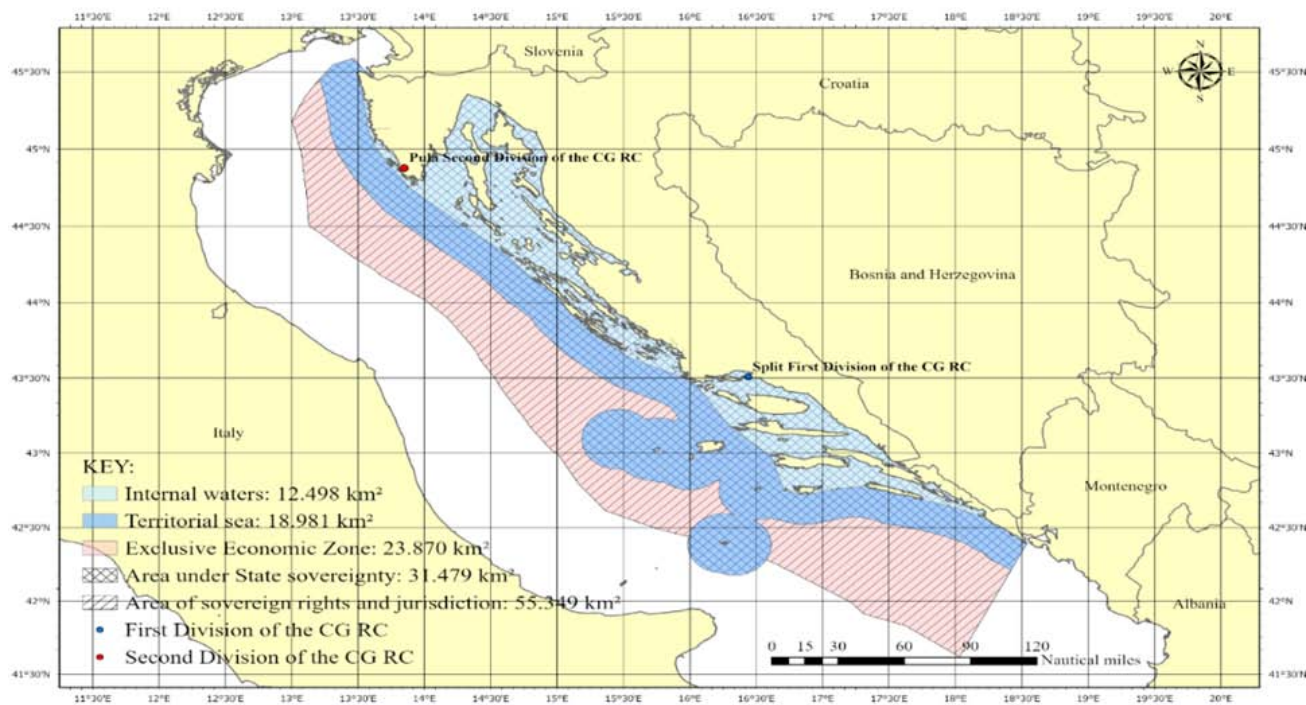
Naval component of the 1st Division of the CGRC	Naval component of the 2nd Division of the CGRC
Training ship Class Moma OBŠB-72 Andrija Mohorovičić (maximum speed: 17.0 Kt)	Patrol ship Class Mirna OB-03 Cavtat (maximum speed: 28.0 Kt)
Search and Rescue ship Class Spasilac OB SB-73 Faust Vrančić (maximum speed: 13.0 Kt)	Patrol ship Class Mirna OB-04 Hrvatska Kostajnica (maximum speed: 28.0 Kt)
Patrol ship Class Mirna OB-01 Novigrad (maximum speed: 28.0 Kt)	Fast boat GB201 Modrulj 1 (maximum speed: 40.0 Kt)
Patrol ship Class Mirna OB-02 Šolta (maximum speed: 28.0 Kt)	Auxilliary landing raft PDS-713
Coastal patrol ship Class Omiš OOB-31 Omiš (maximum speed: 29.0 Kt)	Motor tender Krasnica
Fast boat GB202 Modrulj 2 (maximum speed: 40.0 Kt)	Motor yacht Zrinka
Fast boat GB203 Modrulj (maximum speed: 40.0 Kt)	Motor yacht Čista Velika
Fast boat GB204 Modrulj 4 (maximum speed: 40.0 Kt equipped for diving tasks)	Motor yacht Ciera 1
	Motor yacht Ciera 2

Source: Created by the lead author based on available data according [18].

The Croatian Air Force is constantly under the operational control of the CGRC commander. Unmanned aircraft systems from the Intelligence Regiment of the General Staff of the CAF are also under operational supervision for the performance of the duties of CGRC. The air component consists of: one Pilatus PC-9 (training aircraft) and one Mi-171 Sh (transport helicopter) [30,31].

The permanent operational deployment of the second division of the CGRC in the port of Pula proved to be ef-

fective due to improved efficiency in the implementation of measures to protect the interests of the Republic of Croatia in the geographical area of the northern Adriatic – eastern part. The increased efficiency resulted in the rationalization of costs, improved response time, and the increase in control in the area of gas exploitation platforms proved to be particularly significant. Figure 1 shows the areas of sovereignty, sovereign rights and jurisdiction of the RC in the Adriatic Sea. The geographical



**Figure 1** Marine and submarine areas of the Republic of Croatia in the Adriatic Sea

Source: Created by the lead author based on available data according [5].

Table 5 Overview of the Coast Guards of the RC, RI, HR and KN with functional organizational models

Criteria Coast guards	EEZ [km <sup>2</sup> ]	Area of operation	Total length of the coastline [km]	Length of the State border at sea [NM]	Member	Functional model of the organisation [Peace/War]	Organizational model	Vessels	Airplanes	Helicopters	Employees	Naval bases (ports)	Main tasks
<b>CGRC</b>	23,870	Adriatic Sea	6,278	511,9	NATO EU UN IMO	Independent operating of the Navy Navy/Navy	Military	17	1	1	269	2	Control and Protection of the EEZ and CS over which the RC exercises sovereign rights and jurisdiction
<b>ICG</b>	538,216	Mediterranean, Ionian, Tyrrhenian, Ligurian and Adriatic Sea	7,600	1,902	NATO EU UN IMO	Joint operating of the Navy and CG Ministry of Transport and Infrastructure / Navy	Paramilitary	597	7	14	11,000	113	Control and protection of maritime borders and prevention of illegal entries by sea into the RI
<b>HCG</b>	96,568	Mediterranean, Ionian, Tyrrhenian and Aegean Sea	13,676	X	NATO EU UN IMO	Joint operating of the Navy and CG Ministry of the Merchant Marine / Ministry of Defence	Paramilitary	203	7	6	7,370	9	Control and protection of maritime borders and prevention of illegal entries by sea into HR/EU
<b>NCG</b>	787,640	Norwegian, Barents, Greenland and North Sea	83,281	3,826	NATO UN IMO	Joint operating of the Navy and CG Navy/Navy	Military	17	8	6	900	2	Supervision and protection of maritime fisheries (EEZ i FMZ)

Source: Created by the lead author based on available data according [18].



distance (130 NM) between the two existing naval locations of the CGRC is a limiting factor that hinders greater efficiency in the protection of the national rights and interests of the RC in the Adriatic Sea – eastern part [18].

### 3.5 Comparative Partial Structural Analysis of the Considered Coast Guards

In the final part of the chapter, a targeted analysis of the selected coast guards of countries with access to semi-enclosed seas (ICG, HCG, NCG) was conducted alongside the coast guard of the respective coastal state (CGRC). Table 5 provides a comparative presentation of the coast guards of four countries with different functional organizational models. By analyzing the data, it can be concluded that the selected coast guards, regardless of the differences in organizational and classification models, functional and organizational operational models, geographical positioning of the selected coastal states and diversity of their areas of operation, carry out the tasks of controlling and protecting the interests of the coastal states at sea with the aim of responding to traditional and non-traditional maritime threats, all in the function of achieving a higher level of national security of coastal states.

## 4 Discussion and Conclusion

The conducted scientific research defined the possible threats related to jeopardizing the rights and interests, and sovereignty and jurisdiction of coastal states in semi-enclosed seas. Threats to maritime security represent a multi-layered and complex security challenge for every coastal state. It has been determined that the geographical characteristics of the subject countries, as well as the protection of national interests that are of strategic importance, result in defining the missions, resources and specialized capacities of individual CG. The analysis also shows that, while coast guards have similar roles in ensuring maritime security and protecting sovereignty, key differences arise due to geographic specificities, territory size, task scope, and each country's role in international operations and border protection. In this geographical context, Greece and Norway face challenges related to vast, rugged coastlines and sensitive areas (such as the Arctic and Aegean Seas). Italy plays a critical role in the Mediterranean due to migration flows, while Croatia focuses on the Adriatic Sea, emphasizing maritime traffic control and fisheries management. Regarding operational capabilities, Norway and Italy excel with larger, technically advanced fleets. In contrast, although Croatia and Greece have smaller fleets, they are strategically important for migration management and border protection. Furthermore, by optimizing the spatial deployment of the resources of the CG operational forces, the ability to improve operations with the aim of increas-

ing efficiency in response to maritime and national security threat is increased. For this purpose, by identifying various security threats, monitoring activities, systematic analysis of collected data and a defined legal framework of action, it is possible to achieve a timely response from CG operational forces as a key prerequisite in achieving national interests in the maritime areas of coastal states. The research highlights the need to address limitations, including the current technical state of national systems and sensors for the control and protection of rights and interests in the areas of TS, EEZ and CS, unavailability of advanced technological solutions, assumed international obligations, application of operational solutions of other coastal states with semi-enclosed seas, constant risk assessments in the framework of maritime security, and the geographical distance between the existing maritime locations of the coast guard. The aforementioned can be reduced by improving the existing spatial deployment of CG resources in order to create conditions for more effective control and protection of the rights and interests in the marine and submarine areas of sovereignty, sovereign rights and jurisdiction of states with access to semi-enclosed seas as a function of national security. In the end, the authors suggest continuing the research by expanding the analysis to the coast guards of countries in the world with access to semi-enclosed seas with regard to different organizational models.

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