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Port State Jurisdiction and Remotely Controlled Ships

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1.1 INTRODUCTION

Maritime transport handles around 80 percent of international trade, a figure that rises even higher for many developing States. An integral part of shipping, ports enable nations to engage in global trade and contribute to their prosperity and welfare. In this context, ports are fundamental gateways to international shipping for ensuring uninterrupted supply chains (ICS n.d.; UNCTAD 2023; World Bank Group n.d.).

Ports are indeed crucial, given that they act as gateways for goods carried by ships to enter a State's landmass, making them strategic points for control. Therefore, port performance and the facilitation of international trade are essential for the success of shipping. On the other hand, delays in maritime transport demonstrate the inefficiencies at ports. Enhancing digital infrastructure and adopting advanced technologies are critical for increasing the reliability of global supply chains, thus improving clearance efficiency and reducing delays. Digitalization plays a central role in enhancing port performance. By the integration of novel technologies, such as interactive data exchanges and artificial intelligence, ports can become more efficient. Indeed, technological progress can further enhance port operations (IMO n.d.b; UNCTAD 2023, ch. 4).

The current regulatory framework requires States to assume various jurisdictional roles, such as coastal, flag, and port States. While the 1982 United Nations Convention on the Law of the Sea (UNCLOS)[1] delineates the jurisdiction, in essence the International Maritime Organization (IMO) elaborates on the practical application of these jurisdictions to international shipping. Within the framework provided by UNCLOS, the IMO enhances jurisdiction by equipping States with the necessary regulatory tools. The IMO rightly maintains that the effective regulation of shipping necessitates a combination of efforts from flag, coastal, and port States. It is

[1] UNCLOS, December 10, 1982, 1833 UNTS 397.

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also acknowledged that such regulation can only be effective when guided by uniform and universally enforced international standards. In this context, Chircop aptly observes that the IMO has supported the UNCLOS regime by developing norms that set the standards for the jurisdictional roles of the States (Balkin 2018, 23–24; Chircop 2018, 199–200).

Pursuant to IMO Conventions, governments bear the ultimate responsibility for ensuring compliance with international regulations. Typically, ships on the high seas have been under the exclusive jurisdiction of their flag State. However, this exclusivity is not absolute and is subject to several exceptions, such as coastal and port State jurisdictions. While flag State jurisdiction (FSJ) applies regardless of a ship's location, other forms of jurisdiction are contingent on the vessel's location. While much attention has been paid to their role as flag States, the ever-increasing obligations and responsibilities of port States are equally crucial (Barchue 2018, 252; Sumer 2023b, 117, 122).

Ports serve as pivotal locations in international logistical networks, where the safety of navigation is critical for the port/coastal States. Given the considerable risks present in the shipping activities around ports, it is incumbent upon port authorities to ensure navigational safety. This need for safety is indeed a legitimate concern, considering the growing number of vessels that navigate into, dock, visit, undock, exit, and maneuver within port areas (Agripino de Castro and Pasold 2016, 423). Port call operations, at both arrival and departure, involve numerous stakeholders, such as the port authority, pilots, tug operators, mooring personnel, terminal operators, stevedores, and other service providers (IMO 2023a).

The increase in substandard vessels over time and the severe consequence of several tragic maritime disasters have compelled coastal States, in their capacity as port States, to recognize the dire need to address the shortcomings in the enforcement capabilities of flag States (Yu et al. 2018, 87–88). In this regard, ports serve as critical checkpoints for inspecting and verifying whether visiting foreign ships comply with specific national or international technical standards and to ensure that they adhere to both national and international maritime regulations. When a merchant ship voluntarily enters a foreign port, she submits to the port State jurisdiction (PSJ). Therefore, a foreign-flagged ship must comply with the port State's regulations concerning navigation safety, customs, immigration, sanitation, national security, and environmental protection (Molenaar 2006, 2021; Sumer 2023b, 125–126).

Usually, IMO standards have demonstrated considerable flexibility in adapting to technological advancements. Moreover, the development of new technologies has always been encouraged for safer shipping. On the other hand, such innovations have also led to the creation of new legal norms and prompted the development of the IMO's compliance mechanisms (Luchenko et al. 2023, 23). Currently, shipping is in the stage of revolutionary transformation, perhaps similar to the transition from sailing to steam power. Petrig aptly highlights that Maritime Autonomous Surface

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Ships (MASS) are no longer a futuristic scenario given that technology is progressing swiftly. Indeed, the right question is no longer if MASS will happen but rather how quickly and in what form it will unfold. Hence, the advent of MASS necessitates revisiting well-established jurisdictional roles of the States (IMO 2024d; Petrig 2021, 23). The current technological developments create considerable tension with the existing legal frameworks as regards the jurisdictional roles of States. Obviously, the architects of these jurisdictional frameworks did not anticipate the emergence of MASS during their drafting exercise.

1.2 PORT STATES AND MASS

The term "ports" refers to safe locations where vessels are loaded and unloaded. Notably, ports are integral to the territory of a State, which exercises full sovereignty over them. It is not one of the main characteristics of UNCLOS to offer definitions for its numerous terms. Unsurprisingly, this is also the case for "port" and "port State" although these terms are mentioned several times throughout the Convention (Articles 11, 18(1), and 129). Nevertheless, the concept of a port State becomes evident when foreign vessels visit other ports. The port State can exercise jurisdiction in the same way it would in any other part of its territory. Therefore, port States play a crucial role in ensuring compliance with international shipping standards. Yet, it is also incumbent on port States not to unnecessarily delay or hamper international shipping (Kopela 2016, 93–94; Marten 2014, 20–21; Molenaar 2021, paras. 3, 5).

Evidently, enforcement measures are more practicable in ports. Inspections at ports, rather than in open seas, are more convenient as they require fewer resources, and ships encounter fewer navigational obstacles (Coelho 2015, 273). Port State enforcement measures can include a variety of actions, such as denial of access to ports, prohibition on the loading and unloading of cargo, denial of the use of port services, inspection of vessels, detention, and fines (Molenaar 2006, 197). Against this backdrop, it may be safe to note that the successful integration of MASS operations into international shipping essentially depends on their ability to use the web of foreign ports like their conventional counterparts. Otherwise, their technological capabilities and legal capacity to navigate would not be meaningful for the industry's commercial usage.

1.2.1 *Historical Background*

As early as 1919, the Treaty of Versailles hinted at a general desire[2] for an international instrument regulating the regime of ports. In this respect, the 1923

[2] Article 379: "Without prejudice to the special obligations imposed on her by the present Treaty for the benefit of the Allied and Associated Powers, Germany undertakes to adhere to any

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Convention and Statute on the International Régime of Maritime Ports[3] is a landmark development in the global regulation of ports. It primarily addresses the issue of equality of treatment concerning freedom of access to ports, the use of ports, and availing of benefits regarding the navigation and commercial operation and use of port facilities (see Article 2). In this respect, Article 2 of the Convention's Statute requires the contracting parties to ensure equal treatment of vessels from other State parties regarding the freedom of entry to ports. Although PSJ is not explicitly mentioned, it also refers to the general competence of port authorities (Articles 3 and 4).

Before the 1970s, in the absence of a directly applicable clear treaty rule, port States exercised restricted jurisdiction over foreign vessels under customary law, which was mainly in the form of denying entry to their ports or imposing specific conditions on foreign vessels. It is submitted that the concept of PSJ emerged in the 1970s. In particular, the 1973 Inter-Governmental Maritime Consultative Organisation (IMCO) Conference on Marine Pollution and the 1974 Conference of the International Law Association (British Branch Committee on the Law of the Sea) appear to be early examples. At the IMCO Conference, the US proposed a draft that would allow port States to ensure compliance with global regulations. However, the proposal was not accepted (Marten 2014, 33–35; Qi and Zhang 2021, 19–21). Over time, it became evident that the international shipping regulations set out in the IMO's major instruments[4] could only be enforced by expanding the powers of port States (Özçayir 2004, 74–77).

Significant developments in the evolution of PSJ occurred in the 1980s, particularly with the adoption of UNCLOS and the Paris Memorandum.[5] Notably, port States have assumed a critical role in ensuring compliance through various regional port State control agreements. UNCLOS (see Article 218) implicitly recognizes PSJ without providing an explicit definition, and it acknowledges the port State's authority to set conditions for foreign ships to have access to ports. Additionally, UNCLOS enables port States to physically inspect if a ship's actual conditions do not match its documentation. The evolution of PSJ was further enhanced in

General Conventions regarding the international regime of transit, waterways, ports or railways which may be concluded by the Allied and Associated Powers, with the approval of the League of Nations, within five years of the coming into force of the present Treaty."

[3] Convention and Statute on the International Régime of Maritime Ports, December 9, 1923, 58 UNTS 285.

[4] For example, International Convention for the Prevention of Pollution from Ships, November 2, 1973, 1340 UNTS 184, as amended by the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973, February 17, 1978, 1340 UNTS 61 (MARPOL); International Convention for the Safety of Life at Sea, November 1, 1974, 1184 UNTS 2, as amended by the Protocol of 1978 relating to the International Convention for Safety of Life at Sea, 1974, February 17, 1978, 1226 UNTS 213 (SOLAS); International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers, July 7, 1978, 1361 UNTS 2 (STCW).

[5] Paris Memorandum of Understanding on Port State Control, January 26, 1982.

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1984 with the entry into force of the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW),[6] which grants port States the authority to detain ships until any deficiencies posing risks to people, property, or the environment are addressed. The evolution of PSJ has continued at both the regional and global levels; for instance, the IMO adopted the first version of Resolution A.472(18) in 1993, which set procedures for port State control (Marten 2014, 2–3, 2016, 471; Özçayir 2004, 74–77; Qi and Zhang 2021, 25–26). Over time, the myriad of IMO legal instruments enhanced the PSJ regime. Finally, the "no more favourable treatment" clause, which is usually incorporated into IMO Conventions, further consolidated PSJ vis-à-vis FSJ.

1.2.2 *Legal Basis of PSJ*

Port States possess regulatory and enforcement authority over foreign ships in their ports. As a fundamental principle, a port State, therefore, can necessitate compliance with its national regulations for foreign vessels, provided these do not pertain to aspects entirely internal to the ship. In this context, PSJ refers to the authority of a State over ships that voluntarily visit its ports (Ringbom 2011, 620–623). As a public law concept, PSJ is a direct extension of the principle of State sovereignty and is primarily a form of territorial jurisdiction, though it encompasses additional aspects.[7] Over time, PSJ has transformed from a voluntary application in specific areas to a more comprehensive and obligatory implementation largely through IMO instruments and their broadening reach to new areas (IMO 2023c, 9–10; Kopela 2016, 93–94; Marten 2014, 1, 7, 20–21; Molenaar 2006, 208–209; Sumer 2023b, 117).

PSJ is broadly viewed as allowing port States to exercise significant regulatory authority over foreign-flagged ships. In a nutshell, PSJ provides a mechanism for corrective action if flag States fail to meet their obligations. Although its significance has faded due to the expanding PSJ, FSJ remains a foundational mechanism for maintaining legal order at sea, especially on the high seas. However, over time, in response to the inadequacies of flag States in ensuring compliance of their ships, port States had to step in, and indeed, they have increasingly taken on a supplementary, if not leading, role (Derrig 2022, 534–536; Qi and Zhang 2021, 8–9).

While UNCLOS predominantly upholds FSJ over vessels, it also recognizes the growing significance of port States in ensuring adherence to international rules and standards. Indeed, the notion of the port State as a separate jurisdictional entity gained importance with the adoption of UNCLOS. However, UNCLOS, as an umbrella instrument, does not codify the scope of PSJ comprehensively.

[6] See note 4 *above*.

[7] For example, Article 218 of UNCLOS grants port States the authority to exercise extraterritorial jurisdiction over violations of IMO rules related to discharges from vessels that occur outside their maritime zones.

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Nonetheless, it provides a legal basis, particularly in Article 218, "Enforcement by port States" (see also Articles 211(3) and 219), which also points to the IMO as the competent international organization (CIO). Acting as the secretariat for UNCLOS, the UN Division for Ocean Affairs and the Law of the Sea compiled a table elucidating the implications for the "competent or relevant international organizations" in relation to UNCLOS for ocean governance. That document, which was published in the *Law of the Sea Bulletin* No. 31, also confirms that the IMO is the CIO in the context of Article 218 (IMO 2014, 7–8; Marten 2014, 2–3; OECD 2001, 28; Sumer 2023b, 125–126; United Nations 1996).

The authority of a port State on foreign-flagged ships docked at its ports is crucial to the routine operations of international shipping. Although States have historically exercised territorial sovereignty over their ports, the concept of the port State as a distinct jurisdictional entity was formally established by UNCLOS. In establishing the legal framework for the rights and obligations of port States, UNCLOS heavily relies on the international rules developed at the CIO. By incorporating the IMO's regulations through rules of the reference system, UNCLOS indeed grants a significant role to the standards adopted under the auspices of the organization (Marten 2015, 5–6, 109–112; Sumer 2023b, 139–140).

Given that UNCLOS is relatively silent on PSJ, any limitations regarding the subject matter or scope of regulations in this context must be sought outside of the Convention. This is supported by the preamble of UNCLOS, which emphasizes that matters not explicitly regulated by the Convention continue to be governed by the general international law (Marten 2015, 109–112).

UNCLOS serves as the primary international legal framework, establishing the rights and obligations of States. States assume their roles as coastal, flag, and port States based on various factors, such as their geographical location, sovereignty, boundaries, and functions, as well as the treaties to which they are parties. Typically, a coastal State's authority diminishes as the distance from the shore increases (Beckman 2007, 326; Mansell 2009; Wolfrum 2014). Article 8 of UNCLOS establishes that waters on the landward side of the baselines are part of internal waters. This recognition affirms the sovereignty of port States over the waters in their ports. Furthermore, Article 25 reaffirms the right to regulate access to internal waters, including ports. Moreover, UNCLOS strengthens the powers of port States in protecting the marine environment, allowing them to regulate the access of vessels into their ports, inspect vessels for compliance with port entry requirements, and deny access to noncompliant vessels (Galani 2021, 609). In general, Articles 211, 218, and 219 address PSJ. Article 211(3) primarily sets the foundation for the State's jurisdiction to adopt domestic rules. On the other hand, Articles 218 and 219 specifically outline the port State's enforcement authority. In essence, while Article 211 focuses on the authority to legislate, Article 218 addresses the authority to enforce such legislation (Keselj 1999, 131–135; Özçayir 2004, 80–81).

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As a framework convention, the UNCLOS emphasized general principles of the law of the sea, leaving broader discretion to States rather than restricting interpretation or hindering technological development. It was undoubtedly drafted for crewed ships. However, this does not mean that the drafters intended to exclude new types of vessels (Sumer 2023b, 138; Veal et al. 2019). Indeed, the UNCLOS regime is designed to evolve and address emerging issues that could not possibly have been foreseen during the adoption of UNCLOS. Therefore, it is suggested that the norms and principles regulating conventional manned vessels may apply to MASS with the necessary adjustments. In this context, Kraska aptly opines that the current legal framework for the law of the sea already offers a fundamental structure for regulating MASS (Kraska 2010, 44–45).

1.3 THE IMO'S REGULATORY MANDATE AND PORT STATES

In the pre-UNCLOS period, ensuring compliance with the technical, manning, and operational standards stipulated by the International Convention for the Safety of Life at Sea (SOLAS),[8] the International Convention for the Prevention of Pollution from Ships (MARPOL),[9] and the STCW proved to be challenging for flag States. Moreover, while port authorities were permitted to inspect certificates, they lacked the legal authority to board vessels to verify whether a ship's certificates accurately reflected compliance with international standards (Blanco-Bazan 2018, 42–44).

The IMO's mandate is rooted in multiple sources, notably beginning with the 1948 Convention on the International Maritime Organization[10] and various legal instruments adopted by the IMO after its inception. Although the IMO predates UNCLOS, the adoption of the Convention significantly enhanced its mandate as the CIO. UNCLOS introduces a system of "rules of reference" as a mechanism for its adaptation, requiring States to comply with the IMO's Generally Accepted International Regulations, Procedures, and Practices (GAIRS; Librando 2014, 579, 589–590; Sumer 2023b, 61–62). The active involvement of 176 IMO member States, along with that of numerous relevant stakeholders, and the broad adherence level to IMO Conventions support the argument that these rules and standards are indeed GAIRS (IMO 2023c, 7–8).

UNCLOS functions as an umbrella treaty, meaning that it can be enforced through specific regulations developed by the CIO (Librando 2014, 580–582). The IMO, which serves as the global standard-setting authority for international shipping, aims to adopt global regulations that are uniformly applied. Its mission is to promote safe, secure, environmentally sound, efficient, and sustainable shipping

[8] See note 4 *above*.
[9] See note 4 *above*.
[10] Convention on the International Maritime Organization, March 6, 1948, 289 UNTS 48.

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through international cooperation. This goal could only be achieved by adopting the highest practical standards for maritime safety and security, navigational efficiency, and pollution control from ships (IMO 2023c, 4).

In this respect, IMO treaty instruments outline the way in which jurisdiction should be exercised to ensure adherence to its regulations. Similarly to UNCLOS, while the primary responsibility for enforcing these regulations falls to the flag State in the IMO context, a significant development in the IMO's efforts over the past decades has been the progressive strengthening of PSJ. This enhancement essentially aims to address noncompliance with IMO regulations by foreign ships that voluntarily visit ports. Such voluntary access to ports indeed indicates the foreign ship's consent to PSJ (Hughes 2018, 210–211).

Given that the IMO lacks enforcement powers, a core principle of its regulatory role is that State parties – whether as flag, coastal, or port States – are eventually responsible for ensuring compliance with international standards. (Balkin 2018, 22–23; IMO 2014, 12–13).

Initially, the IMO focused solely on maritime safety issues, but over time its responsibilities expanded as the environmental impact of shipping became apparent in the face of a dramatic increase in global oil transportation after the 1960s. As the IMO increasingly focused on the human element, the extent of regulatory controls broadened to encompass the entire operation of a ship. The International Safety Management Code (ISM Code) best illustrates this expansion for the safe operation of ships and for pollution prevention. Subsequently, UNCLOS and major IMO Conventions marked a shift toward enhancing the enforcement responsibilities of port States (Gavouneli 2007, 46–49; Marten 2014, 44–46). The IMO Assembly adopted its first resolution regarding the procedures for controlling ships at the end of 1981 (IMO 1981). Over time, that resolution has undergone numerous amendments to accommodate the developments in the industry (Özçayir 2009, 210–211).

Last but not least, the key IMO Conventions include provisions that govern PSJ[11] and detail the scope of its application. Pursuant to these instruments, for instance, port States are authorized to verify the authenticity of certificates issued by flag States. Furthermore, they grant port States the right to inspect ships if the certificates are found to be in disorder, if there is substantial evidence suggesting that a ship or its equipment does not match the details in the certificates, or if the certificates are not accurately maintained (IMO 2014, 19; Librando 2014, 592–594).

[11] Such as the International Convention on Load Lines, April 5, 1966, 640 UNTS 1333, as amended by the Protocol of 1988 relating to the International Convention on Load Lines, 1966, November 11, 1988, 2 UNTS 102; MARPOL; International Convention on Tonnage Measurement of Ships, June 23, 1969, 1291 UNTS 3; SOLAS; and STCW.

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1.4 INTEGRATION OF REMOTELY CONTROLLED SHIPS TO INTERNATIONAL SHIPPING

The IMO defined the term "MASS" as ships capable of operating with varying degrees of human involvement and acknowledged that MASS could encompass a range of automation levels even in a single journey. To prevent confusion by employing different terms during its regulatory scoping exercise (RSE), the IMO has identified four degrees of autonomy. The said classification, particularly for degree four, although it was considered useful during the RSE, was not immune from criticism. Fortunately, a recent and more appropriate understanding has been developed at the IMO, which ensures that a remote master is required for degree four as well (Sumer 2023a). This study aims to address remotely controlled ships (RCS), which are classified as MASS degrees two and three.

Scholars generally concur that an RCS can be characterized as a ship under UNCLOS. In this regard, early research and deliberations at the IMO seem to suggest that the classification of an RCS as a ship should be at the discretion of the flag State. Indeed, Article 91 offers a wide discretion for flag States to fix conditions for granting nationality to ships. It follows that if a flag State designates an RCS as a ship, then the relevant provisions of UNCLOS would apply to it. Consequently, RCS should be able to use navigational rights and receive treatment similarly to their traditional crewed peers in the coastal waters and port areas (Dong et al. 2024, 2).

Having said that, until the IMO authoritatively clarifies the relationship between MASS and port States, there could be significant challenges for RCS operations. This uncertainty may deter port States from allowing such vessels to grant access to their ports. If a flag State registers an RCS but a port State does not recognize its status as a ship, then conflicts may arise, as the port State might view the RCS as noncompliant with the State's requirements. According to this scenario, conflicting State practices can emerge, which will cause defragmentation of international maritime law. Moreover, this can disrupt international shipping as well. Although such discrepancies may eventually be resolved through the IMO's GAIRS, these issues could prove particularly challenging during the initial period before global regulations are established. To prevent any gaps in the legal status of RCS, it is indeed imperative for the IMO to act swiftly. Given the express delegation of authority by the UNCLOS regime to the IMO, the CIO must fulfill its role in resolving uncertainties as regards port States and defining the specific requirements necessary to integrate RCS effectively (Gabay et al. 2023, 411; Sumer 2023b, 139–140).

1.4.1 *Construction, Design, Equipment, and Manning Standards*

The primary regulatory approach to enhance the safety of shipping and to control pollution from ships involves setting standards pertinent to the construction, design,

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equipment, and manning of ships (CDEM standards), as in the example of SOLAS and MARPOL (Churchill 2016, 443). This particularly merits closer scrutiny, given the varying qualifications of MASS compared to traditional ships.

In accordance with relevant IMO Conventions, States may adopt measures that require vessels to adhere to CDEM standards as both entry criteria and rules to be followed while in ports. The application of prescriptive jurisdiction regarding CDEM standards that extend beyond international legal requirements causes issues due to their extraterritorial effect. Naturally, vessels must meet these standards as a continuous activity throughout their journey, even before approaching port. Thus, CDEM requirements need to be met on the high seas before and after the port visit, suggesting an exercise of extraterritorial jurisdiction. Nevertheless, it is submitted that the extraterritorial impact of these measures is merely incidental, not the primary objective of the port State's domestic laws. Such static features are attributes that remain consistent regardless of a ship's location, meaning that a ship either complies or does not comply with them wherever it is, whether in port or not. Since these features cannot easily be modified during a voyage, they are often seen as the most intrusive in relation to a ship's navigational rights. Nonetheless, ships have the option of visiting a port. But, if they choose to do so, then, naturally, they must adhere to the CDEM standards set by the port State (Churchill 2016, 454–556; Kopela 2016, 95–96; Marten 2016, 472–473; Ringbom 2011, 620–623).

Port States have the authority to set CDEM standards for foreign ships intending to have access to their ports. It follows that port States can enforce these CDEM standards within their ports. Given that PSJ is fundamentally territorial, it stands to reason that a port State can, in principle, require foreign MASS that call at its ports to adhere to CDEM standards. The IMO Conventions often mandate port States to adopt and enforce such standards. A port State may also opt to avoid stringent CDEM measures if it values the economic benefits derived from foreign ships, including MASS, such as port fees and charges for services, and wishes to maintain its attractiveness as a port of call (Churchill 2016, 446–448, 467–469).

Given that ports are considered part of a State's territory, port States have the authority to set CDEM standards for vessels calling at their ports. They may set more stringent CDEM standards than IMO standards unless there exist specific IMO Conventions or unless international laws stop them. Essentially, PSJ is subject to three key limitations with regard to CDEM standards. First, port States must respect the immunity of foreign warships and government-owned ships engaged in non-commercial activities. Second, various treaties mandate that States should not discriminate between ships based on nationality. And, finally, pursuant to Article 211(3) of UNCLOS, port States are obliged to provide due publicity to CDEM measures (Churchill 2016, 467–469).

Vessels can choose to ignore a port State's regulations by not entering its ports. However, by deciding to visit a port, vessels implicitly agree to comply with the entry conditions, even if these conditions concern activities that occurred outside the port

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State's territorial jurisdiction. In light of the foregoing, skeptical port States can indeed prescribe CDEM standards to deny access to MASS, unless the IMO's GAIRS (see UNCLOS, Article 21(2)) restrict this power. Indeed, a key limitation is that a port State cannot establish CDEM standards that conflict with IMO Conventions that it has ratified, as doing so would breach its treaty obligations (Churchill 2016, 450–452; Ringbom 2011, 626–628).

1.4.2 *The Location of the Remote Operation Centers*

According to the draft MASS Code, remote control involves operating the MASS or certain of its functions from a remote operation center (ROC). Under the Code, "ROC" means a distant location from the MASS that can control some or all aspects of the MASS functions. In this vein, the draft code defines a "Remote Operator" as a qualified person who is employed or engaged in operating some or all aspects of the MASS functions from a ROC. And, notably, "Remote Master" is a master in a ROC (IMO 2024b, annex I, 11).

The said new actors and terms cause some legal ambiguities. In particular, the location of a ROC can lead to intricate legal challenges concerning jurisdiction and the responsibilities of the flag State. For instance, customarily on the high seas, ships have been subject to the exclusive FSJ based on the view that vessels are essentially extensions of a flag State's territory. But this reasoning would be difficult to follow for ROCs, which are hosted in another State, due to the overlap between the territorial jurisdiction of the State hosting the ROC and the jurisdiction of the flag State. There can be several related issues if the ROC is situated in a country other than the flag State with regard to ensuring the effective FSJ requirement under Article 94 of UNCLOS. Evidently, the legal tension will be less if a ROC is in the territory of the flag State. Although, at first sight, it seems plausible to ensure that ROCs are located only in the flag States, there is no such obligation in the law of the sea regime (Ishii 2023, 268–269). Therefore, the legal status of ROCs is likely to become a contentious issue until the IMO clarifies the issue by developing a common understanding between flag and port States (Yoo and Shan 2019, 563).

Once registered, the flag State is bound under Article 94 to exercise effective jurisdiction and control to ensure that the registered vessel complies with the IMO's GAIRS. However, a critical issue arises with MASS: how the flag State can effectively oversee the remote operators to fulfil these obligations. Unlike manned ships, where the flag State can exert jurisdiction over both the vessel and the individuals on board, ROCs present unique legal complexities due to the absence of onboard crew and their presence elsewhere. Hence, the location of the ROC introduces intricate jurisdictional challenges. Notably, there may be overlapping jurisdictions between the State where the ROC is situated and the flag State. This issue can be further exacerbated depending on the legal characterization of the State in which the RCS is operated. For instance, the host State can be either a port or a coastal State, or

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both. Furthermore, the host State can be a landlocked State as well. Should this be the case, perhaps analogously to the presence of the dry ports, landlocked host States can arguably be considered as port States. There can be some legal creativity to address the issue in this manner, but, on the other hand, it is clearly not within the IMO's mandate to come up with a new jurisdictional role, such as host State and/or ROC State jurisdiction, given that there is no such concept under UNCLOS. Evidently, when the ROC is within the flag State's territory, it can exercise both prescriptive and enforcement jurisdiction. In contrast, if it is in the territory of a different State, then the flag State's jurisdiction and reach are significantly limited, preventing it from enforcing its laws against the individual in the foreign jurisdiction without that State's consent (Dong et al. 2024, 2).

As a corollary to this, there seem to be increasing concerns about enforcing regulations against ROCs abroad. Considering the legal complexities of a ROC situated in a different State from the flag State, some delegations at the IMO suggested that discussions should focus on scenarios where the ROC is within the flag State's territorial jurisdiction. However, other delegations argued that restricting the discussions in this way would impose an impractical limitation. The MASS Joint Working Group (JWG) subsequently agreed that the jurisdictional issue, including the conditions concerning a ROC located outside the flag State, should be reviewed by the IMO's Legal Committee (LEG; IMO 2024h).

Indeed, in the absence of bilateral arrangements or the IMO's GAIRS, flag States may face considerable limitations in meeting their international obligations when the ROCs are in different countries. For instance, the flag State may struggle to acquire necessary data for investigations due to a lack of cooperation or restrictions imposed by the State where the ROC is located (Ishii 2023, 281–284). Despite the abovementioned challenges, this is probably not a deal-breaker or a game-changing development hindering the integration of MASS. Indeed, the current legal architecture, including the trends toward stronger PSJ to ensure compliance, permits flexibility to address FSJ issues, as will be explained later.

1.4.3 *Ship as a Unit Concept*

It is a truism that the definition of "ship" varies depending on the subject matter and context of the convention in which it is mentioned. The terms "ship" and "vessel" are defined differently in various conventions adopted by the IMO, according to their scope of application and their objectives. At times, drafters of the legal instruments even attempted to avoid definitions so as not to confine the treaty texts to limited maneuverability spaces, as in the example of UNCLOS. Indeed, considering that UNCLOS aims to regulate all issues relating to the law of the sea, a single definition of "ship" would be neither feasible nor beneficial. On the definition issue in relation to the MASS concept, Kraska rightly observes a common aspect: that human control versus autonomous/remote control does not determine

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what constitutes a ship. Indeed, pursuant to Article 91 of UNCLOS, States have the discretion to fix the conditions for the granting of their nationality to vessels. In this regard, Kraska also maintains that registration of MASS is subject to national law (Kraska and Pedrozo 2023, 41–44; Petrig 2023, 83–84).

The International Tribunal for the Law of the Sea (ITLOS) has firmly refined the definition of a ship in a few cases, including the *M/V "Saiga" (No. 2)* case,[12] the *M/V "Virginia G"* case,[13] and the *M/V "Norstar"* case (Preliminary Objections).[14] In each of these cases, the respondent raised multiple objections regarding the admissibility of the flag State's claims, particularly focusing on the nationality of the claims. In all instances, ITLOS dismissed the objections and proceeded to evaluate the merits of the case. Through these rulings, ITLOS emphasized the distinct identity of a ship as a single unit, highlighting the flag State's right to pursue compensation on behalf of crew members who are not its nationals and underscoring the broader implications for maritime law. For instance, in countering the argument that a flag State cannot seek redress for crew members who are not its nationals, the Tribunal in *M/V "Saiga" (No. 2)*, upon reviewing UNCLOS, clarified that (Heidar 2024):

> 106. . . . [T]he Convention considers a ship as a unit, as regards the obligations of the flag State with respect to the ship and the right of a flag State to seek reparation for loss or damage caused to the ship by acts of other States and to institute proceedings under article 292 of the Convention. Thus the ship, every thing on it, and every person involved or interested in its operations are treated as an entity linked to the flag State. The nationalities of these persons are not relevant.
>
> 107. The Tribunal must also call attention to an aspect of the matter which is not without significance in this case. This relates to two basic characteristics of modern maritime transport: the transient and multinational composition of ships' crews and the multiplicity of interests that may be involved in the cargo on board a single ship. A container vessel carries a large number of containers, and the persons with interests in them may be of many different nationalities. This may also be true in relation to cargo on board a breakbulk carrier. Any of these ships could have a crew comprising persons of several nationalities. If each person sustaining damage were obliged to look for protection from the State of which such person is a national, undue hardship would ensue.

ITLOS reaffirmed its jurisprudence in the *M/V "Virginia G"* case:

> 127. The Tribunal finds that the *M/V Virginia G* is to be considered as a unit and therefore the *M/V Virginia G*, its crew and cargo on board as well as its owner and

[12] *M/V "Saiga" (No. 2) (St. Vincent v. Guinea)*, Case No. 2, Judgment of July 1, 1999, ITLOS Rep. 1999.

[13] *M/V "Virginia G" (Panama/Guinea-Bissau)*, Case No. 19, Judgment of April 14, 2014, ITLOS Rep. 2014.

[14] *M/V "Norstar" (Panama v. Italy)*, Case No. 25, Preliminary Objections, November 4, 2016, ITLOS Rep. 2016.

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> every person involved or interested in its operations are to be treated as an entity linked to the flag State.

ITLOS reached these decisions by considering the practical elements that reflect modern maritime practices, such as the multinational and temporary composition of ship crews and the diverse interests associated with the cargo carried by a single vessel (Heidar 2024). Although it may be too early to consider that the ship as a unit concept can be extended to ROCs, nonetheless, it may be a useful tool to mitigate the legal tension with Article 94. Indeed, given the fact that ROCs are expected to be inherently crucial in the steering of RCS, this necessarily follows the line of thought that ROCs can perhaps be considered under the "unity principle," even if they are located in other States (Ishii 2023, 268–269). However, this does not necessarily mean that there would be effective compliance mechanisms for ROCs in practice. In this context, in addition to treating ROCs as inherent parts of single units, equivalent to ship bridges, they could arguably be subject to more robust PSJ and constant port State control inspections, which would alleviate the inadequacy of flag States.

1.4.4 *Latest Developments at the IMO*

The IMO's Maritime Safety Committee (MSC), the LEG, and the Facilitation Committee (FAL) conducted an RSE for the IMO Conventions under their remit to analyze the compliance issues. The RSE of the MSC and the LEG was concluded in 2021 and that of the FAL in 2022. The RSE is regarded as an important milestone in paving the way for further regulatory action with a view to adopt a goal-based MASS Code (IMO 2021).

In 2023, the MASS JWG aptly agreed that a human master should always be in charge of a MASS and should be able to reassume control when needed, irrespective of its degree of autonomy. Moreover, depending on the technology used on the MASS, the human master may not need to be on the vessel, which suggests that the human master can be a remote master located in the ROC (IMO 2024h). This is, indeed, noteworthy, as it practically corrects the shortcomings of degree four.

Currently, the development of the nonmandatory goal-based MASS Code has been limited to MASS cargo vessels (IMO 2024h, 8). The draft preamble of the MASS Code notes that specific operational functions may be controlled from a remote location and addresses necessary aspects of ROCs (4). To prevent discrepancies and ease the legal tension of the new MASS Code with UNCLOS and international law, particularly given the novel nature of the subject matter, the following text is suggested for inclusion in the MASS Code:

> The Code and the use of MASS are required to conform to the relevant rules of international law, including the United Nations Convention on the Law of the Sea (UNCLOS), and generally accepted international regulations, procedures and

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> practices developed by the International Maritime Organization (IMO) as the competent international organization for global shipping. (IMO 2024g, 2)

Notably, the current draft Code obliges flag States for the certification and verification of ROCs. It stipulates that every vessel to which the Code applies should have a valid MASS Certificate (para. 6.1). Similarly, every ROC needs to be issued a MASS ROC Certificate (para. 6.2). Moreover, the draft Code states that every administration notified by a company of its intent to operate a MASS should, as it finds practical and necessary, either independently or in collaboration with other contracting governments provide its requirements, procedures, and guidelines for incorporation of the ROC in the verification and certification process of the Document of Compliance (DoC) and Safety Management Certificate (SMC). The process for issuing the DoC is expected to include at least one assessment of the ROC during the DoC's validity period. This assessment should be conducted by the flag State administration, a recognized organization (RO), or another contracting government at the administration's request. The DoC should only be valid for MASS if explicitly stated in the DoC. According to the draft Code, the SMC should be issued in line with SOLAS (Chapter IX, Regulation 4.3) and the ISM Code (Part B, paras. 13–15). The SMC should specify the type of ship, indicate that it is operated as a MASS, and identify the ROC, if applicable, involved in the operation of the MASS (IMO 2024h, annex 1, 19–22).

The draft Code also has provisions on Minimum Safe Manning Document (MSMD), for MASS and ROC, in accordance with IMO Resolution A.1047(27) (IMO 2011), as amended, and to the satisfaction of the administration. In this respect, the MSMD for the MASS may show a total manning number of zero linked to specific MASS and reference personnel training and certification requirements as specified in the Code (IMO 2024h, annex 1, 19–22).

It is noteworthy that several IMO member States (Belgium, Liberia, and the Republic of Korea) recently proposed that the MSC consider the following principles for the drafting of the MASS Code: the flag State of the MASS should determine and be responsible for the verification, survey, and certification of the MASS and its ROC; an oversight system, similar to the ISM Code, should be applied to the management certification of ROCs and MASS; the responsible ISM company for the MASS should retain its responsibilities and be certified in accordance with the ISM Code; and the management of remote operations should align with the duties and responsibilities of ISM companies. Cosponsors also proposed a system called "Remote Operations Management" (ROM), with ROM being the management structure for ROCs established by the MASS Code. In this regard, it is proposed that a ROC should be operated by a ROM company holding a ROM DoC. Moreover, MASS should be operated by a ROC holding a ROC Management Certificate. One ROM company could operate one or more ROCs under one ROM DoC, which should be issued by the administration, by an RO, or

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at the request of the administration by another contracting government in line with the principles of the ISM Code (IMO 2024a).

Furthermore, Belgium and the Republic of Korea, in their joint document submitted to the LEG, endorsed the previous proposal by noting that the ROM system aims to ensure the completion of tasks and responsibilities specific to ROCs. Within this framework, the flag State would verify that a ROM company complies with its safety and security regulations. Like the ISM model, a ROM company could be granted a DoC, and a ROC could be awarded a ROC Management Certificate. The system is flexible enough to allow ISM companies to operate their own ROCs, thereby functioning as ROM companies. Although not directly tackling jurisdictional and ensuing compliance challenges, the ROM concept appears to provide a practical path forward for mitigating FSJ issues (IMO 2024c).

Remarkably, the current version of the MASS Code, which is drafted by the MSC, appears to presume that the duties of flag States would be applicable to MASS. The initial version of the MASS Code draws upon the framework established in SOLAS and the ISM Code for the survey and certification of ROCs. In this regard, it specifically mandates that flag States carry out the survey of ROCs. When a MASS is remotely controlled from an onshore ROC, given that remote operators will replace the traditional master or crew on board, the flag State must oversee these ROCs to ensure proper performance, particularly if they are within the flag State's territory. For instance, pursuant to the ISM Code, to ensure an international standard for the safe management and operation of ships and for pollution prevention, flag States must conduct surveys and verify companies irrespective of their location. According to paragraph 13 of the ISM Code, vessels should be operated by a company that has been issued with a DoC as evidence that the company is capable of complying with the requirements of the ISM Code (paras. 13, 14). That DoC is issued either by the administration or by an RO, or, at the request of the administration, by another contracting government to the Convention to any company complying with the requirements of the Code. However, the flag State may certainly encounter challenges in overseeing ROCs located in other countries (IMO 2024d).

Japan submitted a paper to the MASS JWG with a view to stimulating further discussion on the scenario where a flag State conducts an inspection to certify and verify a ROC located in other jurisdictions. Such an action, if it is conducted with the consent of the State where the ROC is located and adheres to the provisions outlined in the new MASS Code concerning ROCs, is posited not to encroach upon the sovereignty of the State. Indeed, according to SOLAS, it is broadly recognized that a flag State's inspection to certify and verify a ship management company under the ISM Code and SOLAS does not violate the sovereignty of the State that hosts the ship management company as a SOLAS State party. In light of the above, Japan observed that a flag State's certification and verification of a ROC under the MASS Code would not infringe upon the sovereignty of the State where the ROC is operating (IMO 2024d).

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During the previous LEG meeting, IMO member States engaged in an extensive discussion on whether the potential arrangements for ROCs, especially those located in a territory different from the flag State of the MASS, fulfill the obligation laid down in Article 94 of UNCLOS. There have also been diverging positions among the IMO delegates during the discussions. For instance, the Argentinian delegation, which seems to have had a more cautious approach to MASS, expressed significant concerns regarding whether the freedom of navigation under the law of the sea regime extends to vessels with higher levels of autonomy. Remarkably, Argentina emphasized its right to regulate the entry of MASS into its jurisdictional waters. In this context, notably, Argentina also referred to Article 25 of UNCLOS, which grants the authority to States to impose restrictions on the entry of foreign ships into their ports or territorial sea (IMO 2024f).

During the subsequent discussion, several member States expressed their concerns about the ability to meet the standards for the effective exercise of FSJ when MASS are controlled by ROCs situated in countries other than the flag State. Delegates raised several notable points: UNCLOS does not allow the transfer of flag State responsibility to ROCs located in other countries; if the ROC operating a MASS is situated outside of its flag State, significant questions arise regarding the flag State's capacity to maintain effective control over the ROC; the host State, which may have territorial jurisdiction over the ROC but no related obligations under UNCLOS, might not have a clear role; these jurisdictional uncertainties create ambiguity for flag, port, and coastal States about which country exercises jurisdiction over a MASS; this could dilute the flag State's responsibilities to a more symbolic level, inconsistent with UNCLOS; ROCs located outside the flag State would not fall under the flag State's effective jurisdiction; flag States might not have adequate access to ROCs situated in other countries; and applying the ISM Code model may not be sufficient to ensure effective access and oversight, thus necessitating bilateral or multilateral agreements.

Conversely, several States argued that locating a ROC abroad does not inherently weaken the jurisdictional connection. They claimed that such an arrangement is already grounded in existing maritime practices and legal frameworks. They supported the application of the ISM Code model to MASS operations through ROCs by noting that existing IMO instruments[15] already provide the framework for flag State oversight. Moreover, those States further expressed that currently international shipping operates efficiently with minimal physical ties to a flag State's territory; flag States frequently oversee the operation of their ships by establishing offices in different parts of the world; and, as international law does not require the physical presence of a vessel or its associated entities within a flag State's territory, it would be

[15] For example, SOLAS, the Code for Recognized Organizations, the Instruments Implementation Code, and the ISM Code.

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unusual to claim that ROCs must be located solely within the territory of the flag State (IMO 2024f).

Notwithstanding the positive approach of some member States that are also expected to be the leading MASS technology providers, uninterrupted shipping requires a broader consensus, including port States.

1.5 MASS ACCESS TO PORTS

UNCLOS does not have specific provisions that directly address the entry of foreign ships into ports, leaving detailed rules on access to port States and other relevant international agreements (Mbiah 2020, 507). Under UNCLOS, maritime areas located landward of the baseline are considered internal waters, over which coastal States have full and absolute sovereignty. Legally speaking, internal waters are treated as the coastal State's land territory. Internal waters include features such as ports. Article 11 states that the outermost parts of harbor works are considered part of the coast. This effectively makes them part of the baseline, placing ports within internal waters. Hence, the foreign-flagged vessels do not have a right of access to internal waters beyond the baseline where ports are located. Consequently, subject to a few exceptions, foreign vessels do not have a general right to enter internal waters without prior authorization from the coastal State (Kraska 2011; Kraska and Pedrozo 2023, 69).

Indeed, for a vessel to fall under PSJ, it must visit the port voluntarily rather than seeking shelter due to distress or force majeure. In the doctrine, it is mostly acknowledged that port States should limit their authority over vessels that have entered their ports out of distress and avoid strictly imposing national laws on such vessels (Marten 2014, 27–28). Therefore, foreign-flagged ships do not have a right to enter ports unless specific international obligations dictate otherwise. Moreover, in port, these vessels must adhere to the laws of the port State. Port States possess residual territorial jurisdiction, allowing them to implement more stringent measures than those outlined in IMO Conventions, unless such instruments explicitly prohibit these further measures (Ryngaert and Ringbom 2016, 382).

PSJ enables the port State to implement jurisdictional measures over ships in line with the provisions of UNCLOS. According to Article 211(3), a port State can refuse entry to a vessel if it does not meet the State's specific requirements related to CDEM standards under certain conditions outlined in that provision. Additionally, Article 218 grants port States the power to investigate and initiate proceedings against foreign vessels that are suspected of committing discharge violations. Remarkably, this includes not only violations within the jurisdiction of the port State, such as in its internal waters, territorial sea, and EEZ, but also violations that occur on the high seas, marking a significant expansion of the port State's jurisdictional capabilities (Keselj 1999, 128).

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As a matter of fact, international law recognizes a port State's broad discretion in exercising jurisdiction over its ports. In the *Nicaragua* case, the International Court of Justice acknowledged the discretionary right of port States. The Court noted that coastal States, through their sovereignty, have the authority to regulate access to their ports.[16] UNCLOS also confirmed the vast discretionary right of port States (Articles 25(2), 211(3), and 255).

Since ports fall under the sovereignty of the port State, that State can set specific requirements for foreign vessels entering its ports, provided that the requirements have been adequately publicized and communicated to the IMO (Beckman and Sun 2017, 223–226; Kopela 2016, 94–95). Moreover, port States can designate which ports are open to foreign vessels and can close ports to those vessels based on their national interests (Swan 2016, 396). Therefore, unless bound by specific obligations, hypothetically, a port State, by setting entry requirements that exceed international standards, can refuse RCS access to its ports.

In line with the existing legal framework, States appear to have the right to deny RCS access to their ports. Pursuant to Articles 25(2) and 211(3) of UNCLOS, States have the right to refuse ships access to their ports and to impose specific regulations on port calls by foreign ships. This could create a general barrier to the operation of MASS if port States are categorically against them. However, entry requirements set by port States must adhere to the principles of good faith and nonabuse of rights under Article 300 of UNCLOS, which involve considerations of jurisdictional reasonableness, nondiscrimination, proportionality, and respect for the rights of other States (see Articles 24(1), 25(3), 119(3), and 227). Consequently, achieving international consensus on the regulatory requirements for RCS is crucial to ensure that they are not confined to national waters where maritime authorities have a favorable stance on these vessels (Danish Maritime Authority 2017, 16, 40–41; Jordan 2020, 296–297; Kopela 2016, 105).

1.5.1 *International Trade Law on Port States and MASS*

As discussed earlier, port States can impose stricter standards than IMO norms as conditions for foreign ships to enter their ports. These high standards can regulate the behavior of foreign ships within the port area and may naturally extend to their actions outside the port before entering. Thus, through domestic laws, port States can indirectly establish extraterritorial jurisdiction over foreign ships, which is critical in the context of MASS. This can hinder MASS operations and may eventually lead to hidden trade barriers and discriminatory practices (Chen 2023).

Even though port States usually have broad discretion under IMO and International Labour Organization instruments, this discretion can be considerably

[16] *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States)*, Merits, Judgment, 1986 ICJ Rep. 14, para. 213 (June 27).

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limited by bilateral or multilateral trade law treaties to which a particular port State might be a party. The most significant limitations to PSJ may originate from international trade law rather than UNCLOS. International trade treaties under the World Trade Organization (WTO) can impose restrictions on PSJ. Since PSJ can restrict international trade, particularly in goods, it could potentially conflict with WTO law – specifically the General Agreement on Tariffs and Trade,[17] which includes the principles of freedom of transit (Molenaar 2006, 202; Ringbom 2011, 632–637; Ryngaert and Ringbom 2016, 386–388).

1.5.2 *Facilitation Committee*

For the operation of RCS, technology is expected to be increasingly responsible for information sharing with the flag, coastal, or port State authorities. Indeed, remote operation requires accurate, up-to-date data and reliable communication systems. The IMO's Facilitation Committee (FAL), which is tasked with addressing the facilitation of international shipping, concluded its RSE at the Facilitation Convention (FAL 46) in 2022 (IMO n.d.-a).

The outcome of the FAL's RSE noted that a new type of certification and identification for MASS operations would be required for the new duties. In this respect, it is indeed important to take the procedures for declarations made on arrival and departure into account. FAL also identified certificates and other documents and the sharing of information as high-priority cross-cutting issues. Regarding the requirements for the arrival, stay, and departure of ships to and from ports, shipowners must present their certificates and other documents related to registration, measurement, safety, manning, and similar matters to public authorities. Hence, the relevant certificates, documents, and data may need to be amended if new certification requirements for RCS are developed (IMO 2022, 2024d). The future work of FAL can be instrumental in mitigating the concerns of port States, as well as facilitating the operation of RCS.

1.6 PILOTAGE FOR MASS AS AN INCENTIVE FOR SKEPTICAL PORT STATES

1.6.1 *Definition*

The conditions that ships encounter in the high seas naturally differ significantly from those in port areas. In ports, there is usually high traffic density. Additionally, tides, shallow waters, and other unique port characteristics can present higher navigational hazards than in open seas. Therefore, pilotage is indeed necessary, as

[17] Marrakesh Agreement Establishing the World Trade Organization, April 15, 1994, 1867 UNTS 3, Annex 1A (General Agreement on Tariffs and Trade 1994), Articles V(3), XI.

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it offers local knowledge. Essentially, a pilot possesses specialized knowledge of local conditions and navigational hazards and is typically brought aboard a vessel at a specific location to navigate or guide the ship through a particular channel or river, or enclosed waters, to or from a port. A "pilot" is defined as an individual who possesses specialized knowledge of local navigation conditions and potential hazards (Agripino de Castro 2016, 423; Aucoin 2024, 22–23).

1.6.2 *Interplay between Pilotage and MASS*

Pilotage services, while often seen as specialized services for shipping, also function as public services due to the significant potential risk of accidents and groundings. The success of pilotage service rests on effective communication and information exchange among the pilot and the master. At times, pilots already provide guidance remotely from shore via radio communications as well. Regardless of the method, MASS integration is likely to significantly transform the nature of pilotage operations. But, in any event, it is clear that an RCS would greatly benefit from a pilot's insights; moreover, pilotage can serve as a reassurance for port States. The extent and direction of these changes will largely depend on technological advancements in this field. Regardless of these developments, the value of a local guide remains clear; a remote master will undoubtedly benefit from the expertise of a pilot familiar with the local maritime environment (Aro and Heiskari 2018, 28–29; Uğurlu et al. 2017; Van Hooydonk 2014, 416).

Notably, the pilotage service is not exclusively governed by an international instrument, making the legal landscape complex. The legal status of pilots and the performance of pilotage services are regulated by domestic laws. Therefore, guidance should be sought from domestic laws until the situation changes. Typically, such laws grant local ports the authority to regulate and establish pilotage requirements at a local level. Consequently, even in a single country, different ports may have distinct pilotage requirements. Such local regulations often vary and may not be consistent even at the national level, let alone regionally or internationally. Ehlers notes that these services are thus far typically provided within national waters, especially in internal waters. Hence, the international law of the sea has only occasionally influenced pilotage in specific cases (Black 2020, 12–13; Ehlers 2024).

According to the UK Pilotage Act 1987, pilot means any person not belonging to a ship who has control of the ship. Under the Maltese Maritime Pilotage Regulations, "pilotage" means the act performed by a licensed pilot to assist the master during navigation and maneuvering when entering, departing, or shifting in port areas (Article 3). The Danish Pilotage Act allows shore-based pilotage. It defines "pilotage" as navigational advice regardless of whether the advice is provided to the master on board the vessel or by means of communication from a distant location (Davies 2020, 281–282).

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Remote pilotage is applicable to any ship but is particularly pertinent to MASS. These vessels are likely unable to utilize traditional pilotage services – where a pilot physically boards the ship to provide navigational advice – due to physical and technical constraints. For degree two ships, which have onboard crews, complying with local pilotage requirements will be a straightforward task due to the presence of crew. Degrees three and four ships, which operate without any onboard crew, present unique challenges for pilotage. For these vessels, pilotage options may need to include shore-based pilotage, where a pilot remotely guides the ship from land (Danish Maritime Authority 2017, 21; Davies 2020, 284–286). Indeed, there is no legal requirement for the pilot to be physically on board the vessel to which they are rendering their services. Besides, it would be impractical for a pilot to board an RCS unless necessitated by urgent circumstances or domestic regulations. For these types of vessels, pilotage services are likely to be provided remotely. For instance, Finland has recently enacted legislation that permits pilotage to be conducted remotely (Soyer et al. 2022, 12–13).

The IMO Assembly, in 2003, adopted a resolution on "Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots Other Than Deep-Sea Pilots." This nonbinding resolution acknowledges the crucial role of pilots in enhancing maritime safety and protecting the marine environment. In particular, the IMO underscores that pilotage areas require highly specialized local knowledge and experience of various specific port areas and waterways. The IMO had earlier highlighted that it does not intend to be involved with the member States' pilotage systems (IMO 2003). As early as 1968, it recommended that States organize pilotage services in areas where they enhance navigational safety more effectively than other measures. Chapter V of SOLAS (see Regulation 23) notes that vessels engaged on voyages during which pilots may be employed are required to have pilot transfer arrangements to ensure the safety of pilots. In line with SOLAS, there is an obligation for State parties to establish various maritime safety services, including aids to navigation, hydrographic, meteorological, search and rescue, and vessel traffic services. However, pilotage services are not specifically mentioned among such mandatory services. Ehlers opines that this likely stems from the absence of a perceived need for international regulation of pilotage services to date (Ehlers 2024, 4). Although the IMO, thus far rightly, avoided regulating pilotage issues comprehensively because of strong reference to varying local conditions, this may need to change, in part, in the era of MASS.

1.6.3 *Compulsory Pilotage*

A "compulsory" pilot is one required by national laws. Conversely, a "voluntary" pilot is one whom a ship owner chooses to employ without any legal obligation (Force 2004, 149). Pursuant to the Convention and Statute on the International Régime of Maritime Ports (see Article 11), State parties have the authority to

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administer pilotage, including the establishment of compulsory pilotage. Given the sovereignty exercised by coastal States over their internal waters and ports, there are generally no limitations under international law on the imposition of compulsory pilotage in these areas (Ehlers 2024, 9–10).

Yet, unlike the authority to designate sea lanes or traffic separation schemes, UNCLOS does not expressly specify the procedures to establish compulsory pilotage in coastal waters. Thus, the rules of the reference system also do not point out to the IMO. Moreover, State practice is also not clear in this area. Nevertheless, a few examples show the possible competence of coastal States to implement quasi-compulsory pilotage within their territorial seas, as seen, for example, in the Strait of Messina, the Great Barrier Reef, and around Svalbard Island. The adoption of such pilotage systems depends on the unique characteristics of each area, including the reliability of the system, the availability of qualified pilots, and the cost of services, and, more importantly, the nonhampering of the innocent passage (Solski 2021, 411–414).

For pilotage services offered within internal waters, including port areas, there is generally no issue, as the coastal State exercises unrestricted sovereignty therein. Nevertheless, beyond internal waters, the legality of establishing pilotage services depends on whether such services impair the existing rights of navigation in the respective maritime zones. This consideration is crucial in maintaining the balance between enhancing safety through pilotage and upholding the principle of freedom of navigation as prescribed by international law (Ehlers 2024, 5–6). Notably, one should be cautious considering that Australian efforts to impose compulsory pilotage as a protective measure in the Particularly Sensitive Sea Area of the Torres Strait have faced strong opposition from flag States underscoring their transit passage rights under international law. The eventual compromise involved enforcing compulsory pilotage in the Torres Strait exclusively for vessels entering Australian ports (Kopela 2016, 101–102).

However, despite the limitations, Article 21(1)(a) and (f) of UNCLOS allows coastal States to implement regulations aimed at enhancing maritime safety and environmental protection. This framework arguably enables coastal States to mandate pilotage in these waters as a measure to ensure the safety of navigation and safeguard the marine environment in relation to RCS operations while still respecting the principle of innocent passage. However, any national regulations related to pilotage must not only pursue safety and environmental protection but also adhere strictly to established international norms. In light of this, the compulsory pilotage for MASS arguably would not be seen as an interference with the navigational passage rights. Therefore, compulsory pilotage, when implemented to enhance navigational safety and environmental protection, does not contravene Articles 24 (1) and 211(4) and can be regarded as necessary and proportionate. Moreover, the compulsory pilotage in port approach waters beyond internal waters can be justified, especially when ships are bound to enter internal waters or ports, as coastal States

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can set conditions for entry to their ports based on Article 25(2). Indeed, this provision allows the coastal State to enforce regulations such as compulsory pilotage to prevent breaches of entry conditions into its waters (Ehlers 2024, 9–13).

Arguably, the coastal States seem to have the discretion to mandate compulsory pilotage for RCS as a condition for port entry. For instance, while pilotage through the Turkish Straits remains optional during peace times for merchant vessels under the 1936 Montreux Convention (Articles 2 and 4),[18] Türkiye can impose obligatory pilotage services in the straits if there is an imminent threat of war (Article 6). Significantly, this situation differs for ships that are calling at a Turkish port within the straits area, where compulsory pilotage can be established as a port entry requirement. Pilotage services for RCS to alleviate the concerns of port States, and even of coastal States, should be established and elucidated under the IMO's MASS Code to enhance the safety of navigation and environmental protection. Concurrently, the conditions under which States can mandate compulsory pilotage for MASS beyond internal waters need to be clarified to ensure consistent application and understanding. This may be contingent upon the consent of IMO member States, like existing regulations for ship routing and ship reporting services (Ehlers 2024, 18–24).

1.7 PORT STATE CONTROL

According to Beckman, the IMO since its inception has focused on compliance with international conventions from the perspectives of both flag and port States. The IMO initially recognized that flag States should have comprehensive and continuous control over their ships. To facilitate this, the IMO has developed guidelines to help flag States implement its instruments. In addition, the IMO system strongly depends on port State control (PSC) to address deficiencies in flag State compliance (Beckman and Sun 2017, 228).

PSC entails the practical implementation by port States of administrative authority to ascertain whether the documentation and condition of a foreign vessel adhere to their national legislation, as well as international regulations and standards ratified by port States. The overall objective of PSC is to supplement flag State responsibilities and tackle substandard ships (Bang 2013, 116–117). Port States are only authorized to conduct PSC for those conventions that they have ratified and incorporated into their domestic laws (IMO 2023b).

Naturally, PSJ encompasses a broader scope than PSC. PSJ is the legal basis of PSC. It includes the authority to carry out control inspections and extends to prescriptive and enforcement jurisdiction over foreign-flagged ships in their ports based on national or international law. Molenaar observes that PSC is most

[18] Convention regarding the Regime of the Straits, July 20, 1936, 173 UNTS 213 (Montreux Convention).

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effectively understood within the context of the regional PSC agreements. These regional agreements were established in response to deficiencies in flag State performance and the prevalence of "ports of convenience." They involve harmonized and coordinated PSC procedures, along with commitments to conduct inspections and primarily enforce corrective measures (Molenaar 2021, para. 6). Legally speaking, although memoranda of understanding (MOUs) are not treaties, they are important regional arrangements designed for collaboration between maritime administrations to enhance the implementation of international regulations and to prevent unfair competition among ports within the same region. By joining regional memoranda, States commit their ports to harmonize their procedures. The regional MOU systems have brought several benefits: they enhance predictability by standardizing regional inspection procedures, increase awareness among their members through robust information sharing, and boost efficiency by preventing duplicated inspections (Blanco-Bazan 2018, 45; Molenaar 1996, 241–242; Whomersley 2020, 333–334; Yu et al. 2018, 87–88).

Notwithstanding its role as an enforcement mechanism for international standards, PSC ultimately relies on the sovereignty of the port State and its corresponding jurisdiction (Coelho 2015, 272). The bottom line is that the PSC regime grants the authority to board, inspect, and, if deemed necessary, detain a foreign vessel (Hare 1997). PSC has the potential not only to serve the national interest but also to advance the broader interests of the international community at large. The evolution of PSC in the framework of PSJ has seen significant developments through the inclusion of relevant provisions in all pertinent IMO and ILO instruments. By conducting inspections to assess both the physical condition of visiting ships and their certifications, PSC ensures adherence to international safety and environmental standards. Thus, PSC practice involves the inspection of vessels while in port to ensure that they comply with globally agreed standards. PSJ has grown gradually more complex, not merely due to updates to relevant international instruments but also because of its continual expansion into new subject areas. Initially, PSC inspections primarily focused on CDEM standards. During the 1990s, the focus within the IMO shifted toward the "human element." More recently, this evolution has expanded to include issues such as vessel-source air pollution, maritime security, ballast water management, and ship scrapping. Each of these areas includes components that enhance the scope of PSJ through PSCs (Balkin 2018, 23–24; Derrig 2022, 534–536; Marten 2014, 4–5; Molenaar 2006, 202–205).

PSC constitutes a crucial and evolving component of international shipping regulation. Despite still being seen as supplementary to FSJ, the evolution of PSC in the context of PSJ remains significant, as it signifies a gradual shift away from the notion of flag States bearing primary responsibility for ensuring vessel standards. A noteworthy example of this shift is the application of PSC to all vessels visiting foreign ports, as demonstrated by the "no more favorable treatment" principle, by means of which port States have the authority to enforce IMO regulations and

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standards on foreign-flagged vessels visiting their ports, irrespective of whether a flag State is a party to a specific IMO Convention or not (Marten 2014, 46–49). PSC is a globally agreed practice but also an evolving concept. As the IMO adopts new conventions, the PSC framework will also adapt to reflect these developments (Mbiah 2020, 517–521).

In the context of RCS, it is noteworthy that ships are required to carry several certificates on board in their international navigation in compliance with international conventions. Therefore, for degrees three and four, where seafarers do not physically onboard the vessel, handling certificates, record books, and other necessary documents pose challenges. Consequently, there is a pressing need for explicit regulations managing the use of appropriate digital documents. Additionally, in the practical execution of inspections, particularly PSC for MASS, the development of specialized guidelines and regulations is imperative. Since there are seafarers on board in degree two RCS, there is no issue in following the current regulations. However, in the absence of crew members for degree three RCS, a possible solution would be to relocate the required certificates to ROCs together with the crew. Or, the digitization of the certificates can also be a solution. FAL 42 endorsed guidelines for the adoption of electronic certificates (IMO 2016), urging State parties to transition to electronic certificates (Jo et al. 2020). Furthermore, foreign ROCs located in port States should arguably be subject to PSC.

1.8 CONCLUSION

The advent of RCS marks a revolutionary transformation in international shipping. However, it also leads to thorny legal questions, particularly in the context of State jurisdiction and ensuring safety of navigation. As this study has explored, the integration of RCS into the global merchant fleet poses unique challenges for flag States and new roles for port States due to the peculiar nature and location of ROCs. The law of ports grants States significant discretion in exercising jurisdiction over their ports. In this context, the ever-increasing trend of port States in ensuring compliance in general may also be instrumental in alleviating legal tension stemming from remote operations.

In addition to the operation of RCS, the location of ROCs is also legally sensitive. In this regard, flag States may perhaps choose to prohibit the operation of ROCs in other countries. However, this cannot be the ultimate solution, as there is no such corresponding obligation for flag States under the UNCLOS regime. On the other hand, it is equally true that FSJ alone may be insufficient, especially for ROCs located in territories other than flag States. Therefore, to ensure compliance of RCS, the measures taken by port States need to be significantly reinforced. While it remains crucial for flag States to uphold their international responsibilities, port States can certainly play a pivotal role for ROCs and RCS.

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Arguably, remote shipping heralds and necessitates a broader role for port States. Although the IMO traditionally does not regulate ports, this may also need to be reconsidered in light of the transformation of shipping. Perhaps this could be in the context of special port arrangements for ROCs. Analogically, ROCs can be considered as ships visiting ports. PSC can be conducted especially at the beginning of each new voyage entailing remote operation through the ROCs. Since there is no jurisdiction as host State in the law of the sea regime, port States can increasingly continue to be the ultimate safety net and could ensure that foreign ROCs are fully compliant with IMO norms. It may be safe to argue that port States will play a critical role in the transition and successful realization of RCS operations.

Finally, given that ports are under the sovereignty of port States, port entry for RCSs is not a right but rather a privilege that is subject to domestic law. Thus, port States can impose stricter standards than international norms as conditions for foreign RCS to enter their ports. Port States therefore have the right to deny RCS access to their ports, as they would with conventional manned ships, until the IMO develops relevant GAIRS. But this would probably not be in the interests of port States, as they also depend on international shipping and generating income from their ports. Having said that, conflicting State practices may emerge due to diverging interests and priorities or to policy reasons, as well as due to the different legal interpretations. At least for the safety apprehensions, compulsory pilotage for RCS in the port approach waters may significantly alleviate the potential concerns of port States. Therefore, it may be advisable to establish an obligation to request pilotage services in areas where local conditions necessitate it under the IMO's MASS Code.

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