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Main Maritime Security Challenges arising under UNCLOS in relation to Maritime Autonomous Vehicles (MAV)

A. Introduction

1. The authors of this submission are working collaboratively on an Australian Research Council funded Discovery Project entitled 'Improving International Law Regulation of Maritime Autonomous Vessels'. It focuses on international law implications of MAV for maritime security.
2. This submission is focused on the role and relevance of UNCLOS in relation to the use of MAV by either states or non-state actors in the pursuit of maritime security goals.
3. Maritime security is a broad term and is generally taken to encompass a 'laundry list' of concerns including but not limited to:¹ 'piracy, armed robbery at sea, smuggling [of drugs, firearms and migrants] and terrorist acts against shipping, offshore installations and other maritime interests'; the vulnerability of submarine communication cables; and food security (such as through sustainable fisheries management).² At present, MAV are growing in appeal for their potential use in surveillance to enhance maritime domain awareness and law enforcement, as well as attracting greater interest for use in criminal enterprises.
4. The submission draws on our published work on this topic:
Natalie Klein, 'Maritime Autonomous Vehicles and International Laws on Boat Migration: Lessons from the Use of

¹ C Bueger, 'What is Maritime Security?' (2015) 53 *Marine Policy* 159, 159-160; N Klein, *Maritime Security and the Law of the Sea* (OUP 2011) 11.

² UN General Assembly Annual Resolution on Oceans and the Law of the Sea, UN Doc A/RES/74/19 (20 December 2019), preamble and paras 154 and 196(b).

Drones in the Mediterranean' (2021) 127 *Marine Policy*,
<https://doi.org/10.1016/j.marpol.2021.104447>;

Rob McLaughlin & Natalie Klein, '[Maritime Autonomous Vessels and Drug Trafficking, by Sea: Some Legal Issues](#)' (2021) 36 *International Journal of Marine and Coastal Law* 389-418;

Natalie Klein, Douglas Guilfoyle, Md Saiful Karim, Rob McLaughlin, 'Maritime Autonomous Vehicles: New Frontiers in the Law of the Sea' (2020) 69(3) *International & Comparative Law Quarterly*, <http://dx.doi.org/10.1017/S0020589320000226>;

Natalie Klein N, '[Maritime Autonomous Vehicles within the International Law Framework to Enhance Maritime Security](#)' (2019) 95 *International Law Studies* 244-271.

Rob McLaughlin, 'Unmanned Naval Vehicles at Sea: USVs, UUVs and the Adequacy of the Law' (2011) 21 *Journal of Law, Information & Science* 100.

B. Definition of Ship

5. UNCLOS differentiates between vessels/ships,³ boats,⁴ devices,⁵ equipment,⁶ and aircraft at sea.⁷ What may be considered a vessel or ship may depend on the precise legal regime in question, as evident in different definitions found in various IMO conventions on maritime safety.⁸ How any MAV is regulated will depend in the first instance on whether it is a vehicle that falls within a particular legal regime or not.⁹

C. Definition of Warship

6. While existing naval autonomous systems have not been the subject of concerns as to legality, the increase in MAV that are of 'vessel' rather than 'system' type (small vessel swarms,¹⁰ Seahunter,¹¹ autonomous

³ These terms are used interchangeably within UNCLOS. See UN Division for Ocean Affairs and the Law of the Sea, *Navigation on the High Seas: Legislative History of Part VII, Section I (Articles 87, 89, 90-94, 96-98) of the United Nations Convention on the Law of the Sea* (1989) 80.

⁴ For example, when referring to the boats of foreign ships that trigger a right of hot pursuit. See UNCLOS, art 111(1). Or when a boat is sent to exercise a right of visit under Article 110 of UNCLOS.

⁵ Where assessing responsibility for pollution of the marine environment. See, eg, UNCLOS, art 194(3) and art 209.

⁶ Being used for marine scientific research. See, eg, UNCLOS, art 248.

⁷ Rights of overflight are protected under Article 87 of UNCLOS and the use of aircraft for law enforcement is contemplated in Articles 110 and 111 of UNCLOS.

⁸ For discussion, see, eg, E Van Hooydonk, 'The Law of Unmanned Merchant Shipping – An Exploration' (2014) 20 *Journal of International Maritime Law* 403, 406-407.

⁹ See CH Allen, 'Determining the legal status of unmanned maritime vehicles: formalism vs functionalism' (2018) 49 *Journal of Maritime Law and Commerce* 477, 493.

missile arsenal vessels and so on) poses an additional set of challenges to UNCLOS. The modern warship definition is now reflected in Article 29 of UNCLOS as follows:

For the purposes of this Convention, 'warship' means a ship belonging to the armed forces of a State bearing the external marks distinguishing such ships of its nationality, under the command of an officer duly commissioned by the government of the State and whose name appears in the appropriate service list or its equivalent, and manned by a crew which is under regular armed forces discipline.

7. The key issues of concern in determining whether MAV can be warships are thus that a warship must be 'under the command' of a military officer and crewed by personnel 'under regular armed forces discipline'. Can these two elements be stretched to cover remote 'command' by a military officer ashore, and 'crewing'—monitoring navigation, engineering, sensor, and weapons systems—by military personnel who are also ashore or not physically on the MAV? Arguably yes; the recent Oslo Manual, for example, deals with MAV in terms that indicate they are capable of being considered warships.¹² Additionally, MAV projects such as the US Navy's 'Seahunter' – which is designed to exercise warship belligerent rights – indicate the trajectory of emerging State practice and interpretations in this regard.
8. A study of the history and purpose behind the warship definition indicates that the potential problem the drafters sought to address was to prevent any re-emergence of the practice of privateering, which was outlawed in 1856 (at least for most States).¹³ The emphasis on the

¹⁰ 'US Navy Tests Autonomous Swarm Boats' (Maritime Executive) <https://www.maritime-executive.com/article/US-Navy-Tests-Autonomous-Swarm-Boats-2014-10-05>; K Osborne, 'The U.S. Navy Is Building a Swarm "Ghost Fleet"' (The National Interest, 24 January 2019) <https://nationalinterest.org/blog/buzz/us-navy-building-swarm-ghost-fleet-42372>

¹¹ See, inter alia, J Turner, 'Sea Hunter: inside the US Navy's autonomous submarine tracking vessel' (Naval Technology, 3 May 2018) <https://www.naval-technology.com/features/sea-hunter-inside-us-navys-autonomous-submarine-tracking-vessel/>: 'Measuring 132ft in length and capable of 27 knots, Sea Hunter is the world's largest unscrewed ship... The [Seahunter's] stated purpose is to locate, track enemy and engage submarines, primarily using a high frequency fixed sonar array, but MCM testing suggests mine countermeasures could be an option.'

¹² Y Dinstein and AW Dahl, *Oslo Manual on Select Topics of the Law of Armed Conflict* (Springer, 2020) rules 52, 56-58.

¹³ Declaration respecting Maritime Law between Austria, France, Great Britain, Prussia, Russia, Sardinia, and Turkey, signed at Paris, 16 April 1856, British State Papers 1856, Vol. LXI, pp.155-158. On the US position, see C Stockton, 'The Declaration of Paris' (1920) 14 American Journal of

warship being 'commanded by' and 'crewed by' formally enrolled military personnel was to rule out the possibility that letters of marque could transform merchant vessels and merchant crews into ships and personnel with full belligerent rights.¹⁴ Such concerns are not reactivated by the idea of MAV as warships.

9. The question matters because only warships have the full suite of belligerent rights at sea; other vessels, including other State vessels such as naval auxiliaries, have far more limited rights to engage in hostilities.

D. Immunities for MAV

10. Where MAV are owned and operated by governments, either as part of their military forces or for policing or other government purposes (notably surveillance), another legal issue arising is immunity. Under UNCLOS, 'warships and other government ships operated for non-commercial purposes' have immunity.¹⁵ Provided the MAV in question is a 'ship', the immunity enjoyed by such a MAV should prevent its seizure by other States.
11. When the glider launched from the *USS Bowditch* was seized by China in December 2016, the protest against China's action was partly based on the claim that China had taken sovereign-immune property.¹⁶ UNCLOS would not grant vessel sovereign immunity to the 'glider' unless it was considered as falling within the definition of a 'ship' or 'vessel'. Reference to customary international law in respect of immunity of sovereign assets would instead be necessary.

E. Policing Activities by MAV – Surveillance

12. MAV may perform useful law enforcement intelligence gathering functions within a coastal State's maritime zones consistent with UNCLOS.¹⁷ For example, in the territorial sea, a coastal State may take

International Law 356, 362-363.

¹⁴ J Brown Scott (ed), *The Proceedings of the Hague Peace Conferences: The Conference of 1907* (Oxford University Press, 1920) Vol III, as argued by, inter alia, the delegations from Mexico at 805-807, and Brazil at 749-752.

¹⁵ UNCLOS, arts 32, 95 and 96.

¹⁶ J Kraska & RP Pedrozo, 'China's Capture of U.S. Underwater Drone Violates Law of the Sea' (Lawfare, 16 December 2016) <https://www.lawfareblog.com/chinas-capture-us-underwater-drone-violates-law-sea>.

¹⁷ See further N Klein, 'Maritime autonomous vehicles within the international law framework to enhance maritime security' (2019) 95 *International Law Studies* 244, 266-70; and more generally D Guilfoyle, 'Maritime Law Enforcement Operations and Intelligence in an Age of Maritime Security'

enforcement action against a vessel suspected of violating its pollution laws where there are 'clear grounds for believing' it has committed such a violation.¹⁸ In the EEZ, coastal State powers of detention or arrest only follow from 'clear objective evidence' a vessel has committed a violation 'resulting in a discharge causing [or threatening] major damage'.¹⁹ In both cases, MAV could conduct surveillance and gather evidence in support of powers to be exercised by conventional maritime law enforcement vessels. Similar functions could be envisaged in respect of monitoring the activities of fishing vessels or patrolling to counter smuggling activities. A State's title to carry out such activities rests in its exercise of sovereignty, sovereign rights or jurisdiction over its maritime zones according to the subject matter implicated. No special law of the sea questions arise simply through the involvement of MAV in this context.

13. The gathering of intelligence by MAV to suppress or prevent criminal activities at sea may be conceived as meeting obligations of cooperation in relation to law enforcement. Information sharing from MAV would, for example, align with an obligation in Article 108 of UNCLOS to suppress illicit traffic in narcotic drugs and psychotropic substances. The extent of use of such MAV depends on any interpretation of 'cooperation'. For example, high seas counter piracy patrols could seek to use MAV to defend merchant shipping from pirate attack as part of the general obligation to cooperate in the repression of piracy.²⁰

F. Policing Activities by MAV – Law Enforcement

14. There is increasing potential to use of MAV in *enforcement* of coastal State laws. For example, it is clear under UNCLOS that as regards living resources in the EEZ the coastal State has the power to 'take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance' with its laws.²¹ Enforcement of such laws may not require human boarding and

(2017) 93 International Law Studies 298.

¹⁸ UNCLOS, art 220(2).

¹⁹ UNCLOS, art 220(6).

²⁰ UNCLOS, art 100.

²¹ UNCLOS, art 73(1).

inspection of vessels. In the case of offences of fishing in a closed area, or during a closed season, or with prohibited gear, MAV would be capable of detecting such violations and even relaying to a vessel an instruction that it is under arrest and should proceed to port. As regards *compliant* suspect vessels this may be all that is necessary.

15. More complex is the question of *non-compliant* suspect vessels, requiring boarding or the use of force to effect an arrest. In particular, suspect vessels that attempt to flee the jurisdiction implicate the law of hot pursuit. Under UNCLOS, '[t]he hot pursuit of a foreign ship may be undertaken when the competent authorities of the coastal State have good reason to believe that the ship has violated the laws and regulations of that State' while within a relevant maritime zone and may be continued beyond that zone to effect an arrest.²² However, limitations upon this right include that the pursuit: must be preceded by 'a visual or auditory signal to stop ... given at a distance which enables it to be seen or heard by the foreign ship'. It has been established in the *Arctic Sunrise* arbitration that the requirement of a signal to stop must be interpreted in light of present technological capabilities and it is thus readily conceivable that MAV could give a legal signal to stop.²³ Moreover, hot pursuit can only be conducted by 'warships or military aircraft, or other [authorised] ships or aircraft clearly marked and identifiable as being on government service'.²⁴ As regards the types of vessel entitled to carry out hot pursuit, the core questions of classification as warships discussed previously arise again. At least arguably, MAV could be considered a ship on government service provided it is clearly marked and identifiable as such.²⁵

16. Under UNCLOS, MAV may be considered as part of the exercise of the right of approach (as an intelligence gathering function) rather than the right of visit (as an enforcement function) under Article 110 of UNCLOS. On the first, it is 'not unlawful for a government vessel ... on the high seas to draw near a foreign vessel to observe its flag or other

²² UNCLOS, art 111(1).

²³ See further Klein (n 17) 254.

²⁴ UNCLOS, art 111(4) and (5).

²⁵ See further Allen (n 9) 507.

marks of nationality' or indeed to monitor its conduct.²⁶ As noted, MAV may usefully serve such intelligence gathering functions.

17. As regards action contemplated by UNCLOS to combat inter alia maritime piracy, the slave trade, unauthorised broadcasting and instances of stateless vessels, MAV do not easily fit within the existing legal regime.²⁷ The law enforcement powers conferred by UNCLOS in such cases involve boarding the vessel, inspecting its papers and, if suspicion remains, searching the vessel. Such actions must by their nature and on the plain text of UNCLOS occur *on board* a ship. It is hard to see how such powers might usefully be exercised by a vessel without human crew.²⁸

G. Criminal Use of MAV

18. There are increasing examples of MAV being used to further criminal activities. For example, 'the conflict in Yemen has seen the development of several unmanned boat bombs by Houthi militants'.²⁹ Submersible, semi-submersible, or small MAV might also be used to transport goods illicitly – a recent case from Italy provides a 'proof of concept', although it was ultimately unsuccessful in that the MAV was apprehended.³⁰

19. The level of autonomy and hence the level of human involvement has implications for characterising the vessel, as well as for determining liability for conduct at sea, including ascertaining which actor is liable.

20. UNCLOS will provide a starting point for establishing State rights and duties in responding to illicit activity at sea. Notably, the coastal State may exercise criminal jurisdiction over its territorial sea.³¹ Within the contiguous zone, the coastal state has authority to prevent and punish

²⁶ Douglas Guilfoyle, *Shipping Interdiction and the Law of the Sea* (CUP, 2009) 4; see further Efthymios Papastavridis, *The Interception of Vessels on the High Seas: Contemporary Challenges to the Legal Order of the Oceans* (Hart Publishing 2013) 50-60.

²⁷ UNCLOS, art 110.

²⁸ Klein (n 17) 257.

²⁹ M Olimpio, 'Remote Controlled Terror: Houthi Suicide Boats' (European Eye on Radicalization, 27 September 2018) <https://eeradicalization.com/remote-controlled-terror-houthi-suicide-boats/>.

³⁰ 'La droga? La consegna il barchino con il pilota automatico' (22 June 2019) *Metropolinotizie*, available at <https://www.metropolinotizie.it/la-droga-la-consegna-il-barchino-con-il-pilota-automatico/>; accessed 19 November 2020. Coito has noted, 'it is hard to imagine a future of maritime drug trafficking that does not increasingly incorporate remote-controlled and fully autonomous drug delivery'. Joel Coito, 'Maritime Autonomous Surface Ships: New Possibilities—and Challenges—in Ocean Law and Policy' (2021) 97 *International Legal Studies* 260, 287.

³¹ UNCLOS, art 27.

infringements of its customs laws and regulations,³² which would typically include smuggling offences.

21. Other international treaties provide more detail and create obligations to criminalise certain maritime acts that occur beyond the territorial sea. For example, Article 15 of the UN Convention against Transnational Organised Crime (UNTOC) on jurisdiction,³³ and the maritime specific provisions of Article 17 of the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances.³⁴
22. It is the implementation of international treaty obligations other than UNCLOS into domestic law to criminalise maritime activities that will need to account for MAV. For example, in relation to people smuggling, it will be important for States to anticipate the different ways that MAV might be used and how they could contribute to the migrant smuggling enterprise. The use of an airborne MAV for monitoring police movements may warrant the operator being charged with a migrant smuggling offence as an accomplice. If MAV are used for the purposes of transporting migrants and are operated remotely from shore, then the operator may be viewed as someone who directs or organises others for migrant smuggling. It may be necessary to contemplate that the person or company who designs or constructs MAV for migrant smuggling may be attempting to commit migrant smuggling or be seen as an accomplice if there is the intention in the design and construction of the MAV for it to be used for migrant smuggling along with financial benefit.³⁵
23. UNCLOS does not explicitly address various aspects of law enforcement activity, including the use of force, administrative disposal of a suspected criminal asset; or removal of a navigation or health hazard at sea. All these issues may emerge with use of MAV for criminal

³² UNCLOS, art 33(1).

³³ UN Convention against Transnational Organised Crime (New York, 15 November 2000, in force 29 September 2003) 2225 UNTS 209 ('UNTOC'), Article 15.

³⁴ United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (Vienna, 20 December 1988, in force 11 November 1990) 28 ILM 493 ('1988 Vienna Convention'), Article 17.

³⁵ Along with a financial benefit, consistent with Articles 4 and 6. Protocol against the Smuggling of Migrants by Land, Sea and Air Supplementing the Convention against Transnational Organized Crime (Palermo, 12 December 2000, in force 28 January 2004) 40 ILM 384.

purposes. They are matters that will need to be incorporated into Rules of Engagement and domestic legislation.

H. Conclusion

24. UNCLOS remains important in the regulation of MAV in relation to international maritime security because it creates the basic legal infrastructure from which any analysis begins in looking to what activities MAV are undertaking and where they are undertaking those activities. Answering these questions may be determinative of the relevant regulations and the rights and responsibilities of the actors involved irrespective of whether MAV are involved or not. The UNCLOS general principles may thus be sufficient for initial guidance.
25. UNCLOS does not include comprehensive provisions relating to ship safety and security but has incorporated IMO legal instruments by reference as the "generally accepted international rules or standards"³⁶ Some of the IMO legal instruments may need significant reform to account for the operation of MAV.
26. Overall, UNCLOS provides a useful starting point for any regulation of MAV. Further details are found in other treaties, but critical will also be the implementation of these international obligations into national legal frameworks that regulate policing at sea, as well as intelligence, reconnaissance and surveillance activities.

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³⁶ UNCLOS, arts 21(2), 21(4), 39(2), 94(5)