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Legal Issues with Vessel Autonomy

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Introduction

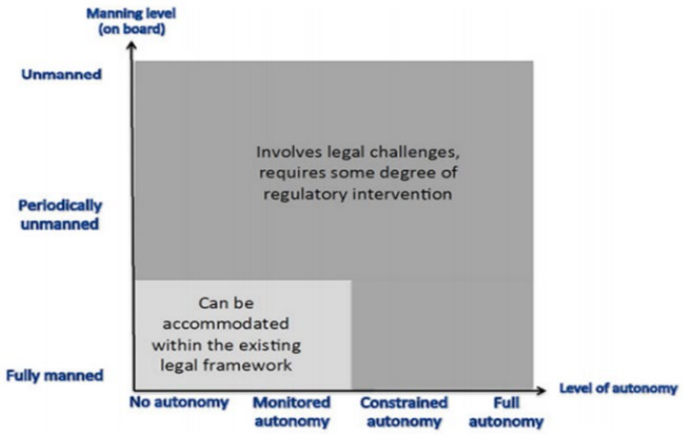
The maritime industry is experiencing technological, operational, and legal disruptions with the increased development of advanced automation on so-called "autonomous" vessels.[1] Unmanned ships are "those which are capable of controlled movement on the water in the absence of any onboard crew…[i]nstead, control is performed in essentially two ways": remotely controlled or being controlled autonomously.[2] While the topic of autonomous vessel operations are garnering greater visibility, the concept of unmanned vessel is not a novel concept—Nikola Tesla envisaged uses for advanced autonomy on vessels in his November 8, 1898 patent for "Method of and apparatus for controlling mechanism of moving vessels or vehicles."[3]

Now, the emerging and increasing implementation of Artificial Intelligence (AI)-related or advanced technology on vessels has raised legal questions as to whether autonomous vessels conform to relevant maritime regulations and conventions since, in some cases, there is open debate as to whether those legal instruments generally contemplated the need for manned operations on board, or at least "human in the loop," during vessel operations. Moreover, the general consensus is that the developing technology is outpacing current regulations.

While the lion's share of autonomous vessel operations are emerging overseas, the U.S. is seeing implementation of advanced autonomy into domestic options, in many cases without removing mariners but rather by augmenting situational awareness. Given that autonomous vessels create disruption to commonly understood operational and compliance principles, their

[1] For purposes of this paper, the terms MASS, unmanned ships/vessels, and autonomous vessels are used interchangeably.
[2] CMI International Working Group *Position Paper on Unmanned Ships and the International Regulatory Framework*, https://comitemaritime.org/work/mass/.
[3] N. Tesla (1898) *Method of and Apparatus for Controlling Mechanism of Moving Vessels or Vehicles,* U.S. Patent 613,809, 8 Nov 1898.

advent is spurring a significant amount of legal questions which have served as the basis for international and domestic legal efforts at the government and private sector levels, including through academia and various national law associations. As with other applications involving advanced automation in transport sectors, legal, public policy, and regulatory issues have emerged which merit discussions and careful analysis. In the vessel context, the legal issues include terminology, international and domestic legal frameworks and precedent (or lack thereof), liability considerations, and insurance matters, all of which are discussed to some extent in this paper. Here is an example of the "Nature of the Legal Challenge":[4]



I. Nomenclature Overview

Mentions of autonomous shipping may conjur futurist images of a fully unmanned oceangoing cargo vessels, however, autonomy is developing incrementally. As a threshold consideration, when assessing applicable of legal frameworks to respective vessel operations operating under advanced autonomy, analysis involves "a determination of the level of autonomy

[4] H. Ringborn, 2019. "Regulating Autonomous Ships—Concepts, Challenges and Precedents." Journal of Ocean Development & International Law. Vol. 50, Issue 2-3. p. 8, https://www.jus.uio.no/nifs/english/research/events/2019/regulating-autonomous-ships-concepts-challenges-and-precedents.pdf

to be used, the type of vessel on which the technology will be utilized, and in what location the vessel would be operating."[5]

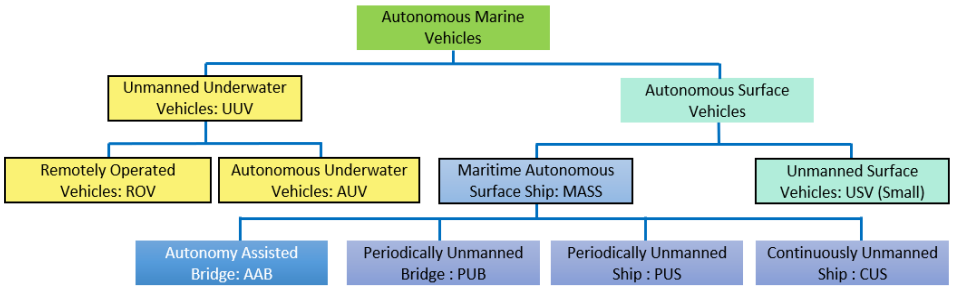
One of the primary complications with addressing the type of vessel to which advanced autonomy applies is that there is no universal description of so-called unmanned or autonomous vessels, as the following non-exhaustive list of various nomenclature illustrates[6]:

Anti-Submarine Warfare Continuous Trail Unmanned Vessel (ACTUV)
Autonomous Surface Vehicle (ASV)
Autonomous Sea Drone (ASD)
Autonomous Underwater Vehicles (AUV)
Highly Automated Ship Systems (HASS)
Maritime Autonomous Surface Ship (MASS)
Merchant Autonomous Surface Ship (MASS)
Maritime Autonomous Vehicles (MAV)
Marine Unmanned Vehicle (MUV)
Marine Unmanned Vessel (MUV)
Ocean Data Drone
Optionally Manned Vessel (OMV)
Remotely Operated Vehicle (ROV)
Ship with Periodically Manned Bridge

Smart Ships
Unmanned Craft (UC)
Unmanned Combat Underwater Vehicle (UCUV)
Unmanned Combat Surface Vehicle (UCSV)
Unmanned Combat Underwater Vehicle (UCUV)
Unmanned Combat Vehicle (UCV)
Unmanned Maritime System (UMS)
Unmanned (or Crewless) Maritime Vehicle (UMV)
Unmanned Surface Robots (USR)
Uncrewed Surface Vessel (USV)
Unmanned Surface Vehicle (USV)
Unmanned Underwater (or Undersea) Vehicle (UUV)
Unmanned Vehicle (UV)

[5] S. Pribyl and A. Weigel, *Autonomous Vessels: How an Emerging Disruptive Technology Is Poised to Impact the Maritime Industry Much Sooner Than Anticipated*, RAIL: The Journal of Robotics, Artificial Intelligence & Law (January-February 2018), https://www.blankrome.com/siteFiles/publications//9565549CDDFBA85572584D306E092678.pdf.

[6] *See also* the Legal Appendix in the National Academies of Sciences, Engineering, and Medicine. 2020. *Leveraging Unmanned Systems for Coast Guard Missions*, Washington, DC: The National Academies Press. https://doi.org/10.17226/25987.



Classification of autonomous maritime systems and autonomous ship types, Norwegian Forum for Autonomous Ships (NFAS) Norwegian Forum for Autonomous Ships. Definitions for Autonomous Merchant Ships, p. 7, Fig. 4, http://nfas.autonomous-ship.org/resources/autonom-defs.pdf.

Besides issues related to defining the watercraft, system, vehicle, or "vessel," challenges or barriers may also exist related to definitions, roles, and responsibilities under existing regulations or statutes, such as those related to "Master," "Operator," "Crew", and "Seaman." This is all the more prevalent in circumstances involving unmanned operations or remote operations from ashore or other platforms. U.S. shipping regulations and statutes do not contain universal definitions of these terms, and to the extent that the concepts have been defined, these definitions are based on the purpose of each individual regulation or statute.

II. Domestic Legal Framework

In the U.S., domestic statute, regulation, and policy help formulate determinations as to the legal status of a respective watercraft, however, a primary legal obstacle in assessing the legal framework applicable to "autonomous vessel" is that there is no universally accepted definition of "vessel." Since U.S. laws addressing admiralty and maritime matters are matters of federal law, the definition of "vessel" is derived from federal statutes which have been interpreted by federal courts. Under U.S. statute, the word "vessel" includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water although that definition does not distinguish between manned and unmanned watercraft. 1 U.S.C. § 3. This is a vital part of understanding whether an unmanned

"vessel" is subject to certain laws, or whether an unmanned "vehicle" is (arguably) not subject to those same laws.

Moreover, the application of emerging technologies to MASS present novel issues in admiralty law, including those related to doctrines of seaworthiness, limitation of liability, and *in rem* liability.[7] For admiralty incidents involving vessels, including U.S. public vessels[8], the following statutes are informative in assessing the status of a "vessel":

- The Pennsylvania, 86 U.S. 125, 1998 AMC 1506 (1873) (establishing the "Pennsylvania Rule")
- Lozman v. City of Riviera Beach, Florida, 133 S. Ct. 735, 2013 AMC 1 (2013).
    - U.S. Supreme Court holding that a permanently moored houseboat was not a vessel because "a reasonable observer, looking to the home's physical characteristics and activities, would not consider it to be designed to any practical degree for carrying people or things on water." The Court opined that the 1 U.S.C. § 3 definition of "vessel" must be applied in a practical, not a theoretical way.
- Evansville & Bowling Green Packet C. v. Chero Cola Bottling Co., 271 U.S. 19, 22 (modifying interpretation of 1 U.S.C. § 3 by determining that the word 'capable' should be read 'practically capable')

[7] *See* Michal Chwedczuk, *Analysis of the Legal Status of Unmanned Commercial Vessels in U.S. Admiralty and Maritime Law*, 47 J. MAR. L. & COM. 123, 156–66 (2016); *see also* Christopher C. Swain, *Towards Greater Certainty For Unmanned Navigation, A Recommended United States Military Perspective On Application Of The "Rules Of The Road" To Unmanned Maritime Systems*, 3 GEO. L. TECH. REV. 119, 151-154 (2018).
[8] The U.S. Navy has made significant investment in unmanned vessels and have been at the forefront of on-the-water testing of MASS.

- Stewart v. Dutra Constr. Co., 543 U.S. 481, 2005 A.M.C. 609 (2005) (adopting the statutory definition of "vessel" set out at 1 U.S.C. § 3 without limit as to the size or purpose of the vessel)
- The Robert W. Parsons, 191 U.S. 17, 2010 A.M.C. 542 (1903)(suggesting the basic criterion used to decide whether a structure is a vessel is the purpose for which it is constructed and the business in which it is engaged)

III. International Legal Framework

Legal issues related to international MASS operations fall under the auspices of the International Maritime Organization (IMO), and several legal instruments frame the basis for international compliance, such as the International Regulations for Preventing Collisions at Sea (COLREGS), International Convention for the Prevention of Pollution from Ships (MARPOL), International Convention for the Safety of Life at Sea (SOLAS), and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

Relevant here, the IMO developed a global regulatory approach to unmanned vessels for international shipping.[9] The IMO defines Maritime Autonomous Surface Ship (MASS) as a ship with decision support system(s) that, to various degrees, can operate independently of human interactions. Over the past few years, the IMO's Marine Safety Committee (MSC) has been conducting a Regulatory Scoping Exercise (RSE)[10] which focused on surface vessels, each

[9] International Maritime Organization. 2018. "IMO takes first steps to address autonomous ships." http://www.imo.org/en/MediaCentre/PressBriefings/Pages/08-MSC-99-MASS-scoping.aspx

[10] *See* IMO Autonomous Shipping, http://www.imo.org/en/MediaCentre/HotTopics/Pages/Autonomous-shipping.aspx; *see also* Henrik Tunfors, Swedish Transport Agency, Presentation at 5th UK MASRWG Conference 15-16 January, 2020 IMO Regulatory Scoping Exercise on MASS, https://www.maritimeuk.org/documents/544/Henrik_Tunfors_suw9wJK.pdf.

instrument related to maritime safety and security, liability and compensation, and for each degree of autonomy, provisions and identified which:

- apply to MASS and prevent MASS operations; or
- apply to MASS and do not prevent MASS operations and require no actions; or
- apply to MASS and do not prevent MASS operations but may need to be amended or clarified, and/or may contain gaps; or
- have no application to MASS operations.

The RSE recognized that MASS could operate at one or more of these levels within the duration of a voyage, and bearing that in mind, determined the four degrees of autonomy for purposes of the RSE are as follows:[11]

1. Degree one: Ship with automated processes and decision support: Seafarers are on board to operate and control shipboard systems and functions. Some operations may be automated and at times be unsupervised but with seafarers on board ready to take control.
2. Degree two: Remotely controlled ship with seafarers on board: The ship is controlled and operated from another location. Seafarers are available on board to take control and to operate the shipboard systems and functions.
3. Degree three: Remotely controlled ship without seafarers on board: The ship is controlled and operated from another location. There are no seafarers on board.

[11] Notably, these four degrees were largely based on the U.S. submission to MSC 99/5/12, Comments on document MSC 99/5/5, Regulatory Scoping Exercise for the Use Of Maritime Autonomous Surface Ships (MASS).

4. Degree four: Fully autonomous ship: The operating system of the ship is able to make decisions and determine actions by itself. [12]

The IMO has also published a set of interim guidelines for MASS trials.[13]

In June 2021, the RSE completed the MASS scoping exercise, and the MSC approved the *Outcome of the regulatory Scoping Exercise for the use of Maritime Autonomous Surface Ships (MASS)*.[14] Of particular note, the RSE recommended the development of a new instrument, for example a "MASS Code", as the most appropriate ways of addressing MASS operations in a holistic manner, and which ideally would be developed following a goal-based approach.[15] Delegations as part of MSC 103 also highlighted the need to keep in mind the legal implications emanating from the 1982 U.N. Convention on the Law of the Sea (UNCLOS).[16]

The IMO Committees involved in the RSE were the Maritime Safety Committee (MSC), Facilitation Committee (FAC), Legal Committee (LEG).[17] In LEG's RSE, they concluded that

[12] IMO MASS Scoping Exercise, http://www.imo.org/en/MediaCentre/PressBriefings/Pages/08-MSC-99-MASS-scoping.aspx; Other organizations have also delved into definitions of levels of autonomy, such as the American Bureau of Shipping in the U.S. whose Advisory on Autonomous Functionality identifies four main levels of automation based on "Sheridan's levels of automation: **Manual:** No machine augmentation of human function the computer offers no assistance: human must make all decisions and take all actions; **Smart:** Passive decision support: Human augmentation of human function (1) The computer offers a complete set of decisions/actions alternatives (2) the computer narrows the selection of decisions or actions to a few alternatives (3) the computer suggest one alternative, (4) the computer executes the suggestion if the human approves; **Semi-Autonomy:** Human in the loop: Human augmentation of machine function (1) the computer allows the human a restricted amount of time to veto the suggestion and then executes, (2) the computer executes automatically, then informs the human; **Autonomy:** No human augmentation of machine function (1) The computer informs the human, but only if queried by the human, (2) the computer informs the human, but only if the computer decides to do so, and (3) the computer makes all decisions, acts autonomously, and ignores the human.

[13] World Maritime News. 2019. "IMO Approves Autonomous Ship Trial Guidelines." https://worldmaritimenews.com/archives/279047/imo-approves-autonomous-ship-trial-guidelines/

[14] Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS), Report of the Working Group, MSC 103/WP.8, 13 May 2021.

[15] *Outcome of the Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships* (MASS) MSC.1/Circ.1638, 3 June 2021.

[16] Dec. 10, 1982, 1833 U.N.T.S. 3, 21 I.L.M. 1261, entered force Nov. 1, 1994. The United States is not a party to UNCLOS, but asserts that the navigation and overflight provisions of the Convention are reflective of customary international law and that the United States therefore operates in conformity with those provisions.

[17] For a list of conventions by Committee, see http://www.imo.org/en/MediaCentre/HotTopics/Pages/Autonomous-shipping.aspx.

MASS could be accommodated within the existing regulatory framework of LEG conventions without the need for major adjustments or a new instrument. The LEG took this position with the view that some conventions can accommodate MASS as drafted, while others may require additional interpretations or amendments to address potential gaps and themes that were revealed through the RSE. The most important of these were:

- the role and responsibility of the master;
- the role and responsibility of the remote operator;
- questions of liability;
- consistent definitions/terminology of MASS; and
- carriage of certificates.

Notably, there are other relevant international legal instruments relevant to compliance with international legal obligations under advance degrees of autonomy include the Vienna Convention on the Law of Treaties[18] and the UNCLOS. To this end, the LEG RSE working group also noted that "while the UNCLOS was not considered as part of the LEG RSE, as it is not an IMO Convention, MASS would need to operate within the legal framework of UNCLOS and, thus, UNCLOS will need to be considered in IMO's future work on MASS, particularly if IMO developed an instrument regulating MASS operations."[19]

IV. Case Law Relating to Collision Avoidance

The guiding legal framework under which MASS must comply for collision avoidance is the Convention on the International Regulations for Preventing Collisions at Sea (COLREGS) or

[18] Art. 31, May 23, 1969, 1159 U.N.T.S. 331, entered into force Jan. 27, 1980.
[19] https://www.imo.org/en/MediaCentre/MeetingSummaries/Pages/LEG-108th-.aspx.

"Rules of the Road"[20] which include both international and inland rules. The International Rules apply to all vessels upon the high seas and in all waters connected therewith navigable by seagoing vessels, and the Inland Rules apply on inland waters, which mean the navigable waters of the United States shoreward of the navigational demarcation lines dividing the high seas from harbors, rivers, and other inland waters of the United States and the waters of the Great Lakes on the United States side of the International Boundary. While the COLREGS apply to MASS, they do not specifically include provisions for MASS operations.

Also, there is a dearth of precedent on MASS-related incidents, although case law related to the COLREGS can be instructive as applied to potential incidents involving MASS. Appendix 1 of this Paper provides a list of relevant U.S. COLREGS-related precedent, and Appendix 2 of this Paper provides a survey on relevant case law on the U.S. domestic maritime law concerning the legal issues related to "unmanned ships" is available through the Maritime Law Association (MLA) of the United States Response of MLA to CMI Questionnaire regarding Unmanned Ships in Appendix 2. [21]

V. Liability

While no precedent exists on the precise issue, causation for accidents and incidents involving autonomous vessels could be attributed to several factors, including if the AI navigation systems was defective and that defect caused the vessel to perform in a manner other than intended; if the operator of the autonomous vessel (wherever located) improperly engages or disengages the AI or decision-making autonomous system; or, if the system decided and chose between outcomes, such as between grounding the ship or colliding with another vessel

[20] Convention on the International Regulations for Preventing Collisions at Sea, Oct. 20, 1972, T.I.A.S. 8587, 28 U.S.T. 3459, (COLREGS); Amendments to 72 COLREGS effective June 1, 1983 (48 FR 28634); Inland Navigation Rules, 33 C.F.R. § 83.03(q) (2017).
[21] Response of MLA to CMI Questionnaire RE Unmanned Ships. https://perma.cc/D6Z5-63UJ. *See* Appendix I.

(e.g., the so-called "Trolley Car Dilemma").

In the maritime context, maritime law recognizes concepts of negligence and strict liability. Product liability is also a consideration under the general maritime law, and will likely be an issue of gaining prominence in the context of reduced of fully unmanned vessel operations wherein the decision-making is left to the "machine," raising the question of whether a manufacturer or technology developer of the AI code could incur tort liability for defective software. Under current precedent, a manufacturer can be held liable for manufacturing or selling a product that was "unreasonably dangerous" or in a "defective condition.[22] Concepts such as negligent or defective design and negligently failing to warn of known defects will potentially merit greater scrutiny, and developers will likely give consideration to ensuring sufficient warning to alert user to possible defects and drafting express warranties. To date though, no relevant incidents with MASS have occurred, and thus, issues of liability have yet to be fully assessed in a court of law. Moreover, considerations of negligence could apply in cases involving collisions or allisions, loss of a vessel, damage to cargo, or discharges into the sea. A negligence claim consists of these four elements under federal maritime law: (1) the existence of a duty of care owed by the defendant; (2) breach of that duty; (3) a causal connection between the conduct resulting in the breach and plaintiff's injury; and (4) actual loss, injury, or damage.[23]

U.S. courts apply the *Pennsylvania* rule, which stands for the view that if the defendant is involved in a marine accident, and that defendant has violated a law intended to prevent that sort of accident, then the burden shifts to the defendant to show that its violation could not have

[22] *See* Restatement of Torts, §402A; *see also* East River Steamship v. Transamerica Delaval, 476 U.S. 858 (1986) (products liability is considered part of the general maritime law).
[23] *See* Becker v. Poling Transp. Corp., 356 F.3d 381, 388 (2d Cir. 2004); Pearce v. United States, 261 F.3d 643, 647 (6th Cir. 2001) (The elements of a negligence action under maritime law are "essentially the same as those under land based common law," i.e., "1) the existence of a duty of care owed by the defendant to the plaintiff; 2) the breach of that duty of care; 3) a causal connection between the offending conduct and the resulting injury, which is called 'proximate cause'; and 4) actual loss, injury or damage suffered by the plaintiff.") (citing Thomas J. Shoenbaum, Admiralty & Maritime Law § 5-2 at 170 (3d ed. 2001)).

caused the harm.[24] The burden "has been described as 'difficult, if not impossible' to discharge."[25] Additionally, regulations are a minimum requirement for compliance, but liability may be imposed for negligence even when there is no violation of regulations. Since current regulations may not contemplate autonomous vessel operations, compliance with industry best practices still may not relieve a shipowner or operator of liability, in particular since regulations do not necessarily measure the scope of an owner's duty.[26] Importantly, prudent navigation practice or exacting standards of seaworthiness may require an owner to supply more than the bare minimum called for by regulations.[27] In either case, a court may call upon a shipowner to supply more than the bare minimum required by statutory or regulatory law.[28]

VI. Insurance

One of the main causes of marine insurance claims for any type of vessel are those attributed to human error, in some cases reportedly due to impaired decision-making under stress, lack of sleep or fatigue. Marine insurance is relevant to ship operations as colloquially referred to as a "ticket to trade," and unmanned ships are purported to provide opportunities to decrease claims for unmanned ships. Autonomous ships seeking cover may necessitate novel risk factor assessment, for example if operations contemplate a human-in-the-loop but from remote or ashore control centers. There are three main types of insurance in the shipping sector: property, club and war risks insurance. Shipowners have these main covers either because they acquire them out of prudence, or because their financing banks or the ship's trade requires them.

In support, underwriters (1) should expect to require more information about the intended operation, (2) may mandate deeper understanding of the operating system, and (3) will look to

[24] The Pennsylvania, 19 Wall. 125, 86 U.S. 125 (1873); *see also* Hatt 65, LLC v. Kreitzberg, 658 F.3d 1243, 1251 (11th cir. 211).
[25] MacDonald v. Kahikolu, Ltd., 581 F.3d 970-973-77 (9th Cir. 2009)(quoting Trinidad Corp. v. S.S. Keiyoh Maru, 845 F.2d 818, 825 (9th Cir. 1988).
[26] Schlichter v. Port Arthur Towing Co., 288 F.2d 801 (5th Cir. 1961).
[27] *Id*.
[28] Walker v. Harris, 335 F.2d 185 (5th Cir. 1964).

the respective operator experience and business model as this technology is emerging to assess whether there is a knowledge gap for many owners who are new entries in the market or do not have direct experience with this type of vessel.[29] Ultimately, this has led to questions of coverage, and what perils will be covered under Institute Time Clauses (Hull) (ITCH) or American Institute of Marine Underwriters (AIMU) Clauses.

[29] S. Pribyl, Gard AS submission to Coast Guard [Docket No. USCG–2019–0698] RIN 1625–AC54 *Request for Information on Integration of Automated and Autonomous Commercial Vessels and Vessel Technologies Into the Maritime Transportation System*.

Appendix A

- Rule 2 (Good Seamanship and Special Circumstances) states: "Nothing in these Rules shall exonerate any vessel . . . from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seaman…" allowing for a "departure from these Rules necessary to avoid immediate danger."
    - Yang-Tsze Ins. Ass'n v. Furness, Withy & Co., 215 F. 859 (2d Cir. 1914)
    - Thurlow v. United States, 295 F. 905 (D. Mass. 1942)
    - The Llanover [1945] 78 Lloyd's List LR 198 (Eng.)
- Rule 3 (General Definitions) provides: "the word "vessel" includes every description of water craft, including nondisplacement craft, wing-in ground craft and seaplanes, used or capable of being used as a means of transportation on water."
- Rule 5 (Lookout) states: "[e]very vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and risk of collision."
    - The Ottawa, 70 U.S. (3 Wall.) 268 (1865)
    - The Ariadne, 80 U.S. (13 Wall.) 475 (1871)
    - The Tokio Marine & Fire Ins. Co., Ltd. v. Flora MV, No. CIV. A. 97–1154, 1999 U.S. Dist. LEXIS 267 (E.D. La. 1999), *aff'd*, 235 F.3d 963 (5th Cir. 2001)
    - The Manchioneal, 243 F. 801 (2d Cir. 1917)
    - Mar. & Mercantile Int'l L.L.C. v. United States, No. 02-CV-1446, 2007 U.S. Dist. LEXIS 19792 (S.D.N.Y. Feb. 28, 2007)
    - The Illinois, 103 U.S. 298 (1880).
    - Ellis Towing & Transp. Co. v. Socony Mobil Oil Co., 292 F.2d 91 (5th Cir. 1961)

- Stevens v. United States Lines Co., 187 F.2d 670 (1st Cir. 1951)
- The Sarasota, 37 F. 119 (S.D.N.Y. 1888)
- In re Interstate Towing Co., 717 F.2d 752 (2d Cir. 1983)
- In re Ballard Shipping Co., 823 F. Supp. 68 (D.R.I. 1993)
- In re Delphinus Maritima, S.A., 523 F. Supp. 583 (S.D.N.Y. 1981)
- In re Flota Mercante Grancolombiana, S.A., 440 F. Supp. 704 (S.D.N.Y. 1977)
- Reading Co., Inc. v. Pope & Talbot, Inc., 192 F. Supp. 663 (E.D. Pa. 1961), *aff'd*, 295 F.2d 40 (3d Cir. 1961)
- United States v. Motor Ship Hoyanger, 265 F. Supp. 730 (W.D. Wash. 1967)
- The Bristol, 4. F. Cas. 159 (S.D.N.Y 1873) (No. 1891)
- Cabins Tanker Indus., Inc. v. The Rio Maracana, 182 F. Supp. 811 (E.D. Va. 1960)
- The Bright, 38 F. Supp. 574 (D. Md. 1941)
- The Volund, 181 F. 643 (2d Cir. 1910)
- The Madiana, 63 F. Supp. 948 (S.D.N.Y. 1944)
- Commonwealth & Dominion Line v. United States, 1925 AMC 1575 (E.D.N.Y. 1925)
- Doran v. United States, 304 F. Supp. 1162 (D.P.R. 1969)

Applying Rule 5 MASS operations presents significant fodder for legal debate. Some scholars suggest that inclusion of the words "sight" and "hearing" in Rule 5 indicate that observation must be based on human characteristics under a "formal" approach to COLREGS treaty interpretation. Others suggest a "functional", or pragmatic, approach to interpretation of the COLREGS such that legal risk can be justified if MASS are proven safe and capable of prudent operations. This is buttressed by opinions that in the past the IMO has not adopted a

strictly literal interpretation of the Rule 5 requirements, and thus it is "possible that electronic instruments and equipment can replace the human function of observation, assuming that the technologies used are at least as effective and safe as diligent humans performing the lookout functions."[30]

- Rule 6 (Safe Speed) states: "[e]very vessel shall at all times proceed at a safe speed so that she can take proper and effective control to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions."
    - Otal Invs. Ltd. v. M.V. Clary, 494 F.3d 40 (2d Cir. 2007)
    - The Umbria, 166 U.S. 404 (1897)
    - Union Oil Co. of California v. The San Jacinto, 409 U.S. 140 (1972)
    - The George H. Jones, 27 F.2d 665 (2d Cir. 1928).
- Rule 7 (Risk of Collision) states" "Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists…."
    - In re Ocean Foods Boat Co., 692 F. Supp. 1253 (D. Or. 1988)
    - Paterakis v. United States, 849 F. Supp. 1106 (E.D. Va. 1994)
    - In re G&G Shipping Co., Ltd. of Anguilla, 767 F. Supp. 398 (D.P.R. 1991)
    - Fireman's Fund Ins. Cos. v. Big Blue Fisheries, Inc.,143 F.3d 1172 (9th Cir. 1998)
    - Ching Sheng Fishery Co., Ltd. v. United States, 124 F.3d 152 (2d Cir. 1997)
- Rule 8 (Action to Avoid Collision) states: "Any action taken to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship…."

[30] *See* European Maritime Safety Agency (EMSA), SAFEMASS Study of the risks and regulatory issues of specific cases of MASS, http://www.emsa.europa.eu/emsa-documents/latest/item/3892-safemass-study-of-the-risks-and-regulatory-issues-of-specific-cases-of-mass.html.

- In re Ocean Foods Boat Co., 692 F. Supp. 1253 (D. Or. 1988)
- In re G&G Shipping Co., Ltd. of Anguilla, 767 F. Supp. 398 (D.P.R. 1991)
- Mar. & Mercantile Int'l L.L.C. v. United States, No. 02-CV-1446, 2007 U.S. Dist. LEXIS 19792 (S.D.N.Y. Feb. 28, 2007)

- Rule 19 (Conduct in Restricted Visibility) applies: "to vessels not in sight of one another when navigating in or near an area of restricted visibility…."
  - Hellenic Lines, Ltd. v. Prudential

Appendix B

INTERNATIONAL MARITIME ORGANIZATION

E

LEGAL COMMITTEE
108th session
Agenda item 7

LEG 108/7
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REGULATORY SCOPING EXERCISE AND GAP ANALYSIS OF CONVENTIONS EMANATING FROM THE LEGAL COMMITTEE WITH RESPECT TO MARITIME AUTONOMOUS SURFACE SHIPS (MASS)

Finalization of regulatory scoping exercise and gap analysis by MSC 103

Note by the Secretariat

SUMMARY

Executive summary:	This document reports on the finalization of the regulatory scoping exercise for the use of Maritime Autonomous Surface Ships (MASS) by MSC of conventions under its purview
Strategic direction, if applicable:	2
Output:	2.7 and 2.20
Action to be taken:	Paragraph 13
Related documents:	MSC 98/23; MSC 99/22; MSC 100/20, MSC 100/20/Add.1; MSC 101/24; MSC 102/5/1; MSC 103/WP.1/Rev.1 and MSC 103/WP.8

Background

1 The Maritime Safety Committee (MSC), at its ninety-eighth session in June 2017, agreed to include in its 2018-2019 biennial agenda a new output on "Regulatory scoping exercise for the use of Maritime Autonomous Surface Ships (MASS)" with a target completion year of 2020.

2 MSC 100 approved the framework for the MSC regulatory scoping exercise (RSE) and a plan of work and procedures for the RSE (MSC 100/20/Add.1, annex 2), which envisaged a two-step approach: an initial review of the instruments under the purview of MSC with an agreed methodology and an analysis of the most appropriate way of addressing MASS operations.

3 MSC used the MASS module on GISIS, which was specifically developed for the scoping exercise at the request of MSC, as a web platform to share the initial review and analysis, provide comments, and revise the initial review and the analysis based on the comments received.

4 MSC 101 noted the progress made with the RSE and invited the volunteering Member States to submit the results of the first step to an Intersessional Working Group (ISWG) on MASS, which was held from 2 to 5 September 2019, in order to consider the results of the first step of the RSE and take necessary action with a view to commencing the second step. The ISWG completed step 1 of the RSE for the instruments it was tasked to review. The report of the ISWG is contained in document MSC 102/5/1.

5 The results of the second step, i.e. the analysis of the most appropriate way of addressing MASS operations, were submitted to MSC 102 for final consideration. Due to time constraints resulting from remote meeting arrangements owing to the COVID-19 pandemic, MSC 102 deferred the consideration of this agenda item to MSC 103. MSC 103 finalized the consideration of this agenda item, as detailed in its report (MSC 103/WP.1/Rev.1) and the report of the MASS Working Group under MSC (MSC 103/WP.8). The main conclusions are summarized in the following paragraphs:

Results of the second step and final outcome of the MSC RSE

6 The MASS Working Group established by MSC 103 considered all reports provided by volunteering Member States containing the results of the second step of the RSE for the instruments under the purview of MSC and prepared the final outcome of the MSC RSE, using the annex to document MSC 103/WP.11 as the basis for its work. The MSC RSE outcome document is set out in the annex to the report of the MASS Working Group (MSC 103/WP.8) and was circulated through Circular MSC.1/Circ.1639. It provides the assessment of the degree to which the existing regulatory framework under its purview might be affected in order to address MASS operations. It further provides guidance to MSC and interested parties to identify, select and decide on future work on MASS and, as such, facilitate the preparation of requests for, and consideration and approval of, new outputs. In this context, it contains information for all degrees of autonomy for every instrument expected to be affected by MASS operations under the purview of MSC; the most appropriate way(s) of addressing MASS operations in those instruments, as appropriate; identification of common themes and/or potential gaps that require addressing; identification of potential links between instruments; and identification of priorities for further work, including terminology and the order in which instruments could be addressed.

Immediate further work on MASS

7 Having noted the industry's fast advancement with respect to developing MASS technology and conducting trials, MSC 103 considered a proposal for the inclusion of a standing agenda item on MASS on MSC's agenda. However, the Committee concluded that a focused approach was needed to progress the work on MASS and that a standing agenda item would not be an efficient way to address the complexity of MASS regulatory development, taking into account that MSC had endorsed the Intersessional Working Group's conclusion for the need for justification of any future proposals for changes to the regulatory framework.

8 MSC 103 also considered the establishment of an intersessional MASS working group and the development of corresponding terms of reference to facilitate immediate commencement of future work. Since the current output was limited to the completion of the regulatory scoping exercise for MASS, MSC 103 agreed not to undertake any further work on MASS beyond the scope of the current output until it had approved a new output; and consequently, invited interested Member States to submit proposals for new output(s) on MASS to a future MSC session.

Coordination of work between the Maritime Safety, Legal and Facilitation Committees

9 MSC 103 also considered a proposal to establish a joint LEG/MSC/FAL working group to consider the common potential gaps and themes identified during the RSE undertaken by each committee for the conventions under their purview (MSC 102/5/2 (IFSMA) and MSC 102/5/30 (Republic of Korea)). MSC 103 recalled that it had already recognized that future work with respect to main issues and common potential gaps and/or themes should be coordinated between the committees and that such coordination could be realized by establishing a joint working group or through other means, for instance through active liaising between the committees on the common issues.

10 MSC 103 noted the view of some delegations that the work on MASS could be progressed faster by establishing a joint LEG/MSC/FAL working group, given that there was an urgent need to keep pace with fast changing industry and technology developments. Other delegations highlighted the need to keep in mind the legal implications emanating from the United Nations Convention on the Law of the Sea (UNCLOS).

11 While there was wide support for the establishment of a joint LEG/MSC/FAL working group to coordinate MASS-related regulatory work, MSC 103 agreed that it would be premature to do so at this point in time, recognizing that the committees had not yet completed the regulatory scoping exercise for instruments under their purview, and that any future work on MASS undertaken by a joint working group would require the identification of common potential gaps and/or themes as well as priorities for future work from all committees.

12 In this context, MSC 103 recalled that the establishment of a joint working group would require a new output, agreed and approved by all three committees. MSC 103 agreed to take a decision on the establishment of a joint working group after the finalization of the RSE, as the prerequisite for identifying further work for consideration by such a joint group; and to proceed, in the meantime, by actively liaising between the committees on the common issues with the aim to align any future work.

Action requested of the Committee

13 The Legal Committee is invited to note the information provided and take action, as appropriate.

The Maritime Law Association of the United States

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Boston, MA

Regulation of Vessel Operations, Safety, Security and Navigation

Maritime Autonomous Surface Ships Subcommittee

Unmanned Maritime Systems: Approaching Navigation, Safety, and Security in an Increasingly Automated World

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Unmanned Maritime Systems: Approaching Navigation, Safety, and Security in an Increasingly Automated World

I. Introduction

The Coast Guard is actively engaged in vessel autonomy, among other areas of technological development, as both a regulator of the maritime industry and as a user of the technology. Cyber enabled systems increase the Coast Guard's mission effectiveness, and allow industry to innovate in the maritime domain. However, those same systems can expose critical infrastructure to new risks. Just like other technological advances, the Coast Guard embraces new innovation while leveraging existing authorities to ensure the safety and security of America's maritime infrastructure. The balance between emerging maritime opportunities and corresponding security imperatives associated with technological progress, including autonomous systems, was well-captured in the Coast Guard's Strategic Plan for 2018 – 2022, which noted that:

> Rapid technological advancements are changing the character of maritime operations. The accelerating pace of innovation manifests itself through increasingly complex vessels, high traffic volumes, and greater demands on the Marine Transportation System (MTS). Advanced technologies, such as autonomous and robotics systems and new propulsion methods usher in an era of new regulatory, legal, and operational challenges. While these technologies increase the complexity of our operating environment, they also present great opportunities for improved safety and efficiency. Our ability to set and enforce effective standards that advance maritime safety and environmental stewardship must keep pace with rapid technology application in the afloat, ashore, and cyber elements of the MTS.[1]

This paper will highlight some of the ways in which the maritime domain is being impacted by the increasing prevalence and importance of cyber and autonomous technologies. Further, it will discuss the work the U.S. Coast Guard is doing at both the international and domestic levels to ensure the safety and security of maritime navigation and commerce on the world's oceans.

[1] U.S. COAST GUARD STRATEGIC PLAN 2018-2022, 4, *available at* https://media.defense.gov/2018/Nov/16/2002063979/-1/-1/0/USCG_STRATEGIC%20PLAN__LORES%20PAGE_20181115_VFINAL.PDF (last visited April 8, 2021).

II. International Engagement

The Coast Guard's regulatory and operational developments regarding vessel autonomy are necessarily informed by discussions and decisions taken at the International Maritime Organization (IMO). The IMO is a specialized agency of the United Nations, responsible for measures to improve the safety and security of global shipping, as well as the prevention of pollution from ships.[2] Since the first meeting of the IMO in 1959, the Coast Guard has been—and remains—a key participant in IMO policy development. Indeed, the Coast Guard leads U.S. delegations to the IMO, including the main technical work of the IMO carried out by the Maritime Safety, Marine Environment Protection, Legal, Technical Cooperation, and Facilitation Committees.[3] In conducting its work at the IMO, the Coast Guard collaborates with U.S. interagency partners from the Department of State, Department of Defense, Department of Justice, Environmental Protection Agency, National Oceanic and Atmospheric Administration, National Transportation Safety Board, as well as a variety of industry experts. These robust U.S. interagency efforts provide the technical support and guidance necessary to advocate U.S. positions on key maritime issues.[4]

The IMO has become increasingly focused in recent years on how technological innovation and advancements will impacts its core mission of ensuring safe, secure, and environmentally sustainable internationally shipping. Indeed, the IMO's Strategic Plan for 2018-2023 includes a strategic direction to "[i]ntegrate new and advancing technologies in the regulatory framework."[5] The lodestar of the IMO's

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[2] *See Frequently Asked Questions*, IMO, https://www.imo.org/en/About/Pages/FAQs.aspx (last visited April 8, 2021).
[3] *Id*.
[4] *See U.S. Coast Guard IMO Homepage*, U.S. COAST GUARD, https://www.dco.uscg.mil/IMO/International-Maritime-Organization-Sub-committees-HWT/ (last visited April 8, 2021).
[5] *See Strategic Plan for the Organization for the Six-year Period 2018-2023, Strategic Direction 2*, IMO Resolution A.1110(3) (Dec. 8, 2017), https://wwwcdn.imo.org/localresources/en/About/strategy/Documents/A%2030-RES.1110.pdf (last visited April 8, 2021) ("Since technological advances present opportunities as well as challenges, their introduction needs to be considered carefully in order for them to be accommodated appropriately into the regulatory framework of the Organization. This involves balancing the benefits derived from new and advancing technologies against safety and security concerns, the impact on the environmental and on international

strategic focus on new technologies has been the IMO's Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS).[6] The scoping exercise seeks to determine how safe, secure, and environmentally responsible MASS operations might be addressed in IMO instruments. While the regulatory scoping exercise spans a number of IMO Committees, the IMO's Maritime Safety Committee (MSC) has taken on a coordinating role. That role includes reviewing instruments under MSC's remit, while also notifying other IMO committees of instruments under their purview that would need to be considered as part of the scoping exercise. The Coast Guard has taken an active role in this important work.[7]

The IMO has already reached some important milestones in the work of the Regulatory Scoping Exercise. At the 100th session of the Maritime Safety Committee in June of 2018, the MSC approved the framework for the regulatory scoping exercise, including its plan of work and procedures. The Framework set out four levels or degrees of autonomy: (1) Degree One: Ship with Automated Processes and Decision Support; (2) Degree Two: Remotely Controlled Ship with Seafarers On Board; (3) Degree Three: Remotely Controlled Ship without Seafarers On Board; and (4) Degree Four: Fully Autonomous Ship.[8] In June 2019, the Committee approved interim guidelines for MASS trials.[9] This document provides guidance to coastal States, flag States, port States, and relevant stakeholders on the conduct of safe and secure MASS trials. The guidelines also make clear that it is the responsibility of the flag State administration to authorize a ship to participate in a trial.[10]

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trade facilitation, the potential costs to the industry, and finally their impact on personnel, both on board and ashore.").

[6] *See Autonomous Shipping*, IMO, http://www.imo.org/en/MediaCentre/HotTop-ics/Pages/Autonomous-shipping.aspx (last visited Apr. 8, 2021).

[7] As of the date this paper was written, the United States is preparing to participate in MSC 103, being held remotely in May 2021.

[8] See *Report of the Maritime Safety Committee on its One Hundredth Session*, Annex 2, IMO Doc. MSC100/20/Add.1 (Dec. 12, 2018).

[9] *Interim Guidelines for MASS Trials*, IMO Doc. MSC1.Circ.1604 (June 14, 2019).

[10] *See id.* at ¶ 1.2.3 ("The obligations and responsibilities of the relevant authorities with respect to MASS trials are established by the individual instruments. It is the responsibility of the flag State Administration to authorize a ship to participate in a trial. Where necessary, authorization should also be obtained from the coastal State and/or port State Authority where the trial will be conducted.").

Regrettably, the work of the MASS regulatory scoping exercise has been slowed by the IMO's shift to a virtual format, a necessary safety measure associated with the ongoing COVID-19 pandemic. Fortunately, however, the MASS regulatory scoping exercise will be taken up during the 103rd Session of the MSC in May 2021. As of now, IMO Member States, including the United States, have submitted over thirty papers[11] related to MASS for consideration at this session. Such active engagement by IMO Member States on MASS underscores the importance, and complexity, of the issues. The following discussion will address some key areas that will need to be addressed as the scoping exercise proceeds.

A. **Navigational Safety and COLREGS**:

The International Regulations for Preventing Collisions at Sea (COLREGS), or "Rules of the Road," are the touchstone for the safe, predictable navigation and interactions of ships at sea.[12] Since Rule 1 of the COLREGS makes clear that they apply to "all vessels," a key threshold question is whether a given craft constitutes a "vessel." Those familiar with the U.S. Supreme Court's *Lozman*[13] and *Dutra*[14] precedents can appreciate that this is not always an easy question to answer. This topic will be addressed later in this paper, however, assuming for purposes of this discussion that a given MASS constitutes a "vessel" it must comply with the COLREGS. Certain provisions of the COLREGS present apparent difficulties in the context of autonomous vessels.

For example, COLREGS Rule 5 states that "every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision." It is thus necessary to ask whether an unmanned vessel can maintain, "by sight and hearing," the required lookout. Some

[11] This figure includes both MASS papers submitted to MSC 103, as well as those documents submitted to MSC 102 for which consideration was postponed. *See Provisional Agenda*, IMO Doc. MSC 102/1/Rev.1 (Sept. 23, 2020) (noting that agenda item 5, Regulatory scoping exercise for the use of Maritime Autonomous Surface Ships (MASS), has been postponed to the 103rd session of the Maritime Safety Committee).
[12] *See Rules of the Road*, USCG, https://www.dco.uscg.mil/NavRules/ (last visited April 8, 2021) ("Professional mariners must be proficient in the rules of the road but all mariners should know and understand the Rules. The Rules are legally binding and application of them makes the waterways safer for everyone.").
[13] *Lozman v. City of Riviera Beach Fla*, 568 U.S. 115 (2013).
[14] *Stewart v. Dutra Const. Co*., 543 U.S. 481 (2005).

commentators have urged that a sufficiently robust system of audio and visual sensors could serve as the functional equivalent of a lookout "by sight and hearing."[15] Importantly, however, the COLREGS do not include provisions allowing for the substitution of equivalents.[16] These observations bring up the important question of if a physically present lookout is required by Rule 5. Rule 2 of the COLREGS may present similar difficulties. Rule 2 makes clear that "Responsibility" under the COLREGS includes "any precaution which may be required by the ordinary practice of seamen…" As noted by the IMO intersessional working group on MASS, these and other provisions of the COLREGS involve "human centric wording" that presents unique challenges in the MASS context.[17]

While there are no simple answers to how these "legacy" instruments may be impacted by autonomous vessels, the Coast Guard will remain at the forefront of autonomous vessel work at the IMO and domestically. The Coast Guard is committed to ensuring the safety of navigation and the protection of life and property at sea, and the safe and proper operation of all manned vessels and unmanned vehicles.

B. **Old Terminology, New Questions**:

A common potential gap that has already emerged in the MASS regulatory scoping exercise is the need to closely examine foundational terms such as "master" and "seafarer" in the context of autonomous vessel operations. The International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers, 1978, as amended (STCW Convention) provides an illustrative example. In 2020 the United States led the second step of the MASS Regulatory Scoping Exercise for the STCW Convention and Code. The U.S. report to the Committee noted that the STCW Convention applies only to

[15] *See, e.g.*, Christopher C. Swain, *Towards Greater Certainty for Unmanned Navigation: A Recommended United States Military Perspective on Application of the "Rules of the Road" to Unmanned Maritime Systems*, 3 GEO. L. & TECH. REV. 119, 141 (2018) (arguing that "a broad reading of Rule 5, considering sensors the functional equivalent of 'sight and hearing,' is reasonable.").
[16] *See* Craig Allen, *Determining the Legal Status of Unmanned Maritime Vehicles: Formalism v. Functionalism*, 49 J. MAR. L. & COM. 477, 503 (2018).
[17] *See Report of the Intersessional Working Group on Maritime Autonomous Surface Ships (MASS)*, ¶ 3.66, IMO Doc. MSC 102/5/1 (Sept. 25, 2019) ("The Group discussed 'human centric wording' within COLREG 1972, in particular "proper lookout" and "good seamanship," and noted that other terminology contained within COLREG 1972 would require further discussion during and following the second step [of the MASS regulatory scoping exercise].").

"*seafarers* serving on board seagoing ships entitled to fly the flag of a Party…", and that for certain degrees of autonomy a decision must be taken on whether a "remote operator" can be considered a "seafarer," and how this might be accomplished through amendments or equivalencies.[18]

Autonomous vessels may also impact how we currently understand the duty to render assistance under international law, as reflected in Art. 98 of the Law of the Sea Convention and in the International Convention on Maritime Search and Rescue (SAR Convention). That duty to render assistance, which Art. 98 addresses to the flag state, requires that the "master of a ship flying its flag" will render assistance. This raises the question of who is the "master" of a MASS, and in turn how to best interpret this obligation in the autonomous vessel context. For example, can a remote operator of a MASS be considered a "master," duty-bound to render assistance, when that remote operator is thousands of miles from the scene of distress? The SAR analysis becomes even more complex when considering a fully autonomous vessel, equipped to "make decisions and determine actions by itself."[19] Accordingly, during the IMO's phase one regulatory scoping of SOLAS Chapter III, it was noted that the role of MASS related to the rescue of persons will need to be addressed.[20]

III. Autonomous Technology and Cyber Security

Advances in autonomous vessel technology are of a piece with broader, cross-cutting technological developments across the U.S. Marine Transportation System (MTS). As noted in the Coast Guard's 2016 Cyber Strategy, that MTS is now "highly dependent on a complex, globally-networked system of automated cyber technology."[21] Moreover, vessels and facility operators increasingly use computers and

[18] *See id.* at ¶¶ 3.5-3.9.
[19] *See* IMO Doc. MSC99/WP.9, annex 1.
[20] *See Report of the Intersessional Working Group on Maritime Autonomous Surface Ships (MASS)*, ¶ 3.24.4, IMO Doc. MSC 102/5/1 (Sept. 25, 2019) ("the role of MASS related to recovery and rescue of persons should be considered at a later stage."). *See also id*. at ¶ 3.25 ("The Group noted that the definitions of master, crew and/or responsible person could be considered as a common potential gap and theme.").
[21] U.S. COAST GUARD CYBER STRATEGY, 9, *available at* https://www.mycg.uscg.mil/Portals/6/Documents/PDF/CG_Cyber_Strategy.pdf?ver=2016-10-13-122915-863

cyber-dependent technologies for navigation, communications, safety, and many other purposes.[22] While increasingly automated and autonomous technologies may create new efficiencies and benefits, they also introduce new risks and threats into the maritime domain.

The Coast Guard continues to develop guidance for commercial vessels and waterfront facility owner and operators on how to identify and evaluate their cybersecurity-related vulnerabilities. The Coast Guard is uniquely positioned to carry out this work by virtue of its authorities under the Maritime Transportation and Security Act (MTSA) of 2002 and regulatory authority under Title 46 of the U.S. Code Chapter 32 which requires the Coast Guard to ensure certain vessels have a Safety Management System that comports with the International Safety Management Code.

Maritime Transportation Security Act:

Under MTSA, the Coast Guard established vulnerability assessment standards for vessels and waterfront facility operators. Based upon those assessments, vessel and waterfront facility operators are required to develop comprehensive "Vessel Security Plans"[23] and "Facility Security Plans."[24] Among other required provisions, these assessments and plans must account for the security of computer systems and networks, as well as other radio and telecommunications systems.

The Coast Guard has also provided updated guidance to assist waterfront facility owners and operators in discharging their responsibilities under MTSA to assess cyber vulnerabilities and ensure the cybersecurity of their facilities. Specifically, in February 2020, the Coast Guard released Navigation and Vessel Inspection Circular (NVIC) 01-20, *Guidelines for Addressing Cyber Risks at Maritime Transportation Security Act (MTSA) Regulated Facilities*. This document details recommended practices for MTSA-regulated facilities to address computer system and network vulnerabilities, including examples of how cyber security vulnerabilities may be identified during Facility Security Assessments and effectively incorporated in a Facility Security Plan. Though the regulations state that the facility must

[22] *See id.* at 31.
[23] *See* 33 C.F.R. Part 104.
[24] *See* 33 C.F.R. Part 105.

account for cyber risk management, they do not require "how" the facility security officer must do so. The Coast Guard partnered with the National Institute of Standards and Technology (NIST) to develop guidelines for implementation for cyber risk mitigation to fulfill this goal based regulatory requirement, and is an example of how the Coast Guard has worked with industry to allow flexibility in the areas of emerging technology.[25]

Safety Management Systems:

In addition to MTSA, the Coast Guard has authority to regulate cyber security risk mitigation aboard commercial vessels on foreign voyages and certain domestic vessels through the International Safety Management Code and Title 46 U.S. Code Chapter 32. On July 5, 2017 the IMO's Facilitation Committee and Maritime Safety Committee adopted the Guidelines on Maritime Cyber Risk Management (MCS-FAL. 1/Circ.3),[26] these guidelines came into force January 1, 2021, and are now enforceable through Port State Control Measures worldwide. Under Chapter 32, the Coast Guard is required to implement regulations that conform to the ISM Code requirements.[27] The ISM Code requires vessels to assess and take safeguards against all risks, which includes cyber risks. To assist in the incorporation of cyber risk mitigation into the a vessels Safety Management System the Coast Guard issued the Vessel Cyber Risk Management Work Instruction, (CVC-WI-027(1)), October 27th, 2020.[28] This work instruction provides a suggested framework for vessels to follow to help identify, protect, detect, respond and recover from malicious cyber activity. As the autonomous fleet advances in sophistication and expands in capability, it is foreseeable that there will be MASS that must adhere to the ISM Code.

[25] Maritime: Oil & Natural Gas, https://www.nccoe.nist.gov/projects/use-cases/maritime-ong (last accessed April 16, 2021).
[26] IMO Maritime Cyber Risk: https://www.imo.org/en/OurWork/Security/Pages/Cyber-security.aspx (last accessed April 15, 2021)
[27] *See* 33 C.F.R. Part 96
[28] Vessel Cyber Risk Management Work Instruction, https://www.dco.uscg.mil/Portals/9/CVC-WI-27%282%29.pdf (last accessed April 16, 2021).

Identifying and mitigating cyber vulnerabilities will continue to inform the Coast Guard's approach to autonomous technologies. While interconnectivity between ships and on-shore infrastructure will likely be an important component of supporting autonomous ship operations, the Coast Guard is also mindful that this trend will likely increase the threat of potential cyberattacks on maritime vessels. The Coast Guard will remain vigilant in addressing those threats.

IV. A Domestic Perspective

Vessel Determinations:

As mentioned above, for the full suite of vessel centric U.S. regulatory authorities to apply to a MASS the watercraft would have to be determined to be a vessel. Under U.S. law, unless otherwise stated, the controlling definition of "vessel" is found in Title 1 of the United States Code Section 3.[29] 1 U.S.C. § 3 defines a "vessel" as, "… every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water." In 2013, the Supreme Court of the United States in *Lozman v. City of Riviera Beach*,[30] held that to be a vessel the structure's physical "characteristics and activities" would need to be such that a "reasonable observer" would conclude that the structure was designed to a practical degree to carry "people or things" on the water. [31]

At issue in *Lozman* was whether a floating home without a raked hull, no watertight superstructure, no rudder or steering mechanism, lacking propulsion, which could only be moved with assistance of two tug boats, and which had only been moved four times in seven years was a vessel for Admiralty jurisdiction purposes. Ultimately, the Court determined that the floating home was not a vessel, because when taken holistically the "characteristics and activities" of the floating home, as described above,

[29] 1 U.S.C. § 3 provides the definition of a "vessel". Additionally, it is similarly defined at 46 U.S.C. § 115 (Definition of a Vessel) "the term 'vessel' has the same meaning given the term in section 3 of title 1." Further, the Supreme Court has stated that unless any statute passed into law after 1871 specifically defines the term "vessel", the word shall be given the meaning found in [1 U.S.C. § 3]. *See Discussion in Stewart v. Dutra*, 543 U.S. 481, 488 (2005).
[30] *Lozman v. City of Riviera Beach Fla*, 568 U.S. 115 (2013).
[31] *Id.* at 121.

would not convince a reasonable observer that it was "designed to a practical degree for carrying people or things over the water."[32]

The Court did not rely upon any single characteristic of the floating home to reach its decision. Instead the Court focused on the phrase "capable of being used as a means of transport..." Citing *Stewart v. Dutra*,[33] the Court in *Lozman* emphasized that for a structure to be considered "capable of being used for transport" it had to have a practical possibility of transporting people or things over the water, not just be theoretically capable of doing so.[34] This holistic test requires the fact finder to determine if the characteristics and activities of the watercraft would convince a reasonable observer that the watercraft is designed to a practical degree to carry people or things on the water.

It is under the rubric of holistic review the Coast Guard will need to determine if a particular MASS is a vessel. Where some of the larger vessel design concepts will clearly fall into the category of "vessel," it is not so readily apparent in regards to some of the smaller designs currently plying the waters.

Domestic Operations:

The Coast Guard is increasingly seeing owners and operators experimenting with autonomous operations. As these emerging technologies come online the Coast Guard's core mission of safety, security and environmental stewardship won't change. These projects have generally been coordinated with the local Captain of the Port and Officer in Charge of Marine Inspections to ensure the safety of the experimental vessel, the waterway, and other vessels operating in the vicinity. While development and testing of new technology continues, the Coast Guard will maintain authorities to ensure the safety and security of the waterways, waterfront facilities, and maritime commerce leveraging authorities such as the Ports and Waterways Safety Act (PWSA), Maritime Transportation Security Act (MTSA) and various vessel inspection laws. Many of the regulations in place will allow the Coast Guard to continue to

[32] *Id.*
[33] *Stewart v. Dutra Construction Co.*, 543 U.S. 481 (2005).
[34] *Lozman* at 121.

complete its mission without regard to the actual manning of the vessel. For example, under the regulations implementing the PWSA, Coast Guard Captains of the Port are empowered to issue orders to direct a vessel of operate or anchor by reason of a hazardous circumstance and/or hazardous condition of the vessel,[35] including a cyber-intrusion or other malicious cyber activity. This regulation does not necessarily take into account the manning of a vessel rather it concerns itself with a condition aboard the vessel or created by the vessel that may adversely affect the safety of the vessel, other vessels, or the port itself.

Though autonomous vessels do present novel questions, the Coast Guard remains poised to assist mariners, owners, operators, and the boating public in conducting safe operations in accordance with U.S. law and applicable regulations. If an owner or operator is looking to leverage autonomous technology, they should reach out to their local Captain of the Port.[36] If an owner or operator is looking for a technical review of plans for a proposed vessel or modification to a vessel, the Coast Guard's Marine Safety Center provides that oversight. The Marine Safety Center can also review plans for novel vessel or system designs and enter into design basis agreements with owners or operators for vessels that do not clearly fall within any specific certification regime.

The Coast Guard is also actively engaged with the public and industry to better understand their views, concerns, and questions related to the integration of autonomous technology in the MTS. In August of 2020 the Coast Guard issued a Request for Information[37] in the Federal Register on autonomous technology in the maritime sector. The Coast Guard received multiple very insightful responses to the request. As the Request for Information demonstrates, the Coast Guard does not have all of the answers when it comes to vessel autonomy, and is actively seeking input from the public to help guide the path forward. Indeed, the safe development and adoption of autonomous technology will be a

[35] *See* 33 C.F.R. § 160.111
[36] *See* homeport.uscg.mil to find the nearest Coast Guard Sector and their designated Marine Safety personnel.
[37] *Request for Information on Integration of Automated and Autonomous Commercial Vessels and Vessel Technologies Into the Maritime Transportation System*, *available at* https://www.federalregister.gov/documents/2020/08/11/2020-17496/request-for-information-on-integration-of-automated-and-autonomous-commercial-vessels-and-vessel (last visited Apr. 9, 2021).

collaborative effort between the Coast Guard as the regulator and the owners and operators deploying these new technologies.

Finally, the Coast Guard Research and Development Center is seeking opportunities to leverage increased autonomy to support Coast Guard missions. In late 2020, a team of Coast Guard researchers and engineers were in Honolulu for the "Low Cost Maritime Domain Awareness Pilot Study," where they tested the feasibility for unmanned surface vessels to autonomously conduct Maritime Domain Awareness Operations.[38] These systems spanned from smaller sail-driven autonomous vessels to a 29' remotely controlled patrol vessel very similar to those the Coast Guard already operates with onboard crews.

V. Conclusion

As naval forces, commercial operators, recreational boaters, and industry regulators survey the field of technology being developed, there are many promising advances in the realm of vessel autonomy. As with any new technology that the Coast Guard has regulated, from steam engines to steel hulls to internal combustion and LNG-supplied power, the technology will likely advance at a greater pace than regulations can be developed and standards can be adopted. By continuing its robust international and domestic engagement regarding autonomous technologies, the Coast Guard stands ready to meet the novel questions posed by autonomous systems. In doing so, it must remain focused on ensuring a safe and secure maritime transportation system for all users.

[38] *See RDC concludes Low Cost Maritime Domain Awareness Pilot Study*, U.S. COAST GUARD, *available at* https://www.dcms.uscg.mil/Our-Organization/Assistant-Commandant-for-Acquisitions-CG-9/Newsroom/Latest-Acquisition-News/Article/2436967/rdc-concludes-low-cost-maritime-domain-awareness-pilot-study/.

Unmanned Aerial Systems in the Maritime Sector and the Impact of Autonomy in the Emerging Opportunities in Offshore Wind

Game Of Drones: Unmanned Aerial Systems In The Maritime Sector

Allison N. Skopec

Introduction

On February 25, 2018, Italian fashion house Dolce & Gabbana asked its nearly 600 guests at Milan Fashion Week the unthinkable: to turn off their wi-fi connections. After nearly an hour of pleading with the audience, the show finally began. But instead of millennials stomping down the runway in designer threads, eight quadcopters holding jewel-encrusted handbags buzzed down the runway. The appearance of unmanned aerial systems ("UAS") or drones created a sterile, vaguely militaristic contrast to Dolce & Gabbana's otherwise flamboyant Fall Winter 2018/19 collection.[1]

As drones invade the fashion world, they have also leaked into almost every sector imaginable – and the maritime industry is not immune from UAS' reach. While drones are not a part of the historical maritime vocabulary, they have nonetheless started to enter the maritime industry. But their long-term legal implications are unresolved and largely speculative. Companies are designing commercial UAS for the private sector and, if successful, they are likely to permeate our daily lives just as automobiles and the internet once did. Sometimes called "disruptive technologies," more and more firms are creating "task forces" devoted to emerging technologies such as drones, artificial intelligence, the internet of things, and distributed ledger technologies. Disruptive innovation is a theory by Clay Christensen, a professor at Harvard Business School, who posits that companies with ample resources and intellectual leaders end up failing in a market because they do not catch on to disruptive market shifts. This theory is as relevant as ever in today's fiercely competitive legal industry.

Appurtencances Within Admiralty Jurisdiction

The Admiralty Extension Act

In 1948, President Truman signed the Admiralty Extension Act ("AEA") into law, which expanded the scope of original jurisdiction held by federal courts sitting in admiralty. Pursuant to the AEA, admiralty jurisdiction included ship-to-shore torts and did not affect or amend federal or concurrent state jurisdiction of maritime torts.[2] The statute provides that "the admiralty and maritime jurisdiction of the United States extends to and includes cases of injury or damage, to person or property, caused by a vessel on navigable waters, even though the injury or damage is done or consummated on land."[3] The bedrock principle behind the AEA is that, in order to properly invoke jurisdiction pursuant to the AEA, the injury must emanate from a vessel in navigable waters. The party who invokes jurisdiction must also allege vessel negligence, which relates to a defective appurtenance or negligent navigation as well as tortious conduct of the crew that results in an injury on land. Furthermore, the AEA applies only to a vessel and her appurtenances – thus, the AEA's framework will be essential when looking to how to classify UAS in the maritime context.

What are Appurtenances?

General Maritime Law ("GML") allows seaman three routes for recovery: (1) Jones Act; (2) Unseaworthiness; and (3) Maintenance and Cure. Under an unseaworthiness claim, a vessel, including "her crew and ***appurtenances***," must be reasonably fit for the vessel's intended purpose. But what exactly are appurtenances?

In admiralty, a vessel's appurtenances are commonly defined as anything "attached to the vessel or used by the vessel that is essential to fulfill the vessel's mission or operation," and thus they are subject to maritime liens on the vessel.[4] While each Circuit Court of Appeals has a slightly different test, the United States Court of Appeals for the Fifth Circuit distilled the appurtenance test to three factors: (1) whether the equipment is attached to the vessel, (2) whether the equipment is "utilized in a manner fundamentally related to traditional maritime activities," and (3) whether the accident occurred on the vessel.[5] Simply put, appurtenances subject to a maritime lien on a vessel are that which are "indispensable to the accomplishment of the enterprise in which she was about to engage."[6] Further, an appurtenance can have separate ownership from the vessel owner, can be intangible, and does not need to be onboard or installed on the vessel at the time of its arrest.[7]

The fact that an appurtenance does not need to have the same owner as the vessel involved has created legal ambiguities in complex situations, particularly for lessors of vessel equipment, whether under true or financed leases. This is because a lessor under a finance lease of an appurtenance may "only utilize U.C.C. Article 9 to perfect its security interest and may not a preferred ship mortgage under the Ship Mortgage Act. The only consensual security devices accepted for recordation are vessel mortgages, either ordinary or preferred."[8] Thus, a finance equipment lease "cannot meet the filing requirements as a vessel mortgage because the mortgage must cover some interest in a vessel and a finance lease grants a security interest in the leased equipment and not a security interest in the vessel," and is still subject to maritime lien attachment even if removed from the vessel.[9]

A real-life example is found in the Deepwater Horizon litigation.[10] Defendant Anadarko argued that the drilling mud inside the well at the time of blow-out was an appurtenance of the vessel, Deepwater Horizon, because the mud "was essential to the vessel's mission and under its control."[11] Thus, Anadarko argued, it was not material whether the mud was off the vessel and in the well because it could still be classified as

a vessel appurtenance.[12] United States District Court Judge Carl Barbier disagreed. However, UAS are distinguishable from this situation and likely would be classified as a maritime appurtenance under the Fifth Circuit test ***as long as*** the drone was engaged in an activity related to the vessel.[13]

Drone Legislation

Aerial drones are regulated by Title 49 of the United States Code – Transportation, specifically falling under Subtitle VII – Aviation Programs, 49 U.S.C. §§40101 to 50105.[14] To ensure the highest level of aviation safety, the FAA has been given authority by Congress to regulate airspace use, management and efficiency, air traffic control, safety, navigational facilities, and aircraft noise at its source.

In 2012, Congress passed the FAA Modernization and Reform Act, which encouraged the acceleration of UAS programs within U.S. airspace by relaxing previous restrictions on UAS activity. In 2016, Congress modified the 2012 Act by passing the FAA Extension, Safety, and Security Act, which extended the act for 14 months. Notable passages include calling for an increased focus on cybersecurity by creating a "framework of principles and policies to reduce cybersecurity risks to the national airspace system, civil aviation and agency information systems using a total systems approach that takes into consideration the interactions and interdependence of different components of aircraft systems" and addressing drone regulations through the creation of requirements for identification, classification (including public and civil), and creation of an online database.

While states are preempted from regulating airspace as they see fit, the FAA has released guidelines identifying ways in which states can create specific laws related to land use, zoning, privacy, trespass, and law enforcement operations as they relate to UAS. Further, states may be allowed to pass regulations involving operational UAS restrictions on flight altitude, flights paths, and operational bans. For example, it is within a city's purview to ban people from operating UAS within city limits, within airspace of the city, or within certain distances of landmarks. However, mandating equipment or training for UAS related to aviation safety, such as geo-fencing, will most likely be preempted because those regulations would not be consistent with federal regulations.

Uses For Drones In The Maritime Industry

After the White House created the UAS Integration Pilot Program in late 2017, which incentivized commercial drone companies and the FAA to work together to increase development, major players such as Amazon, Google, and Walmart rushed to create a privately-funded and -operated air-traffic control network separate from the current federal system, enabling widespread operations at low altitudes. According to federal regulators and industry officials, commercial drones in the U.S. are expected to begin limited package deliveries within a few months, which will have far-reaching consequences on supply chain logistics.[15]

Vessel Resupply and Supply Chain Delivery

The U.S. military has used drones for resupply for many years, but the use of this technology for private sector resupply is enormous. The current state of affairs is such that, in order to send urgent medical supplies, mail, documents, spare parts, or provisions to a vessel underway or at anchor, owners and operators must rely on conventional means for delivery, such as boats, barges, or sending the vessel to port to tie-up alongside a pier. However, these options are time-consuming and expensive. The reality is that resupplying a vessel is a common occurrence, and in some cases, supplies are needed when the vessel is still far out to sea or with its next port of call undetermined. This is where UAS technology will come into play.

Owners and operators are limited in their options for urgent deliveries to vessels, but those limitations are dissipating now that companies are embracing UAS innovation. For instance, in January 2016, a UAS operated by A.P. Moller Maersk A/S successfully completed an at-sea delivery of a small package from a barge to a tanker through the use of an aerial UAS. Maersk conducted this UAS test over "a relatively short distance of 247 meters,"[16] and the package contained a 3 lb. tin of Danish butter cookies. This light weight should not be discouraging to the industry because the U.S. military already has drones, such as the Snowgoose, that can carry up to "600 lbs of supplies in [their] configurable cargo bay[s]."[17]

Even though the flight distance in this case was somewhat short, industry should be optimistic because, as technology advances, future deliveries could involve longer flight distances, heavier payloads, and a wider variety of uses. As UAS integrate into the maritime sector's supply chain, companies may save thousands of dollars per vessel each year on small yet essential vessel deliveries. In other words, a UAS effectively limits or alleviates the need to pay to hire a boat and crew to make deliveries, and also increases safety in dangerous sea conditions by reducing the human element in at-sea transfers. Also, the advantages of UAS in shipping extend beyond delivery of supplies to all types of vessels. Other proposed uses include inspections of tanks aboard tank and cargo vessels and lashing aboard cargo or container ships. In some cases, UAS may become valuable surveillance tools that enhance vessel safety in ice navigation and surveillance in anti-piracy measures. By using drones for resupply, companies may eventually be able to avoid sending an entire ship on an equipment delivery to a tanker. More recently, Wilhelmsen Ships Service announced that it sees drones as the "natural extension" of the company and that it will start "delivering essentials via drone for its ships service unit."[18]

While UAS were initially developed for government and military operations, over the next five years, growth in the commercial and civilian market of the UAS industry is generally predicted to surpass that of the defense industry.[19] But while research, development, and manufacturing for UAS technology continues to rapidly evolve, regulators have struggled to keep pace. Consequently, the legal issues that

surround the use of UAS remain complex, and in some areas, unsettled. And, as with any new innovation, there are benefits and risks--commercial UAS are no exception.

Vessel Inspection, Port Maintenance, and Safety

Besides resupplying vessels, companies are increasingly utilizing drones in the energy sector in performing inspection work by reducing costs and increasing efficiency and safety. Due to their sturdiness of materials, UAS are capable of operating in some the most challenging environments in the offshore industry and could be used to meet requirements before oil and gas exploration is approved, such as those related to surveys of ice, rig inspection, and tracking of marine life.

UAS have many applications for the off-shore industry, they can "survey and identify elements of a rig or vessel for leaks, damage to piping, structural defects, or other irregularities in locations that are difficult to access or dangerous for human intervention, such as offshore risers, flare stacks, and undersides of offshore structures."[20] In fact, a UAS was reported to have incredibly "completed the inspection of the derrick, a heli-deck, and four cranes in two days, more than two weeks quicker than estimates of what would have been required under current inspection options."[21]

Finally, the need for routine, yet dangerous, human inspections can gradually be eliminated through drones that are monitored safely by workers in a control room. Remote monitoring still allows instant assessments and feedback to the vessel or offshore superintendent. This in turn reduces costs, increases efficiency, and significantly reduces the risk to human life during essential maintenance without eliminating jobs.

Marine Pollution and Government Contracts

Another application of UAS centers on outfitting drones with emission sensors to enable monitoring of emissions from vessels, with the aim of reducing marine pollution. UAS be used for efficient gathering of information to detect and quantify discharges or spills in an effort to mitigate environmental impact in times of disaster as well as enforcing regulatory environmental schemes. The drone trend has already taken off with environmental protection groups and inside shipyards. Drones are being used in the fight against ocean plastic build-up, with the U.S. government and corporations teaming up with scientists to protect fragile marine ecosystems.[22] According to the Drone Major Group, "the flexibility and utility of [drone] technology will transform the data collection process, providing scientists with a new means to accurately map and survey those areas most under threat from plastic contamination."[23]

Likewise, shipyards have started to target marine pollution in their own way. For example, in 2015, Remontowa Ship Repair Yard inspected the interior of a cargo tank using a drone to take videos and photographs of the tank surface to assess the condition of the tank's protective coatings and to identify any defects that required repair. Just a year later, Martek Marine announced it had been included on a framework contract by the European Maritime Safety Agency for using remotely operated drones to monitor and prevent pollution by vessels.[24] Later in 2016, the Istanbul Metropolitan Municipality's Marine Services Directorate announced that it will "use drones to monitor marine pollution in the Bosporus in efforts to improve surveillance and fine enforcement."[25] Currently, drones have been used in the US to monitor reefs and marine life, but no regulations exist for the monitoring of marine pollution from vessels.

Conclusion

When discussing disruptive technologies, Clayton Christensen explained that "empowering innovations transform complicated, costly products that previously had been available only to a few people, into simpler, cheaper products available to many. Empowering innovations create jobs for people who build, distribute, sell and service these products."[26] This is the bedrock of embracing UAS. While there will always be risk concerns, such as malfunctioning drones, rogue actors (see the White House lawn drone incident of 2015)[27], or lack of uniformity between local laws and federal regulations, the good of UAS technology must be outweighed with potential risks. While the law is currently silent on the matter, for purposes of admiralty jurisdiction, it is likely that UAS technology will be eventually classified as maritime appurtenances of a vessel if the drone is used in a manner consistent with established appurtenance classifications. Legally, this sets the emerging commercial drone industry up to disrupt the maritime sector through its potential applications in the maritime, energy, shipping, offshore, and ship construction markets, as well as through environmental protection measures. ❖

Allison Skopec is a recent Tulane University School of Law graduate ('18) and an incoming associate at Winston & Strawn LLP in New York City. The opinions and views expressed in this article are her own. This article is intended to provide general guidance and does not constitute legal advice or guidance.

Endnotes:

[1]Trevor Mogg, *Dolce & Gabbana drones fly the catwalk at Milan Fashion Week* (Feb. 25, 2018), https://www.digitaltrends.com/news/dolce-and-gabbana-drone-fly-catwalk/.

[2]46 U.S.C. § 740 (2012).

[3]*Id.*

[4]*Id.*

[5]*Drachenberg v. Canal Barge Co.,* Inc., 571 F.2d 912 (5th Cir. 1978).

[6]*Turner v. United States,* 27 F.2d 134, 136 (2d Cir. 1928).

[7]*The Great Carter,* 1924 AMC 1074, 1075 (S.D.N.Y. 1924); *See Stewart & Stevenson Servs., Inc. v. M/V Chris Way MacMillan,* 890 F. Supp. 552, 561-62, 1995 AMC 2995 (N.D. Miss. 1995) (In *Stewart*, the propellers and a tail shaft

removed from the vessel and which could have been used on a sister ship were held subject to a mortgage lien on the vessel where the owner evidenced an intention that the items be used aboard the vessel and they were essential to general navigation or the specific voyage upon which she was engaged. *Id.* at 562. The court ruled that components of a vessel, even though readily removable, "which are essential either for her general navigation or for the specific voyage upon which she is embarked become a part of the vessel itself and thus constitute appurtenances or apparel of the vessel.")

[8]Stewart F. Peck and David B. Sharpe, *What is a Vessel: Implications for Marine Finance, Marine Insurance & Admiralty Jurisdiction,* 89 Tul. L. Rev. 1, 26 (2015).

[9]*Id.*

[10]*Id.*

[11]Second Supplemental Brief of Appellant Anadarko Petroleum Corporation in Support of Petition for Rehearing En Banc, pg. 1-3, *In re Deepwater Horizon*, 772 F.2d 350, 2014 WL 7235579 at *1-3, (5th Cir. Nov. 5, 2014).

[12]*Id.*

[13]*Drachenberg v. Canal Barge Co.,* Inc., 571 F.2d 912 (5th Cir. 1978).

[14]49 U.S.C §§ 40101-50105 (2012).

[15]Andy Pasztor, *Coming Soon to a Front Porch Near You: Package Delivery Via Drone* (March 11, 2018), https://www.wsj.com/articles/coming-soon-to-a-front-porch-near-you-package-delivery-via-drone-1520798822.

[16]*Id.*

[17]Tyler Rogoway, *Snowgoose is the Pentagon's Low-Cost Resupply Drone of Dreams* (March 24, 2015), https://foxtrotalpha.jalopnik.com/snowgoose-is-the-pentagons-low-cost-resupply-drone-of-d-1699921499.

[18]Betsy Lillian, *Global Maritime Groups Sees Drones as 'Natural Extension' of Company* (May 18, 2017), https://unmanned-aerial.com/global-maritime-group-sees-drones-natural-extension-company.

[19]Pamela Cohn et al., *Commercial Drones are here: the future of unmanned aerial systems* (Dec. 2017), https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/commercial-drones-are-here-the-future-of-unmanned-aerial-systems.

[20]Sean T. Pribyl, Drones: Is the Maritime Industry Ready?, Maritime Reporter (July 2016), https://magazines.marinelink.com/Magazines/MaritimeReporter/201607/content/drones-maritime-industry-513108.

[21]*Id.*

[22]Anne-Marie Causer, *Using Drones to Tackle Ocean Plastic Pollution*, http://www.maritimejournal.com/news101/pollution-control/using-drones-to-tackle-ocean-plastic-pollution.

[23]*Id.*

[24]Michelle Howard, *New Project Uses Drones to Monitor Ship Emissions,* Marine Technology (Nov. 21, 2016), https://www.marinetechnologynews.com/news/project-drones-monitor-emissions-541640.

[25]*Drones to Enforce Pollution Fines in the Vosporous,* Safety4Sea (Oct. 2, 2016), https://safety4sea.com/drones-to-enforce-pollution-fines-in-the-vosporous/.

[26]Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, Harvard Business Review Press (May 1, 1997).

[27]Michael S. Schmidt, *Secret Service Arrests Man After Drone Flies Near White House* (May 14, 2015), https://www.nytimes.com/2015/05/15/us/white-house-drone-secret-service.html.

Code of Federal Regulations
Title 14. Aeronautics and Space
Chapter I. Federal Aviation Administration, Department of Transportation
Subchapter F. Air Traffic and General Operating Rules
Part 107. Small Unmanned Aircraft Systems (Refs & Annos)
Subpart B. Operating Rules

14 C.F.R. § 107.11

§ 107.11 Applicability.

Effective: August 29, 2016
Currentness

This subpart applies to the operation of all civil small unmanned aircraft systems subject to this part.

SOURCE: Amdt. 107–1, 81 FR 42209, June 28, 2016; Amdt. 107–6, 85 FR 79826, Dec. 11, 2020; Amdt. 107–8, 86 FR 4381, Jan. 15, 2021; 86 FR 13630, March 10, 2021, unless otherwise noted.

AUTHORITY: 49 U.S.C. 106(f), 40101 note, 40103(b), 44701(a)(5), 46105(c), 46110, 44807.

Current through September 2, 2021; 86 FR 49260.

Advanced Automation in Pilotage, Criminal Law/Piracy, and the *Mercer Street* drone attack

RESOLUTION OF THE BOARD OF TRUSTEES
OF THE AMERICAN PILOTS' ASSOCIATION
October 18, 2017

EMERGING ELECTRONIC NAVIGATION AND CONTROL TECHNOLOGIES

WHEREAS, emerging electronic navigation and control technologies can be valuable tools by providing useful information and enhanced maneuvering options to the human decision-maker; and

WHEREAS, an increasing number of vessels piloted by APA member pilots are equipped with emerging electronic navigation and control technologies such as ECDIS, ECS, Azipods, and autopilots; and

WHEREAS, APA member pilots have considerable experience in the development, use, and evaluation of emerging electronic navigation technologies in their own PPUs; and

WHEREAS the APA, through its engagement with various federal executive and legislative interests, monitors and evaluates emerging PNT technologies; and

WHEREAS, the APA, through its Navigation and Technology Committee (NAVTECH), is supporting its member pilots by studying emerging electronic navigation technologies and assisting in the development and use of these and other technologies in cooperation with state, national and international pilotage and professional organizations to foster practical application of these technologies;

NOW THEREFORE, BE IT RESOLVED that, as a result of the work done by the APA's NAVTECH, the Board of Trustees of the American Pilots' Association hereby adopts the following as official findings and policies of the APA:

1. Although much of the emerging electronic navigation and control technologies are generally recognized as capable of enhancing navigation safety, there are system limitations and inaccuracies that can be further exacerbated by integrating displays, or by using inaccurate source or sensor data.

2. The various emerging electronic navigation technologies require operator input, which can significantly affect the accuracy of the information being broadcast or displayed, and many of these systems have been placed in use in many vessels with little or no formal training of the crew.

3. The manner in which emerging electronic navigation and control technologies should be used during the course of any particular pilotage assignment should be left to the independent, professional judgment of the pilot.

4. In order to make a professional judgment as to the use of emerging electronic navigation and control technologies, a pilot should be familiar with the capabilities and limitations of these technologies.

5. The American Pilots' Association encourages its member pilots to be knowledgeable in the capabilities, limitations and operation of emerging electronic navigation and control technologies, including port-specific training on such technologies where appropriate.

6. The American Pilots' Association encourages its member pilots to discuss the use of applicable emerging electronic navigation and control technologies in their Master – Pilot Information Exchange.

Summary of Minimum Federal Reporting Requirement for Pilots

On July 21 2015, the Coast Guard published Navigation and Vessel Inspection Circular No. 01-15 (NVIC 01-15), which provides "policy interpretation" for marine casualty reporting. NVIC 01-15, which applies to casualty reporting for all segments of the marine industry, also amplifies ALCOAST 681/09, a 2009 Coast Guard guidance document on the "minimum federal reporting requirements for pilots."

NVIC 01-15 and ALCOAST 681/09 make clear that: (1) under federal regulations, a pilot engaged in pilotage duties can be both a "person directing the movement of the vessel (PDMV)" and, while operating in a Vessel Traffic System (VTS) Area, a "VTS User"; (2) the minimum federal reporting requirements for pilots are governed by two regulations, 33 CFR §161.12 (d) and 33 CFR §164.53(b); and (3) Coast Guard form 2692 "shall not be required as the reporting medium from the pilot."

Below is a concise summary of the minimum federal reporting requirements for pilots.

1. **Non-Operating Equipment**. Per 33 CFR § 164.53(b), a PDMV must "report or cause to be reported" if "the vessel's automatic identification system (AIS) radar, radio navigation receivers, gyrocompass, echo depth sounding device, or primary steering gear stops operating properly." This report should be made to the nearest Coast Guard Captain of the Port, District Commander or, if participating in a VTS area, to the VTS center. **NOTE**: NVIC 01/15 emphasizes that pilots "are not required to conduct a detailed inspection or investigation of a ship's navigation equipment to determine if the equipment is properly installed and fully operational…[but]…pilots shall report, or cause to be reported, non-operating navigation equipment discovered during the normal course of their duties."

2. **Reporting While in a "VTS Area"**. Per 33 CFR § 161.12(d), as soon as practicable, a VTS User shall notify the VTS of any of the following:

- A **marine casualty** as defined in 46 CFR § 4.05-1 (i.e., serious injury or loss of life, collision, allision, grounding, fire, flooding, major vessel damage);
- Involvement in the **ramming** of a fixed or floating object;
- A **pollution incident** as defined in 33 CFR §151.15;
- A defect or **discrepancy in an aid to navigation**;
- A **hazardous condition** as defined in 33 CFR §160.204 ("any condition that may adversely affect (1) the safety of any vessel, bridge, structure, or shore area or (2) the environmental quality of any port, harbor, or navigable waterway of the United States. It may - but need not - involve collision, allision, fire, explosion, grounding, leaking, damage injury or illness of a person aboard, or manning-shortage");
- **Improper operation of vessel navigation equipment** required by 33 CFR Part 164;
- **Incident on a ship involving hazardous materials** for which a report is required by 49 CFR §176.48; and
- A **hazardous vessel operating condition** (e.g., any condition related to a vessel's ability to safely navigate or maneuver) as defined in 33 CFR §161.2.

August 2015

CHAPTER 85—PILOTS

Historical and Revision Notes

Chapter 85 provides for State pilotage to be regulated by the States and only in conformity with the laws of the States. It clearly spells out the preeminence of the State's role in regulating pilots for vessels operating on the bays, rivers, harbors, and ports of the United States. However, those vessels that are required to have a Federally licensed pilot, those that operate on waters outside the territorial sea of the United States, and those that operate on waters of the Great Lakes are not subject to State pilotage laws or requirements. In essence this chapter, with minor changes, confirms the State and Federal relationship with respect to pilotage that has evolved since the founding of the Nation.

This chapter permits the continuation of Federal pilotage requirements for vessels that are not required to obtain compulsory State pilotage. It confirms the practice of allowing anyone with a Federal pilotage endorsement for the waters in which the vessel is operating to be in control of a vessel when engaged in the coastwide trade. It also confirms the practice of using Federal pilots that are often organized into groups or working organizations who offer their expertise and services to vessels that are not required to obtain compulsory State pilotage.

Editorial Notes

Amendments

1984—Pub. L. 98–557, §29(f)(3)(B), Oct. 30, 1984, 98 Stat. 2874, added item 8503.

§8501. State regulation of pilots

(a) Except as otherwise provided in this subtitle, pilots in the bays, rivers, harbors, and ports of the United States shall be regulated only in conformity with the laws of the States.

(b) The master of a vessel entering or leaving a port on waters that are a boundary between 2 States, and that is required to have a pilot under this section, may employ a pilot licensed or authorized by the laws of either of the 2 States.

(c) A State may not adopt a regulation or provision that discriminates in the rate of pilotage or half-pilotage between vessels sailing between the ports of one State and vessels sailing between the ports of different States, or against vessels because of their means of propulsion, or against public vessels of the United States.

(d) A State may not adopt a regulation or provision that requires a coastwise vessel to take a pilot licensed or authorized by the laws of a State if the vessel—

(1) is propelled by machinery and subject to inspection under part B of this subtitle; or

(2) is subject to inspection under chapter 37 of this title.

(e) Any regulation or provision violating this section is void.

(Pub. L. 98–89, Aug. 26, 1983, 97 Stat. 553; Pub. L. 98–557, §29(e), Oct. 30, 1984, 98 Stat. 2874.)

Historical and Revision Notes

Revised section	*Source section (U.S. Code)*
8501(a)	46:211
8501(b)	46:212
8501(c), (e)	46:213
8501(d)	46:215

Section 8501 establishes the general proposition that the States regulate pilots in the bays, rivers, harbors, and ports of the United States, unless otherwise specifically provided by law.

Subsection (a) states this general proposition and uses the word "only" for emphasis on this point. Further, except as specifically provided in law, the Committee intends that this chapter not be construed to annul or affect any

regulation established by the laws of a State requiring a vessel entering or leaving a port in that State to employ a pilot licensed or authorized by the laws of that State. In at least two places in current law, this general proposition is stated in both a positive and negative manner. The Committee intends to consolidate those separate statements into one provision to avoid ambiguity and redundancy.

Subsections (b) and (c) contain provisions regarding pilotage in waters between two States.

Subsection (d) prohibits a State from requiring a State licensed pilot on certain coastwise vessels.

Subsection (e) voids any regulation or provision violating this section.

Editorial Notes

Amendments

1984—Subsec. (a). Pub. L. 98–557 substituted "subtitle" for "part".

§8502. Federal pilots required

(a) Except as provided in subsections (g) and (i) of this section, a coastwise seagoing vessel shall be under the direction and control of a pilot licensed under section 7101 of this title if the vessel is—

(1) not sailing on register;

(2) underway;

(3) not beyond 3 nautical miles from the baselines from which the territorial sea of the United States is measured; and

(4)(A) propelled by machinery and subject to inspection under part B of this subtitle; or

(B) subject to inspection under chapter 37 of this title.

(b) The fees charged for pilotage by pilots required under this section may not be more than the customary or legally established rates in the States in which the pilotage is performed.

(c) A State or political subdivision of a State may not impose on a pilot licensed under this subtitle an obligation to procure a State or other license, or adopt any other regulation that will impede the pilot in the performance of the pilot's duties under the laws of the United States.

(d) A State or political subdivision of a State may not levy pilot charges on a vessel lawfully piloted by a pilot required under this section.

(e) The owner, charterer, managing operator, agent, master, or individual in charge of a vessel operated in violation of this section or a regulation prescribed under this section is liable to the United States Government for a civil penalty of $10,000. The vessel also is liable in rem for the penalty.

(f) An individual serving as a pilot without having a license required by this section or a regulation prescribed under this section is liable to the Government for a civil penalty of $10,000.

(g)(1) The Secretary shall designate by regulation the areas of the approaches to and waters of Prince William Sound, Alaska, if any, on which a vessel subject to this section is not required to be under the direction and control of a pilot licensed under section 7101 of this title.

(2) In any area of Prince William Sound, Alaska, where a vessel subject to this section is required to be under the direction and control of a pilot licensed under section 7101 of this title, the pilot may not be a member of the crew of that vessel and shall be a pilot licensed by the State of Alaska who is operating under a Federal license, when the vessel is navigating waters between 60°49′ North latitude and the Port of Valdez, Alaska.

(h) The Secretary shall designate waters on which tankers over 1,600 gross tons subject to this section shall have on the bridge a master or mate licensed to direct and control the vessel under section 7101(c)(1) of this title who is separate and distinct from the pilot required under subsection (a) of this section.

(i)(1) Except as provided in paragraph (2), a dredge to which this section would otherwise apply is exempt from the requirements of this section.

(2) If the Secretary determines, after notice and comment, that the exemption under paragraph (1) creates a hazard to navigational safety in a specified area, the Secretary may require that a dredge exempted by paragraph (1) which is operating in that area shall comply with this section.

(Pub. L. 98–89, Aug. 26, 1983, 97 Stat. 553; Pub. L. 98–557, §29(f)(1), (2), Oct. 30, 1984, 98 Stat. 2874; Pub. L. 99–307, §1(13), May 19, 1986, 100 Stat. 446; Pub. L. 101–380, title IV, §§4116(a), (b), 4302(g), Aug. 18, 1990, 104 Stat. 522, 539; Pub. L. 101–595, title III, §307, Nov. 16, 1990, 104 Stat. 2985; Pub. L. 105–383, title III, §301(b)(7), Nov. 13, 1998, 112 Stat. 3417.)

Historical and Revision Notes

Revised section	*Source section (U.S. Code)*
8502	46:215 46:364 46:391a 46:497

Section 8502 sets forth the provisions and requirements for pilots licensed under section 7101. It is an exception provided by law envisioned under section 8501(a).

Subsection (a) applies the requirement for a Federal pilot to coastwise seagoing vessels if propelled by machinery and inspected under part B or if inspected under chapter 37, including a tank barge. The section has been carefully worded to clearly set out those vessels that are required at times to have a Federal pilot.

Subsection (b) prohibits Federal pilot fees from being higher than those required for State pilots. Subsections (c) and (d) prohibit States from imposing impediments to the proper performance of, or levying charges related to, Federal pilotage.

Subsections (e) and (f) prescribe civil penalties for violation of this section.

Editorial Notes

Amendments

1998—Subsec. (a)(3). Pub. L. 105–383 substituted "not beyond 3 nautical miles from the baselines from which the territorial sea of the United States is measured" for "not on the high seas".

1990—Subsec. (a). Pub. L. 101–595, §307(1), substituted "subsections (g) and (i)" for "subsection (g)" in introductory provisions.

Subsecs. (e), (f). Pub. L. 101–380, §4302(g), substituted "$10,000" for "$500".

Subsec. (g). Pub. L. 101–380, §4116(a), amended subsec. (g) generally. Prior to amendment, subsec. (g) read as follows: "The Secretary shall designate by regulation the areas of the approaches to and waters of Prince William Sound, Alaska, on which a vessel subject to this section is not required to be under the direction and control of a pilot licensed under section 7101 of this title."

Subsec. (h). Pub. L. 101–380, §4116(b), added subsec. (h).

Subsec. (i). Pub. L. 101–595, §307(2), added subsec. (i).

1986—Subsec. (a)(4)(A). Pub. L. 99–307 substituted "part" for "Part".

1984—Subsec. (a). Pub. L. 98–557, §29(f)(1), amended subsec. (a) generally, which prior to amendment read as follows: "A coastwise seagoing vessel, when not sailing on register and when underway (except on the high seas), shall be under the direction and control of a pilot licensed under section 7101 of this title if the vessel is—

"(1) propelled by machinery and subject to inspection under part B of this subtitle; or

"(2) subject to inspection under chapter 37 of this title."

Subsec. (g). Pub. L. 98–557, §29(f)(2), added subsec. (g).

Statutory Notes and Related Subsidiaries

Effective Date of 1990 Amendment

Amendment by Pub. L. 101–380 applicable to incidents occurring after Aug. 18, 1990, see section 1020 of Pub. L. 101–380, set out as an Effective Date note under section 2701 of Title 33, Navigation and Navigable Waters.

Executive Documents

Territorial Sea of United States

For extension of territorial sea of United States, see Proc. No. 5928, set out as a note under section 1331 of Title 43, Public Lands.

§8503. Federal pilots authorized

(a) The Secretary may require a pilot licensed under section 7101 of this title on a self-propelled vessel when a pilot is not required by State law and the vessel is—

(1) engaged in foreign commerce; and

(2) operating—

(A) in internal waters of the United States; or

(B) within 3 nautical miles from the baselines from which the territorial sea of the United States is measured.

(b) A requirement prescribed under subsection (a) of this section is terminated when the State having jurisdiction over the area involved—

(1) establishes a requirement for a State licensed pilot; and

(2) notifies the Secretary of that fact.

(c) For the Saint Lawrence Seaway, the Secretary may not delegate the authority under this section to an agency except the Great Lakes St. Lawrence Seaway Development Corporation.

(d) A person violating this section or a regulation prescribed under this section is liable to the United States Government for a civil penalty of not more than $25,000. Each day of a continuing violation is a separate violation. The vessel also is liable in rem for the penalty.

(e) A person that knowingly violates this section or a regulation prescribed under this section commits a class D felony.

(Added Pub. L. 98–557, §29(f)(3)(A), Oct. 30, 1984, 98 Stat. 2874; amended Pub. L. 101–380, title IV, §4302(h), Aug. 18, 1990, 104 Stat. 539; Pub. L. 105–383, title III, §301(b)(8), Nov. 13, 1998, 112 Stat. 3417; Pub. L. 116–260, div. AA, title V, §512(c)(6)(C), Dec. 27, 2020, 134 Stat. 2757.)

Editorial Notes

Amendments

2020—Subsec. (c). Pub. L. 116–260 substituted "Great Lakes St. Lawrence Seaway Development Corporation" for "Saint Lawrence Seaway Development Corporation".

1998—Subsec. (a)(2). Pub. L. 105–383 added par. (2) and struck out former par. (2) which read as follows: "operating on the navigable waters of the United States."

1990—Subsec. (e). Pub. L. 101–380 substituted "commits a class D felony" for "shall be fined not more than $50,000, imprisoned for not more than five years, or both".

Statutory Notes and Related Subsidiaries

Effective Date of 1990 Amendment

Amendment by Pub. L. 101–380 applicable to incidents occurring after Aug. 18, 1990, see section 1020 of Pub. L. 101–380, set out as an Effective Date note under section 2701 of Title 33, Navigation and Navigable Waters.

Executive Documents

Territorial Sea of United States

For extension of territorial sea of United States, see Proc. No. 5928, set out as a note under section 1331 of Title 43, Public Lands.

LOF 2020

LLOYD'S STANDARD FORM OF SALVAGE AGREEMENT

(Approved and Published by the Council of Lloyd's)

NO CURE - NO PAY

1. Name of the salvage Contractors: (referred to in this agreement as "the Contractors")	2. Property to be salved: The vessel: her cargo freight bunkers stores and any other property thereon but excluding the personal effects or baggage of passengers master or crew (referred to in this agreement as "the property")
3. Agreed place of safety:	4. Agreed currency of any arbitral award and security (if other than United States dollars)
5. Date of this agreement	6. Place of agreement
7. Is the Scopic Clause incorporated into this agreement? State alternative: Yes/No	
8. Person signing for and on behalf of the Contractors Signature:	9. Captain or other person signing for and on behalf of the property Signature:

A **Contractors' basic obligation:** The Contractors identified in Box 1 hereby agree to use their best endeavours to salve the property specified in Box 2 and to take the property to the place stated in Box 3 or to such other place as may hereafter be agreed. If no place is inserted in Box 3 and in the absence of any subsequent agreement as to the place where the property is to be taken the Contractors shall take the property to a place of safety.

B **Environmental protection:** While performing the salvage services the Contractors shall also use their best endeavours to prevent or minimise damage to the environment.

C **Scopic Clause:** Unless the word "No" in Box 7 has been deleted this agreement shall be deemed to have been made on the basis that the Scopic Clause is not incorporated and forms no part of this agreement. If the word "No" is deleted in Box 7 this shall not of itself be construed as a notice invoking the Scopic Clause within the meaning of sub-clause 2 thereof.

D **Effect of other remedies:** Subject to the provisions of the International Convention on Salvage 1989 as incorporated into English law ("the Convention") relating to special compensation and to the Scopic Clause if incorporated the Contractors services shall be rendered and accepted as salvage services upon the principle of "no cure - no pay" and any salvage remuneration to which the Contractors become entitled shall not be diminished by reason of the exception to the principle of "no cure - no pay" in the form of special compensation or remuneration payable to the Contractors under a Scopic Clause.

E **Prior services:** Any salvage services rendered by the Contractors to the property before and up to the date of this agreement shall be deemed to be covered by this agreement.

F **Duties of property owners:** Each of the owners of the property shall cooperate fully with the Contractors. In particular:

(i) the Contractors may make reasonable use of the vessel's machinery gear and equipment free of expense provided that the Contractors shall not unnecessarily damage abandon or sacrifice any property on board;

(ii) the Contractors shall be entitled to all such information as they may reasonably require relating to the vessel or the remainder of the property provided such information is relevant to the performance of the services and is capable of being provided without undue difficulty or delay;

(iii) the owners of the property shall co-operate fully with the Contractors in obtaining entry to the place of safety stated in Box 3 or agreed or determined in accordance with Clause A.

G **Rights of termination:** When there is no longer any reasonable prospect of a useful result leading to a salvage reward in accordance with Convention Articles 12 and/or 13 either the owners of the vessel or the Contractors shall be entitled to terminate the services hereunder by giving reasonable prior written notice to the other.

H **Deemed performance:** The Contractors' services shall be deemed to have been performed when the property is in a safe condition in the place of safety stated in Box 3 or agreed or determined in accordance with clause A. For the purpose of this provision the property shall be regarded as being in safe condition even though that property (or part thereof) is damaged or in need of maintenance provided that (i) the Contractors are not obliged to remain in attendance to satisfy the requirements of any port or harbour authority, governmental agency or similar authority and (ii) the continuation of skilled salvage services from the Contractors or other salvors is no longer necessary to avoid the property becoming lost or significantly further damaged or delayed.

I **Arbitration and the LSA Clauses:** The Contractors' remuneration and/or special compensation shall be determined by arbitration in London in the manner prescribed by Lloyd's Salvage Arbitration Clauses ("the LSAC") in force at the date of this agreement. The provisions of the said LSAC are deemed to be incorporated in this agreement and form an integral part hereof. Any other difference arising out of this agreement or the operations hereunder shall be referred to arbitration in the same way.

J **Governing law:** This agreement and any arbitration hereunder shall be governed by English law.

K **Scope of authority:** The Master or other person signing this agreement on behalf of the property identified in Box 2 enters into this agreement as agent for the respective owners thereof and binds each (but not the one for the other or himself personally) to the due performance thereof.

L **Inducements prohibited:** No person signing this agreement or any party on whose behalf it is signed shall at any time or in any manner whatsoever offer provide make give or promise to provide or demand or take any form of inducement for entering into this agreement.

IMPORTANT NOTICES

1 **Salvage security.** As soon as possible the owners of the vessel should notify the owners of other property on board that this agreement has been made. If the Contractors are successful the owners of such property should note that it will become necessary to provide the Contractors with salvage security promptly in accordance with Clause 4 of the LSAC referred to in Clause I. The provision of General Average security does not relieve the salved interests of their separate obligation to provide salvage security to the Contractors.

2 **Incorporated provisions.** Copies of the applicable Scopic Clause and LSAC in force at the date of this agreement may be obtained from (i) the Contractors or (ii) the Salvage Arbitration Branch at Lloyd's, One Lime Street, London EC3M 7HA.

3 **Awards.** The Council of Lloyd's is entitled to make available the Award, Appeal Award and Reasons on www.lloydsagency.com (the website) subject to the conditions set out in Clause 13 of the LSAC.

4 **Notification to Lloyd's**. The Contractors shall within 14 days of their engagement to render services under this Agreement notify the Council of Lloyd's of their engagement and forward the signed agreement or a true copy thereof to the Council as soon as possible. A copy of any other agreement that amends or varies the provisions or terms of this Agreement must also be provided to the Council as soon as possible. The Council will not charge for such notification.

Tel.No. + 44(0)20 7327 5408/5407
Fax No. +44(0)20 7327 6827
E-mail: lloyds-salvage@lloyds.com
www.lloyds.com/agency

15.1.08 3.12.24 13.10.26 12.4.50 10.6.53 20.12.67 23.2.72
21.5.80 5.9.90 1.1.95 1.9.2000 6.5.2011 1.1.2020

LLOYD'S STANDARD FORM OF SALVAGE AGREEMENT

(Approved and Published by the Council of Lloyd's)

LLOYD'S SALVAGE ARBITRATION CLAUSES 2020

1 Introduction

1.1 These clauses ("the LSAC") or any revision thereof which may be published with the approval of the Council of Lloyd's are incorporated into and form an integral part of every contract for the performance of salvage services undertaken on the terms of Lloyd's Standard Form of Salvage Agreement as published by the Council of Lloyd's and known as LOF 2020 ("LOF 2020" or "the Agreement" which expressions include the LSAC).

1.2 All notices communications and other documents required to be sent to the Council of Lloyd's should be sent to:

Salvage Arbitration Branch
Lloyd's
One Lime Street
London EC3M 7HA

Tel: +44 (0) 20 7327 5408/5407
Fax: +44 (0) 20 7327 6827
E-mail: lloyds-salvage@lloyds.com

1.3 Details of the fees currently payable for an Arbitrator's services, together with applicable booking and cancellation charges, may be found at www.lloyds.com/agency or will be provided on application to Lloyd's Salvage Arbitration Branch at the address set out in Clause 1.2 above.

1.4 Particular attention should be paid to the **Fixed Cost Arbitration Procedure (FCAP)** provisions which are set out in clause 15.

2 Overriding Objective

In construing the Agreement or on the making of any arbitral order or award regard shall be had to the overriding purposes of the Agreement namely:

2.1 to seek to promote safety of life at sea and the preservation of property at sea and during the salvage operations to prevent or minimise damage to the environment;

2.2 to ensure that its provisions are operated in good faith and that it is read and understood to operate in a reasonably businesslike manner;

2.3 to encourage cooperation between the parties and with relevant authorities;

2.4 to ensure that the reasonable expectations of salvors and owners of salved property are met and

2.5 to ensure that it leads to a fair and efficient disposal of disputes between the parties whether amicably, by mediation or by arbitration within a reasonable time and at a reasonable cost.

3 Definitions

In the Agreement and these clauses and unless there is an express provision to the contrary:

3.1 Where these clauses import the masculine gender they shall include the feminine gender.

3.2 "Award" includes an interim or provisional Award and "Appeal Award" means any Award including any interim or provisional Award made by the Appeal Arbitrator appointed under clause 11.2.

3.3 "personal effects or baggage" as referred to in Box 2 of the Agreement means those which the passenger, Master and crew member have in their cabin or are otherwise in their possession, custody or control and shall include any private motor vehicle accompanying a passenger and any personal effects or baggage in or on such vehicle.

3.4 "Convention" means the International Convention on Salvage 1989 as enacted by section 224, Schedule II of the Merchant Shipping Act 1995 (and any amendment of either) and any term or expression in the Convention has the same meaning when used in the Agreement.

3.5 "Council" means the Council of Lloyd's

3.6 "days" means calendar days

3.7 "Owners" means the owners of the property referred to in box 2 of the Agreement

3.8 "owners of the vessel" includes the demise or bareboat charterers of that vessel.

3.9 "special compensation" refers to the compensation payable to salvors under Article 14 of the Convention.

3.10 "Scopic Clause" refers to the agreement made between (1) members of the International Salvage Union (2) the International Group of P&I Clubs and (3) certain property underwriters which first became effective on 1st August 1999 and includes any replacement or revision thereof. All references to the Scopic Clause in the Agreement shall be deemed to refer to the version of the Scopic Clause current at the date the Agreement is made.

4 Provisions as to Security, Maritime Lien and Right to Arrest

4.1 The Contractors shall immediately after the termination of the services or sooner notify the Council and where practicable the Owners of the amount for which they demand salvage security (inclusive of costs expenses and interest) from each of the respective Owners.

4.2 Where a claim is made or may be made for special compensation the owners of the vessel shall on the demand of the Contractors whenever made provide security for the Contractors' claim for special compensation provided always that such demand is made within 2 years of the date of termination of the services.

4.3 The security referred to in clauses 4.1. and 4.2. above shall be demanded and provided in the currency specified in Box 4 or in United States Dollars if no such alternative currency has been agreed.

4.4 The amount of any such security shall be reasonable in the light of the knowledge available to the Contractors at the time when the demand is made and any further facts which come to the Contractors' attention before security is provided. The arbitrator appointed under clause 5 hereof may, at any stage of the proceedings, order that the amount of security be reduced or increased as the case may be.

4.5 Unless otherwise agreed such security shall be provided (i) to the Council (ii) in a form approved by the Council and (iii) by person firms or corporations acceptable to the Council or acceptable to the Contractors. The Council shall not be responsible for the sufficiency (whether in amount or otherwise) of any security which shall be provided nor the default or insolvency of any person firm or corporation providing the same.

4.6 The owners of the vessel including their servants and agents shall use their best endeavours to ensure that none of the property salved is released until security has been provided in respect of that property in accordance with clause 4.5.

4.7 Until security has been provided as aforesaid the Contractors shall have a maritime lien on the property salved for their remuneration.

4.8 Until security has been provided the property salved shall not without the consent in writing of the Contractors (which shall not be unreasonably withheld) be removed from the place to which it has been taken by the Contractors under clause A. Where such consent is given by the Contractors on condition that they are provided with temporary security pending completion of the voyage the Contractors' maritime lien on the property salved shall remain in force to the extent necessary to enable the Contractors to compel the provision of security in accordance with clause 4.5.

4.9 The Contractors shall not arrest or detain the property salved unless:

(i) security is not provided within 21 days after the date of the termination of the services or

(ii) they have reason to believe that the removal of the property salved is contemplated contrary to clause 4.8. or

(iii) any attempt is made to remove the property salved contrary to clause 4.8.

5 Appointment of Arbitrators

5.1 Whether or not security has been provided (and always subject to Clause 5.3 below) the Council shall appoint an arbitrator ("the Arbitrator") upon receipt of a written request provided that any party requesting such appointment shall if required by the Council undertake to the Council's reasonable satisfaction to pay the reasonable fees and expenses of the Council and those of the Arbitrator and the Appeal Arbitrator.

5.2 The Arbitrator, the Appeal Arbitrator and the Council may charge reasonable fees and expenses for their services whether the arbitration proceeds to a hearing or not and all such fees and expenses shall be treated as part of the costs of the arbitration.

5.3 The Arbitrator, or the Appeal Arbitrator as the case may be, shall be entitled to satisfactory security for his reasonable fees and expenses, whether such fees and expenses have been incurred already or are reasonably anticipated.

6 Arbitrator's Powers

6.1 All references in this clause to the Arbitrator shall include the Appeal Arbitrator where the circumstances so permit.

6.2 In addition to all powers conferred by the Arbitration Act 1996 (or any amendment thereof) the Arbitrator shall have power:

(i) to admit such oral or documentary evidence or information as he may think fit;

(ii) to conduct the arbitration in such a manner in all respects as he may think fit subject to the LSAC 2020 Clauses;

(iii) to make such orders as to costs, fees and expenses including those of the Council charges under clause 5.2 as may be fair and just;

(iv) to direct that the recoverable costs of the arbitration or of any part of the proceedings shall be limited to a specified amount;

(v) to make any orders required to ensure that the arbitration is conducted in a fair and efficient manner consistent with the aim to minimise delay and expense and to arrange such meetings and determine all applications made by the parties as may be necessary for that purpose;

(vi) to conduct all such meetings by means of a conference telephone call if the parties agree;

(vii) on his own initiative or on the application of a party to correct any award (whether interim provisional or final) or to make an additional award in order to rectify any mistake error or omission provided that (i) any such correction is made within 28 days of the date of publication of the relevant award by the Council (ii) any additional award is made within 56 days of the said date of publication or, in either case, such longer period as the Arbitrator may in his discretion allow;

(viii) to terminate the Agreement on application under clause 19, where he considers it fair and just to do so, having in mind the interests of all the interested parties.

6.3 The Arbitrator shall have power in his absolute discretion to include in the amount awarded to the Contractors the whole or part of any expenses reasonably incurred by the Contractors in:

(i) ascertaining demanding and obtaining the amount of security reasonably required in accordance with clause 4.5;

(ii) enforcing and/or protecting by insurance or otherwise or taking reasonable steps to enforce and/or protect their lien;

(iii) securing the payment of the fees and expenses of the Council, the Arbitrator and the Appeal Arbitrator.

6.4 The Arbitrator shall have power to make but shall not be bound to make a consent award between such parties as so consent with or without full arbitral reasons.

6.5 The Arbitrator shall have power to make a provisional or partial award or awards including payments on account on such terms as may be fair and just.

6.6 If it be proved that a inducement has been offered to the Contractors in relation to the Agreement or at any stage thereafter, the Arbitrator shall have power to take account of such a fact, up to and including depriving the Contractors of their Award or part thereof, as he thinks fit.

6.7 The Arbitrator shall have the power to order one or more of the parties to provide security as referred to in clause 5.3 in a sum or sums and in a form to be determined by the Arbitrator. The said power may be exercised from time to time as the Arbitrator considers appropriate.

6.8 In addition, the Appeal Arbitrator shall have power to:

(i) admit the evidence or information which was before the Arbitrator together with the Arbitrator's Notes and Reasons for his Award, any transcript of evidence and such additional evidence or information as he may think fit;

(ii) confirm increase or reduce the sum(s) awarded by the Arbitrator and to make such order as to the payment of interest on such sum(s) as he may think fit;

(iii) confirm revoke or vary any order and/or declaratory award made by the Arbitrator;

(iv) award interest on any fees and expenses charged under clause 5.2 from the expiration of 28 days after the date of publication by the Council of the Appeal Arbitrator's Award until the date payment is received by the Council both dates inclusive.

7 Representation of Parties

7.1 Any party to the Agreement who wishes to be heard or to adduce evidence shall appoint an agent or representative ordinarily resident in the United Kingdom to receive correspondence and notices for and on behalf of that party and shall give written notice of such appointment to the Council.

7.2 Service on such agent or representative by letter, e-mail or facsimile shall be deemed to be good service on the party which has appointed that agent or representative.

7.3 Any party who fails to appoint an agent or representative as aforesaid shall be deemed to have renounced his right to be heard or adduce evidence.

7.4 Where an Owner of salved cargo has not appointed an agent or representative on his behalf to receive correspondence and notices but security has been put up on behalf of the Owner of salved cargo, service of correspondence and notices upon the party or parties who have provided such security shall be deemed to constitute proper notification to such Owner of salved cargo.

8 Arbitration Procedure

8.1 The arbitration shall be conducted in accordance with these clauses.

8.2 The arbitration shall take place in London unless (i) all represented parties agree to some other place for the whole or part of the arbitration and (ii) any such agreement is approved by the Arbitrator on such terms as to the payment of the Arbitrator's travel and accommodation expenses as he may see fit to impose.

8.3 **Preliminary Meeting**

(i) Within 6 weeks of being appointed or so soon thereafter as may be reasonable in the circumstances, the Arbitrator shall convene a preliminary meeting with the parties for the purpose of giving directions as to the manner in which the arbitration is to be conducted.

(ii) The Arbitrator may dispense with the requirement for a preliminary meeting if the represented parties agree a consent order for directions which the Arbitrator is willing to approve. For the purposes of obtaining such approval, the Arbitrator must be provided by the contractors or their representatives with a brief summary of the case in the form of a check list, any other party providing such comments as they deem appropriate so that the Arbitrator is placed in a position to decide whether to approve the consent order.

(iii) In determining the manner in which the arbitration is to be conducted, the Arbitrator shall have regards to:

(a) the interests of unrepresented parties;

(b) whether some form of shortened and/or simplified procedure is appropriate including whether the arbitration may be conducted on documents only with concise written submissions;

(c) the Overriding Objective set out in clause 2.

8.4 **Order for Directions**

Unless there are special reasons, the initial order for directions shall include:

(i) a date for disclosure of documents including witness statements (see clause 8.5);

(ii) a date for proof of values;

(iii) a date by which any party must identify any issue(s) in the case which are likely to necessitate the service of pleadings;

(iv) a date for a progress meeting or additional progress meetings unless all represented parties with reasonable notice agree that the same is unnecessary;

(v) unless agreed by all represented parties to be premature, a date for the hearing and estimates for the time likely to be required by the Arbitrator to read evidence in advance and for the length of the hearing;

(vi) any other matters deemed by the Arbitrator or any party to be appropriate to be included in the initial order.

8.5 **Disclosure of Documents**

Unless otherwise agreed or ordered, disclosure shall be limited to the following classes of document:

(i) logs and any other contemporaneous records (including all electronic data and notebooks) maintained by the Respondents' personnel and personnel employed by the Contractors (Including any subcontractors) and their respective surveyors or consultants in attendance during all or part of the salvage services;

(ii) working charts, photographs, video or film records;

(iii) contemporaneous reports including telexes, facsimiles messages or prints of e-mail messages;

(iv) survey reports;

(v) documents relevant to the proof of:

(a) out of pocket expenses

(b) salved values

(c) the particulars and values of all relevant salving tugs or other craft and equipment

(d) statements of witnesses of fact or other privileged documents on which the party wishes to rely.

8.6 **Expert Evidence**

(i) No expert evidence shall be adduced in the arbitration without the Arbitrator's permission.

(ii) The Arbitrator shall not give such permission unless satisfied that expert evidence is reasonably necessary for the proper determination of an issue arising in the arbitration.

(iii) No party shall be given permission to adduce evidence from more than one expert in each field requiring expert evidence save in exceptional circumstances.

(iv) Any application for permission to adduce expert evidence must be made at the latest within 14 days after disclosure of relevant documents has been effected.

8.7 **Mediation**

The Arbitrator shall ensure that in all cases the represented parties are informed of the benefit which might be derived from the use of mediation.

8.8 **Hearing of the Arbitration**

(i) In fixing or agreeing to a date for the hearing of an arbitration, the Arbitrator shall not unless agreed by all represented parties fix or accept a date unless the Arbitrator can allow time to read the principal evidence, hear the arbitration and produce the award to the Council for publication in not more than 1 month from conclusion of the hearing.

(ii) The date fixed for the hearing shall be maintained unless application to alter the date is made to the Arbitrator within 14 days of the completion of discovery or unless the Arbitrator in the exercise of his discretion determines at a later time that an adjournment is necessary or desirable in the interests of justice or fairness.

(iii) Unless all parties represented in the arbitration agree otherwise the Arbitrator shall relinquish his appointment if a hearing date cannot be agreed, fixed or maintained in accordance with sub-clause 8.8(i) and/or 8.8(ii) above due to the Arbitrator's commitments. In the event the Council shall appoint in his stead another arbitrator who is able to meet the requirements of this sub-clause.

8.9 Awards in respect of salvage remuneration or special compensation (including payments on account) shall be made in the currency specified in Box 4 or in United States dollars if no such alternative currency has been agreed.

8.10 The Arbitrator's Award shall (subject to appeal as provided in clause 11 be final and binding on all the parties concerned whether they were represented at the arbitration or not and shall be published by the Council in London.

9 Interest

9.1 Unless the Arbitrator in his discretion otherwise decides the Contractors shall be entitled to interest on any sums awarded in respect of salvage remuneration or special compensation (after taking into consideration any sums already paid to the Contractors on account) from the date of termination of the services until the date on which the Award is published by the Council and at a rate to be determined by the Arbitrator.

9.2 In ordinary circumstances the Contractors' interest entitlement shall be limited to simple interest but the Arbitrator may exercise his statutory power to make an award of compound interest if the Contractors have been deprived of their salvage remuneration or special compensation for an excessive period as a result of the Owners' gross misconduct or in other exceptional circumstances.

9.3 If the sum(s) awarded to the Contractors (including the fees and expenses referred to in clause 5.2) are not paid to the Contractors or to the Council by the payment date specified in clause 12.1 the Contractors shall be entitled to additional interest on such outstanding sums from the payment date until the date payment is received by the Contractors or the Council both dates inclusive and at a rate which the Arbitrator shall in his absolute discretion determine in his Award.

10 Currency Correction

In considering what sums of money have been expended by the Contractors in rendering the services and/or in fixing the amount of the Award and/or Appeal Award the Arbitrator or Appeal Arbitrator shall to such an extent and insofar as it may be fair and just in all the circumstances give effect to the consequences of any change or changes in the relevant rates of exchange which may have occurred between the date of termination of the services and the date on which the Award or Appeal Award is made.

11 Appeals and Cross Appeals

11.1 Any party may appeal from an Award by giving written Notice of Appeal to the Council provided such notice is received by the Council no later than 21 days after the date on which the Award was published by the Council.

11.2 On receipt of a Notice of Appeal the Council shall refer the appeal to the hearing and determination of an appeal arbitrator of its choice ("the Appeal Arbitrator").

11.3 Any party who has not already given Notice of Appeal under clause 11.1 may give a Notice of Cross Appeal to the Council within 21 days of that party having been notified that the Council has received Notice of Appeal from another party.

11.4 Notice of Appeal or Cross Appeal shall be given to the Council by letter, e-mail or facsimile.

11.5 If any Notice of Appeal or Notice of Cross Appeal is withdrawn prior to the hearing of the appeal arbitration, that appeal arbitration shall nevertheless proceed for the purpose of determining any matters which remain outstanding.

11.6 In all cases grounds of appeal or cross appeal will be given to the Arbitrator within 21 days of the Notice of Appeal or Cross Appeal unless an extension of time is agreed.

11.7 Any respondent to an appeal who intends to contend that the award of the Arbitrator should be affirmed on grounds other than those relied upon by the Arbitrator shall give notice to that effect specifying the grounds of his contention within 14 days of receipt of the grounds of appeal mentioned in 11.6 above unless an extension of time is agreed.

11.8 The Appeal Arbitrator's Award shall be published by the Council in London.

12 Provisions as to Payment

12.1 When publishing the Award the Council shall call upon the party or parties concerned to pay all sums due from them which are quantified in the Award (including the fees and expenses referred to in clause 5.2) not later than 28 days after the date of publication of the Award ("the payment date").

12.2 If the sums referred to in clause 12.1 (or any part thereof) are not paid within 56 days after the date of publication of the Award (or such longer period as the Contractors may allow) and provided the Council has not received Notice of Appeal or Notice of Cross Appeal the Council shall realise or enforce the security given to the Council under clause 4.5 by or on behalf of the defaulting party or parties subject to the Contractors' providing the Council with any indemnity the Council may require in respect of the costs the Council may incur in that regard.

12.3 In the event of an appeal and upon publication by the Council of the Appeal Award the Council shall call upon the party or parties concerned to pay the sum(s) awarded. In the event of non-payment and subject to the Contractors providing the Council with any costs indemnity required as referred to in clause 12.2 the Council shall realise or enforce the security given to the Council under clause 4.5 by or on behalf of the defaulting party.

12.4 If any sum(s) shall become payable to the Contractors in respect of salvage remuneration or special compensation (including interest and/or costs) as the result of an agreement made between the Contractors and the Owners or any of them, the Council shall, if called upon to do so and subject to the Contractors providing to the Council any costs indemnity required as referred to in clause 12.2 realise or enforce the security given to the Council under clause 4.5 by or on behalf of that party.

12.5 Where (i) no security has been provided to the Council in accordance with clause 4.5 or (ii) no Award is made by the Arbitrator or the Appeal Arbitrator (as the case may be) because the parties have been able to settle all matters in issue between them by agreement the Contractors shall be responsible for payment of the fees and expenses referred to in clause 5.2. Payment of such fees and expenses shall be made to the Council within 28 days of the Contractors or their representatives receiving the Council's invoice failing which the Council shall be entitled to interest on any sum outstanding at UK Base Rate prevailing on the date of the invoice plus 2% per annum until payment is received by the Council.

12.6 If an Award or Appeal Award directs the Contractors to pay any sum to any other party or parties including the whole or any part of the costs of the arbitration and/or appeal arbitration the Council may deduct from sums received by the Council on behalf of the Contractors the amount(s) so payable by the Contractors unless the Contractors provide the Council with satisfactory security to meet their liability.

12.7 Save as aforesaid every sum received by the Council pursuant to this clause shall be paid by the Council to the Contractors or their representatives whose receipt shall be a good discharge for it.

12.8 Without prejudice to the provisions of clause 4.5 the liability of the Council shall be limited to the amount of security provided to it.

13 Awards

13.1 The Council will ordinarily make available the Award or Appeal Award and Reasons on www.lloyds.com/agency (the website) except where the Arbitrator or Appeal Arbitrator has ordered, in response to representations by any party to the Award or Appeal Award, that there is a good reason for deferring or withholding them. Any party may apply to make such representations to the Arbitrator provided a written notice of its intention to do so is received by the Council no later than 21 days after the date on which the Award or Appeal Award was published by the Council.

13.2 Subject to any order of the Arbitrator or Appeal Arbitrator, the Award, or Appeal Award, and Reasons will be made available on the website as soon as practicable after expiry of the 21 day period referred to in clause 13.1.

13.3 In the event of an appeal being entered against an Award, the Award and Reasons shall not be made available on the website until either the Appeal Arbitrator has issued his Appeal Award or the Notice of Appeal is withdrawn subject always to any order being made in accordance with clause 13.1.

14 Special Cargo Provisions

14.1 Where:

(i) A settlement agreement has or agreements have been reached between the Contractors and some Owners of salved cargo, and

(ii) Those Owners of salved cargo are at the time of settlement with Contractors represented in accordance with clause 7 of these clauses, and

(iii) The total value of the cargo(es) owned by those Owners comprises at least 75% by value of the salved cargo represented in accordance with clause 7 of these clauses,

The Arbitrator shall have the power at any time to call for (unless privileged) and take into account the terms of any such settlement agreement(s) and to give to it or them such weight as seems to him to be appropriate when assessing the salvage award against the Owners of all unrepresented cargo who have not settled at the time of the said agreement.

14.2 Where the cost of proceeding against a contributing cargo interest is likely to be disproportionate to its liability for salvage, the Arbitrator may at any stage of the proceedings order and direct that all such contributing cargo interests with a total salved value of their interests (which may be estimated or actual) below a figure to be decided by the Arbitrator shall be omitted from the salved fund and excused from liability for salvage.

15 Fixed Cost Arbitration Procedure (FCAP)

15.1 In assessing cases which are suitable for this procedure the arbitrators will have regard to the Overriding Objective in clause 2; further:

(i) The Arbitrator will take into account the recommendation made by the Lloyd's Salvage Group that cases where the security demand is less than US$2,000,000 will usually be appropriate for the FCAP.

(ii) FCAP will not be ordered in cases where the Arbitrator considers that an oral hearing is needed or appropriate: such cases would include but not be limited to those involving allegations of bad faith, criticism of salvors, complex factual issues and complex expert issues.

(iii) FCAP may be ordered in cases where the security demand considerably exceeds US$2,000,000 where it appears to the Arbitrator that the factual issues are likely to be straightforward and that it is unlikely that the salved property was in any immediate physical danger.

(iv) The expression 'security demand' shall mean the amount of security demanded by the Contractors in accordance with clause 4, provided always that any party may apply to the Arbitrator within 28 days of the making of that security demand to review that amount solely for the purposes of the operation of these Guidelines. It follows that an application under this clause may be made even though no application is made under clause 4.4.

(v) In all cases, any party which wishes to contend that FCAP should apply should notify the other parties to that effect as soon as possible after the making of the security demand, irrespective of whether or not an Arbitrator has been appointed.

15.2 (i) Pursuant to the powers provided by clause 8.3 (iii) above the Arbitrator will, in every case, invite the parties to advise him or her at the earliest opportunity whether the case is suitable for determination by FCAP.

(ii) Thereafter, the Arbitrator may order that the case be determined by the FCAP or by such other procedure as may be appropriate or may adjourn determination of the question of the mode of procedure to a later date.

(iii) Where the Arbitrator has ordered that the case be determined other than by the FCAP and it subsequently becomes apparent that the case is suitable for FCAP, the Arbitrator may revoke the previous order and order that the case be determined by FCAP.

(iv) Where the Arbitrator has ordered that the case shall be determined by FCAP and it subsequently becomes apparent that the case is not suitable for that procedure, the Arbitrator may revoke the previous order and order the case to be determined by such other procedure as may be appropriate.

15.3 At the earliest opportunity the Arbitrator will invite the parties to consider the extent of disclosure required or whether the case or any aspect of it can be determined upon an agreed statement of the facts. Unless otherwise ordered each party will disclose to the other party or parties, on or before the date ordered by the Arbitrator the following documents.

(i) All documents upon which they seek to rely relevant to the salvage services, the dangers, alternative assistance, values and any other relevant matter, whether contemporaneous or acquired after termination of the services, and

(ii) Any privileged documents and witness statements which that party intends to invite the Arbitrator to take into consideration, by providing copies thereof.

15.4 Where FCAP is ordered the following procedure should normally be followed,

(i) By the date fixed by the Arbitrator, the parties will prepare a joint bundle, not exceeding 100 pages (excluding any necessary Schedules of Values), comprising the documents, statements and any agreed statement of facts which they wish the Arbitrator to take into consideration and will provide the same to the Arbitrator.

(ii) Pursuant to the timetable fixed by the Arbitrator,

(a) The Contractors will provide submissions not exceeding 4,000 words to the Arbitrator. The said submissions will include the Contractors' case on all relevant matters, including interest, currency adjustment and costs.

(b) The Respondents will provide to the Arbitrator submissions not exceeding 4,000 words. The said submissions will include the Respondent's case on all relevant matters, including interest, currency adjustment and costs, and

(c) The Contractors will provide to the Arbitrator submissions in reply not exceeding 4,000 words alternatively a letter stating that they do not intend to provide submissions in reply.

(iii) Where there is more than one Respondent they will cooperate with each other to the fullest possible extent with a view to avoiding duplication of submissions.

(iv) Within 3 weeks from the date of receipt of the Contractors' submissions in reply or notice that they do not intend to reply, the Arbitrator will send the Award and Reasons to the Salvage Arbitration Branch of Lloyd's.

15.5 As to costs,

(i) References to First Instance Fixed Costs, Fixed Charges, Fixed Costs on Appeal and the like are to Schedules of such costs published from time to time by the Salvage Arbitration Branch of Lloyd's.

(ii) The Arbitrator's fee for FCAP will be the Fixed Charge as published by the Salvage Arbitration Branch of Lloyd's from time to time.

(iii) The Arbitrator will be entitled to charge a fee for work not within the scope of FCAP and to include the same in the award.

(iv) The Salvage Arbitration Branch of Lloyd's charge for administering FCAP shall be its Fixed Charge as published by it from time to time and will include the cost of publishing the award. The Salvage Arbitration Branch of Lloyd's will be entitled to charge for work not within the scope of its Fixed Charge.

(v) The Arbitrator shall have power to order any party to pay the costs of any other party. A party in whose favour an order for costs is made shall not be entitled to a sum exceeding the Fixed Costs in respect of its costs (excluding the Arbitrator's Fixed Cost and the Fixed Charge of the Salvage Arbitration Branch and any other costs not within the scope of the First Instance Fixed Costs) of FCAP.

(vi) For the avoidance of doubt, reasonable disbursements, and the costs of obtaining security or enforcing any lien are not within the scope of the First Instance Fixed Costs and Fixed Costs on Appeal.

(vii) The fee of any Arbitrator will include the cost of making the order for directions which includes the order that FCAP will apply.

15.6 Where an Appeal is brought pursuant clause 11 the Appeal shall be heard on documents and submissions alone. It is expected that the following procedure will apply.

(i) Within 14 days after service of the notice of Appeal stating the grounds of the Appeal, the appellants shall provide the Appeal Arbitrator with a bundle consisting of,

(a) The documents provided to the Arbitrator pursuant to the Fixed Cost Procedure, and

(b) The submissions of the parties at first instance, including the Contractors' reply (if any)

and shall provide the Appeal Arbitrator with their submissions on Appeal not exceeding 4,000 words. The submissions on Appeal shall include the appellants' case on interest, currency adjustment and costs.

(ii) Within 14 days thereafter the Respondents shall provide to the Appeal Arbitrator their submissions not exceeding 4,000 words. The submissions on Appeal will include the Respondents' case on interest, currency adjustment and costs.

(iii) Within 10 days thereafter, the appellants shall provide to the Appeal Arbitrator their submissions in reply not exceeding 4,000 words, alternatively a letter stating that they do not intend to provide submissions in reply.

(iv) Where there is more than one Respondent they will cooperate with each other to the fullest possible extent with a view to avoiding duplication of submissions on Appeal.

(v) Within 3 weeks from the date of receipt of the appellants' submissions in reply on Appeal, alternatively notice that they do not intend to reply, the Appeal Arbitrator will send the Appeal award and reasons to the Salvage Arbitration Branch of Lloyd's.

(vi) The Appeal Arbitrator's fee for FCAP will be the Fixed Charge on Appeal as published by the Salvage Arbitration Branch of Lloyd's from time to time.

(vii) The Appeal Arbitrator shall be entitled to charge a fee for work not within the scope of FCAP and to include the same in the award.

(viii) The Salvage Arbitration Branch of Lloyd's charge for administering FCAP on Appeal shall be its Fixed Charge on Appeal as published by it from time to time and will include the cost of publishing the award.

(ix) The Appeal Arbitrator shall have power to order any party to pay the costs of any other party. A party in whose favour an order for costs is made shall not be entitled to a sum exceeding the Fixed Cost in respect of its costs (excluding the Fixed Charge of the Appeal Arbitrator and the Fixed Charge of the Salvage Arbitration Branch of Lloyd's and any other costs not within the scope of the Fixed Costs on Appeal) of FCAP on Appeal.

15.7 Under FCAP the Arbitrator's reasons and the Appeal Arbitrator's reasons on Appeal will be less detailed.

15.8 Documents

(i) All documents shall be readily legible.

(ii) Where a party's disclosable documents include documents in a foreign language or illegible manuscript a typed translation or transcript (as appropriate) shall be provided by that party at the time when disclosure is made.

(iii) All submissions and notices shall be typed.

(iv) Any bundle of documents shall be clearly paginated.

(v) Any document or notice required to be provided to a party or to the (Appeal) Arbitrator shall also be provided to every other relevant party.

General Provisions

16 Lloyd's documents: Any Award notice authority order or other document signed by the Chairman of Lloyd's or any person authorised by the Council for the purpose shall be deemed to have been duly made or given by the Council and shall have the same force and effect in all respects as if it had been signed by every member of the Council.

17 Contractors' personnel and sub-contractors

17.1 The Contractors may claim salvage on behalf of their employees and any other servants or agents who participate in the services and shall upon request provide the Owners with a reasonably satisfactory indemnity against all claims by or liabilities to such employees, servants or agents.

17.2 The Contractors may engage the services of subcontractors for the purpose of fulfilling their obligations under clauses A and B of the Agreement but the Contractors shall nevertheless remain liable to the Owners for the due performance of those obligations.

17.3 In the event that subcontractors are engaged as aforesaid the Contractors may claim salvage on behalf of the subcontractors including their employees servants or agents and shall, if called upon so to do provide the Owners with a reasonably satisfactory indemnity against all claims by or liabilities to such subcontractors their employees servants or agents.

18 Disputes under Scopic Clause

Any dispute arising out of the Scopic Clause (including as to its incorporation or invocation) or the operations thereunder shall be referred for determination to the Arbitrator appointed under clause 5 hereof whose Award shall be final and binding subject to Appeal as provided in clause 11 thereof.

19 Contractor's Special Right to Terminate

19.1 In the event that the Owner validly terminates SCOPIC in accordance with SCOPIC clause 9(i) but the Contractors are unable to invoke the termination provisions under SCOPIC clause 4(ii) then the Contractors shall have the right to apply to the Arbitrator for an order that: -

(i) they are no longer bound by the terms and conditions of the Agreement and,

(ii) that the Agreement be deemed terminated without prejudice to:-

(a) the Contractors' right to recover SCOPIC up to the date of termination thereof, including any demobilization payments as may be due and,

(b) the Contractors' rights to recover under Article 13 of the convention.

19.2 Such application to be made within a reasonable time from the date of termination of SCOPIC.

20 Lloyd's Publications

Any guidance published by or on behalf of the Council relating to matters such as the Convention the workings and implementation of the Agreement is for information only and forms no part of the Agreement.

1.9.2000
6.5.2011
8.3.2014
1.1.2020

United States Code Annotated
Title 46. Shipping (Refs & Annos)
Subtitle II. Vessels and Seamen
Part A. General Provisions
Chapter 23. Operation of Vessels Generally

46 U.S.C.A. § 2304

§ 2304. Duty to provide assistance at sea

Effective: October 6, 2006
Currentness

(a)(1) A master or individual in charge of a vessel shall render assistance to any individual found at sea in danger of being lost, so far as the master or individual in charge can do so without serious danger to the master's or individual's vessel or individuals on board.

(2) Paragraph (1) does not apply to a vessel of war or a vessel owned by the United States Government appropriated only to a public service.

(b) A master or individual violating this section shall be fined not more than $1,000, imprisoned for not more than 2 years, or both.

CREDIT(S)

(Pub.L. 98-89, Aug. 26, 1983, 97 Stat. 509; Pub.L. 109-304, § 15(8), Oct. 6, 2006, 120 Stat. 1703.)

Notes of Decisions (1)

46 U.S.C.A. § 2304, 46 USCA § 2304
Current through PL 117-39.

End of Document

United States Code Annotated
Title 46. Shipping (Refs & Annos)
Subtitle II. Vessels and Seamen
Part E. Merchant Seamen Licenses, Certificates, and Documents
Chapter 71. Licenses and Certificates of Registry

46 U.S.C.A. § 7101

§ 7101. Issuing and classifying licenses and certificates of registry

Effective: December 18, 2014
Currentness

(a) Licenses and certificates of registry are established for individuals who are required to hold licenses or certificates under this subtitle.

(b) Under regulations prescribed by the Secretary, the Secretary--

(1) issues the licenses and certificates of registry; and

(2) may classify the licenses and certificates of registry as provided in subsections (c) and (f) of this section, based on--

(A) the tonnage, means of propulsion, and horsepower of machine-propelled vessels;

(B) the waters on which vessels are to be operated; or

(C) other reasonable standards.

(c) The Secretary may issue licenses in the following classes to applicants found qualified as to age, character, habits of life, experience, professional qualifications, and physical fitness:

(1) masters, mates, and engineers.

(2) pilots.

(3) operators.

(4) radio officers.

(d) In classifying individuals under subsection (c)(1) of this section, the Secretary shall establish, when possible, suitable career patterns and service and other qualifying requirements appropriate to the particular service or industry in which the individuals are engaged.

(e) An individual may be issued a license under subsection (c)(2) of this section only if the applicant--

(1) is at least 21 years of age;

(2) is of sound health and has no physical limitations that would hinder or prevent the performance of a pilot's duties;

(3) has a thorough physical examination each year while holding the license, except that this requirement does not apply to an individual who will serve as a pilot only on a vessel of less than 1,600 gross tons as measured under section 14502 of this title, or an alternate tonnage measured under section 14302 of this title as prescribed by the Secretary under section 14104 of this title;

(4) demonstrates, to the satisfaction of the Secretary, that the applicant has the requisite general knowledge and skill to hold the license;

(5) demonstrates proficiency in the use of electronic aids to navigation;

(6) maintains adequate knowledge of the waters to be navigated and knowledge of regulations for the prevention of collisions in those waters;

(7) has sufficient experience, as decided by the Secretary, to evidence ability to handle any vessel of the type and size which the applicant may be authorized to pilot; and

(8) meets any other requirement the Secretary considers reasonable and necessary.

(f) The Secretary may issue certificates of registry in the following classes to applicants found qualified as to character, knowledge, skill, and experience:

(1) pursers.

(2) medical doctors.

(3) professional nurses.

(g) The Secretary may not issue a license or certificate of registry under this section unless an individual applying for the license or certificate makes available to the Secretary, under section 206(b)(7) of the National Driver Register Act of 1982 (23 U.S.C. 401 note), any information contained in the National Driver Register related to an offense described in section 205(a)(3)(A) or (B) of that Act committed by the individual.

(h) The Secretary may review the criminal record of an individual who applies for a license or certificate of registry under this section.

(i) The Secretary shall require the testing of an individual who applies for issuance or renewal of a license or certificate of registry under this chapter for use of a dangerous drug in violation of law or Federal regulation.

(j) The Secretary may issue a license under this section in a class under subsection (c) to an applicant that--

(1) has at least 3 months of qualifying service on vessels of the uniformed services (as that term is defined in section 101(a) of title 10) of appropriate tonnage or horsepower within the 7-year period immediately preceding the date of application; and

(2) satisfies all other requirements for such a license.

CREDIT(S)

(Pub.L. 98-89, Aug. 26, 1983, 97 Stat. 539; Pub.L. 98-557, § 29(a), Oct. 30, 1984, 98 Stat. 2873; Pub.L. 101-380, Title IV, § 4101(a), Aug. 18, 1990, 104 Stat. 509; Pub.L. 104-324, Title VII, § 720, Oct. 19, 1996, 110 Stat. 3938; Pub.L. 113-281, Title III, § 305(a), Dec. 18, 2014, 128 Stat. 3043.)

Notes of Decisions (12)

46 U.S.C.A. § 7101, 46 USCA § 7101
Current through PL 117-39.

End of Document

Vernon's Texas Statutes and Codes Annotated
Transportation Code (Refs & Annos)
Title 4. Navigation
Subtitle B. Pilots
Chapter 61. Compulsory Pilotage

V.T.C.A., Transportation Code § 61.003

§ 61.003. Duty to Engage Pilot

Currentness

(a) A consignee having control of a vessel shall obtain a pilot to provide pilot services when the vessel is under way or otherwise moving on a river, bay, harbor, or port in this state unless the vessel is:

(1) documented as a United States vessel and licensed for and engaged in coastwise trade;

(2) a public vessel;

(3) of 20 gross tons or less;

(4) a motorboat registered in this state; or

(5) subject to Subsection (b), in distress or jeopardy.

(b) A consignee having control of a vessel that is in distress or jeopardy shall take on a pilot as soon as the pilot arrives at the vessel.

Credits
Acts 1995, 74th Leg., ch. 165, § 1, eff. Sept. 1, 1995.

V. T. C. A., Transportation Code § 61.003, TX TRANSP § 61.003
Current through the end of the 2021 Regular Session of the 87th Legislature. Some statute sections may be more current, but not necessarily complete through the whole Session. See credits for details.

End of Document

MASS within the U.N. Convention on the Law of the Sea (UNCLOS) and Law of Armed Conflict

MASS within the U.N. Convention on the Law of the Sea (UNCLOS) and Law of Armed Conflict

United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397

Convention on International Civil Aviation, Dec. 7, 1944, 61 Stat. 1180, T.I.A.S. No. 1591, 15 U.N.T.S. 295

ICAO Circular No. 328 (AN/190), Unmanned Aircraft Systems (UAS) (2011)

Convention Relating to the Regulation of Aerial Navigation art. 31, Oct. 13, 1919, 11 L.N.T.S. 173

The Muscat Dhows Case (Fr. v. Gr. Brit.), Hague Ct Rep. (Scott) 93, 96 (Perm. Ct. Arb. 1916)

International Convention for the Safety of Life at Sea, Nov. 1, 1974, 32 U.S.T. 47, T.I.A.S. 9700

Convention on International Regulations for Preventing Collisions at Sea, r. 3, Oct. 20, 1972, 28 U.S.T. 3459, T.I.A.S. 8587

Paris Declaration Respecting Maritime Law, Apr. 16, 1856, reprinted in 46 BRITISH & FOREIGN STATE PAPERS 26-27 (1865)

Convention No. VII Relating to the Conversion of Merchant Ships into Warships, Oct 18, 1907, 205 Consol. T.S. 319

INTERNATIONAL INSTITUTE OF INTERNATIONAL LAW, MANUAL OF THE LAWS OF NAVAL WAR art. 12 (1913)