

AUTONOMOUS SHIPS: PILOTS AND PIRATES

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WHY THESE TWO UNRELATED ISSUES?

- These are just two of the many legal issues about autonomous ships that are not dealt with in the IMO's "scoping" exercise
- Pilots
 - Pilotage is not just an "and also" issue in relation to autonomous ships, it may turn out to be a legal obstacle to the use of the new technology
- Pirates (and terrorists)
 - *Mercer Street* attack by a drone highlights possibilities

PILOTS

- The main issue is that there is no international regulation of pilotage requirements
 - Licensing of pilots
 - Compulsory pilotage areas
 - Pilotage exemption certificates (PECs)
- In many countries there is not even national regulation of pilotage requirements
 - Scandinavian countries do have national regulations and national providers
 - USA – state law for international voyages, federal law for interstate and Great Lakes voyages – 24 states - often delegated to local authorities (Texas alone has six)
 - UK – delegated to “competent harbour authorities” - 103

THE CONSEQUENCE OF THIS DELEGATION OF AUTHORITY

- Thousands of separate regulatory enactments need amendment
- There is no existing single vehicle by which legal changes can be made to accommodate the needs of autonomous and remotely-controlled ships
- Even if someone (IMO?) were to create a model law for adoption, it would be adopted piecemeal, at different speeds
- Different receptiveness to autonomous vessels at different ends of an international

PHYSICAL ISSUES FOR PILOTS OF THE PRESENT KIND

- Will pilots even be able to board autonomous ships?
 - Designed to be difficult for outsiders (eg pirates) to board
 - Who will assist the pilot?
- Will there be navigational controls that the pilot could use while on board?
 - Designed to be difficult for outsiders (eg pirates) to override manually
- How will the pilot communicate with the shore-based operator (SBO) (if there is one)?
- What will happen with fully autonomous ships when there is no SBO?
 - No-one for the pilot to speak to
- If the pilot cannot board or navigate the vessel while on board, there cannot be pilotage in the traditional way, so there must be remote pilotage or exemption from pilotage requirements

REMOTE PILOTAGE

- A harbor (or river or straits) pilot, but not on board the ship
- Shore-based operator (SBO) for the port, not the ship
 - Finnish national pilotage provider (Finnpilot) wants to be “internationally recognized for moving pilotage beyond rope ladders to the digital age”
 - Finnish Transport Safety Agency (Trafi) considering what legislative amendments would be needed to accommodate remote pilotage
- “Autodocking” by dynamic positioning systems (DPS)
 - *Folgefonn* – Norwegian ro-ro ferry autodocked at Stord using Wärtsilä DPS system
- UK, Australia, NZ, Singapore, define “pilot” as “a person who does not belong to but has the conduct of the vessel” which might include a remote pilot

REMOTE PILOTAGE

- IMO Recommendation IMO A.960(23) recommends that pilotage authorities examine:
 - Medical fitness, including eyesight, hearing and physical fitness
 - Training in bridge resource management
 - Continued proficiency – i.e., refresher courses
 - 28-item syllabus of items of which “necessary knowledge” should be required, most concerned with knowledge of local conditions
- Any pilotage authority following even a modified version of these recommendations would want to appoint its own remote pilots with local knowledge
- And...pilotage fees are a revenue raiser

PILOTAGE EXEMPTION CERTIFICATES (PECS)

- Some countries don't grant PECs at all
- In those that do, they are granted to people, not ships
- Few pilotage authorities in the United States grant PECs
 - Cruise ships entering and leaving Miami
- Therefore, the issue (at least in Europe and the USA) is mainly regulations requiring the use of actual pilots
 - Political pushback – ships without pilots on the Mississippi River?

RELATIONSHIP BETWEEN SBO AND PILOT

- Traditionally, the pilot only advises the master, who retains control (except in the Panama Canal)
- Is the SBO the “master” at all? Does a fully autonomous ship have a “master”?
- If the pilot is on board, but the SBO is ashore, who is actually navigating the ship?
 - If the pilot actually takes manual control on the ship, is he/she still only acting as advisor?
- If the pilot is also ashore/remote, do his/her messages override those of the SBO?
 - If so, it seems again that the remote pilot is no longer acting merely as advisor

MERCER STREET



MERCER STREET



PIRACY UNDER UNCLOS

- Not just theft /ransom
- UNCLOS Art 101 (a):
 - “Any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or passengers of a private ship or a private aircraft and directed: (i) on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft; or (ii) against a ship, aircraft, persons or property in a place outside the jurisdiction of any State.”

APPLYING THIS TO HOUTH REBELS

- “...illegal acts of violence...”
 - Probably yes
- “...act of depredation...”
 - Probably no – usually “plunder, pillage or robbery”
- “...committed for private ends...”
 - Maybe, maybe not
- “...by the crew or passengers of a private ship or a private aircraft...”
 - Only if the drone counts as an “aircraft” with a

THE TWO-SHIP PROBLEM

- Attack must be by “the crew or passengers of a private ship or private aircraft”
- Is the operator of a waterborne or airborne drone a member (the only member) of its “crew”?
- Possibly, but *passengers* definitely have to be on the ship or aircraft so the composite phrase “crew or passengers” suggests the same about “crew”
- Ordinary “depredation” or “detention” piracy might not be piracy under the UNCLOS definition if done using drones

THREE SHIPS?

- “...the crew or passengers of a private ship or a private aircraft...”
- Autonomous or remotely-controlled vessel (or airborne drone) makes the attack but has no crew
- Follow-up ship that has a crew and does the stealing did not do the attack
 - Still probably qualifies as (non-violent) “depredation”

UNIVERSAL JURISDICTION

- Piracy the paradigm example
- What about acts of “violence...or depredation” *committed* on land but *effected* far away at sea? They look like offences against national law, not the subject of universal jurisdiction

SUPPRESSION OF UNLAWFUL ACTS CONVENTION (SUA)

- SUA Convention applies to all acts of violence against ships
 - Came into force 1994; modified by Protocol in 2005
- Unlike piracy: (a) does not have to be for private ends; (b) can occur in territorial sea
- 166 countries have adopted SUA, but only 52 countries are party to the Protocol – including the USA
- 18 U.S.C. § 2280; “Violence against maritime navigation”
 - *U.S. v. Shi*, 525 F.3d 709 (9th Cir 1998): prosecution of a Chinese seaman who attacked fellow crew members on a Taiwanese fishing ship (registered in Seychelles) on the high seas, but who was brought to Hawaii by the U.S. Coast Guard