

REPLY BY THE NEDERLANDSE VERENIGING VOOR VERVOERRECHT (NVV) (DUTCH TRANSPORT LAW ASSOCIATION) TO THE CMI QUESTIONNAIRE OF 29 MARCHY 2017 WITH REGARD TO UNMANNED SHIPS

Introduction

The Kingdom of the Netherlands is made up of four separate countries:

- the Netherlands
- Aruba
- Curaçao
- Sint Maarten.

Each of the countries has its own government that is responsible for the legislation applying in the particular country. However, within the country of the Netherlands there are two separate legal systems operating in:

- the Netherlands in Europe, and
- the Caribbean Netherlands (the islands of Bonaire, Sint Eustatius and Saba), the government of the Netherlands being responsible for the legislation applying in both jurisdictions.

Consequently there are five different legal systems existing within the entire Kingdom. These are all civil law systems, and much of the main statute law applying in the different jurisdictions is identical. Furthermore, Article 39 of the *Statuut voor het Koninkrijk der Nederlanden* (Charter for the Kingdom of the Netherlands) contains the so-called ‘principle of concordance’. It provides:

1. Civil and commercial law, the law of civil procedure, criminal law, the law of criminal procedure, copyright, industrial property, the notarial profession, and provisions concerning weights and measures shall be regulated as far as possible in a similar manner in the Netherlands, Aruba, Curaçao and Sint Maarten.
2. Any proposal for drastic amendment of the existing legislation in regard to these matters shall not be submitted to or considered by a representative assembly until the Governments in the other countries have had the opportunity to express their views on the matter.

With this principle in mind the courts of the different countries within the Kingdom tend to interpret the law in a manner that unifies the law of the countries and

jurisdictions as much as possible ('harmonious' or 'concordant' interpretation).

This reply is based on the law applying in the Netherlands in Europe. **Where relevant we will make some comments about the position in the Dutch Caribbean.**

1. NATIONAL LAW

1.1. *Would a "cargo ship" in excess of 500 grt, without a master or crew onboard, which is either*

1.1.1. *controlled remotely by radio communication?*

1.1.2. *controlled autonomously by, inter alia, a computerised collision avoidance system, without any human supervision*

constitute a "ship" under your national merchant shipping law?

Netherlands 1.1.1: We refer to the reply from our association to the CMI [Ship Nomenclature](#) Questionnaire of March 2016.

There can be no doubt that such a cargo ship would qualify as a ship under Dutch merchant shipping law. Already since 1927, the Dutch statutory definition of 'ship' has been conceived 'as broad as possible'. This is reflected in Art. 8:1 Dutch Civil Code (DCC) where "ship" is defined as:

all objects, other than aircraft, which, according to their construction, are destined to float and which float or have done so.

This broad definition is also used in Art. 2 Ships Act (*Schepenwet*), Art. 2 Certificates of Registration Act (*Zeebrievenwet*) and the Shipping Traffic Act (*Scheepvaartverkeerswet*).

Furthermore, the Dutch Supreme Court has applied the definition of Art. 8:1 Dutch Civil Code also with regard to:

- the eligibility of a cook working on a Jack-up Oil Rig for the (Seafarer's) Sea-Days deductible (*zeedagenaftrek*) under Art. 37 (3) of the Dutch Income Tax Act (*Wet op de inkomstenbelasting 1964*), see: Hoge Raad 28 May 2004, ECLI:NL:HR:2004:AP0226, *Schip & Schade* 2005, 13 [The "G"];
- the question whether a floating houseboat connected to the shore but capable of rising and lowering with the tide qualified as real estate in the sense of the Act on the Valuation of Real Estate (*Wet Waardering Onroerende Zaken*) and the Real Estate Tax (*Wet Onroerendezaakbelasting*), see: Hoge Raad 15 January 2010, ECLI:NL:HR:2010:BK9136, *Schip & Schade* 2010, 96 [Woonark].

In Dutch law the ship's tonnage is irrelevant for the definition of ship.

Netherlands 1.1.2: See above under 1.1.1.

1.2. *Would an unmanned "ship" face difficulty under your national law in registering*

as such on account of its unmanned orientation?

Netherlands: No. Under Dutch law an unmanned ship as such would have no additional difficulties compared to an ordinary manned ship to qualify for the Dutch flag under Art. 311 Commercial Code or to register as a Dutch vessel under Art. 8:194 DCC.

The same goes for the Bareboat Charter (Nationality) Act (*Wet nationaliteit zeeschepen in rompbevrachting*) according to which it is no prerequisite for registration of a seagoing vessel that the ship is being manned.

1.3. Under your national law, is there a mechanism through which, e.g. a Government Secretary may declare a "structure" to be a "ship" when otherwise it would not constitute such under the ordinary rules?

Netherlands: Yes. Art. 8:1 sub (2) DCC contains an exemption mechanism:

By Regulation objects which are not ships may be designated as such for the purposes of the provisions of this Code; equally, provisions of this Code may be declared inapplicable to objects which are ships.

Art. 1 Dutch Shipping Traffic Act (*Scheepvaartverkeerswet*) contains a similar exemption provision.

In view of the broad definition of ship in Dutch law it is unlikely that this exemption mechanism will be needed for autonomous ships.

1.4. Under your national merchant shipping law, could either of the following constitute the unmanned ship's "master"

1.4.1. The chief on-shore remote-controller

Netherlands: Although the statutory definition of 'kapitein' (captain, master) in Art. 1 chapeau and sub (h) Seafarer's Act (*Wet Zeevarenden*) as "gezagvoerder van een Nederlands schip" (commander of a ship that is allowed to fly the Dutch flag) does not expressly require him to be on board of the ship, the better view is that it clearly follows from the various duties allotted to him in statute law that he must execute these on board the vessel. See e.g. Art. 4-8:

The master shall not abandon the ship during navigation (...). Art. 28: the master shall exercise his authority as soon as he is on board and has accepted or taken the command (...).

This implies that the Dutch Seafarer's Act (*Wet Zeevarenden*), in particular Articles 4.8, Chapter 3 and Chapter 4, paragraph 1) would need to be amended before a chief on-shore remote-controller could assume the role of master of a Dutch ship.

1.4.2. The chief pre-programmer of an autonomous ship

Netherlands: See above under 1.4.1.

This implies that the Dutch Seafarer's Act (Wet Zeevarenden) would need to be amended before the chief pre-programmer of an autonomous ship could be equated with the master of a Dutch ship.

In our view it is however questionable whether it would be desirable to allocate the rights and duties of a master to the chief pre-programmer of an autonomous ship.

1.4.3. Another 'designated' person who is responsible on paper, but is not immediately involved with the operation of the ship

Netherlands: See above under 1.4.1.

Our preliminary conclusion is that another 'designated' person who is responsible on paper, but is not immediately involved with the operation of the ship would fall outside the scope of the definition of master ("kapitein").

In our view it is however questionable whether it would be desirable to allocate the rights and duties of a master to another 'designated' person who is responsible on paper, but is not immediately involved with the operation of the ship.

1.5. Could other remote-controllers constitute the "crew" for the purposes of your national merchant shipping laws?

Netherlands: Discussion is possible whether "manning" ("bemanning") in itself means crew on board. Depending on the purpose of the specific rule or regulation about crew (for example social security, safety, training, living circumstances etc.) the answer may differ whether remote controllers constitute the "crew".

2. UNITED NATIONS CONVENTION ON THE LAW OF THE SEA, 1982 (UNCLOS)

2.1. Do you foresee any problems in treating unmanned ships as "vessels" or "ships" under the Law of the Sea in your jurisdiction (i.e. that such. ships would be subject to the same rights and duties such as freedom of navigation, rights of passage, rights of coastal and port states to intervene and duties of flag states) in the same way as corresponding manned ships are treated?

Netherlands: Due to the broad definition of "ship" in Dutch law (see question 1 above) we do not anticipate major problems in treating unmanned ships as "vessels" or "ships" under the Law of the Sea in the Dutch jurisdiction in the same way as corresponding manned ships are treated.

2.2. Paragraphs (3) and (4) of UNCLOS Article 94 include a number of obligations on flag states with respect to the manning of such ships. Do you think that it is possible to resolve potential inconsistencies between these provisions and the operation of unmanned ships without a crew on board through measures at IMO (under paragraph (5) of the same Article) or do you think other measures are necessary to ensure consistency with UNCLOS. If so, what measures?

Netherlands: Based on the wording of Article 94 sub (3) and (4) LOSC we tentatively suggest that, once an adequate regulatory framework for unmanned ships is in place as required by Article 94 sub (5) LOSC, potential inconsistencies between these provisions and the operation of unmanned ships without a crew on board may be resolved through measures (for example Resolutions) at IMO.

3. IMO CONVENTIONS — THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA (SOLAS) 1974 (AS AMENDED)

3.1. Does your national law implementing the safe manning requirement in Regulation 14 of Chapter V of SBOLAS require at least a small number of on board personnel or does the relevant authority have the discretion to allow unmanned operation if satisfied as to its safety?

Netherlands: Dutch law implementing the safe manning requirement in regulation 14, Chapter V SOLAS does not require a specific minimum number of crew on board. Instead, Article 7 Seafarers Act (*Wet Zeevarenden*) obliges the ship manager to propose a crew plan in order to obtain a crew certificate from the Minister.

Pursuant to Article 8 Seafarers Act (*Wet Zeevarenden*) the Minister verifies *inter alia* whether the proposed crew plan guarantees the safety of shipping and complies with regulations on hours of work and rest.

In our view IMO guidelines in this regard may be desirable with the aim of harmonizing or even unifying the practice of flag-states internationally.

3.2. Regulation 15 of SOLAS Chapter V concerns principles relating to bridge design. It requires decisions on bridge design to be taken with the aim of, *inter alia*, "facilitating the tasks to be performed by the bridge team and the pilot in making full appraisal of the situation...". In the context of a remote controlled unmanned ship, could this requirement be satisfied by an equivalent shore-based facility with a visual and aural stream of the ship's vicinity?

Netherlands: In our view, the key question is whether a shore based facility can be regarded as functionally equivalent to the ship's bridge and whether redundant/back-up systems are in place in case automation and/ or communication systems fail. If true functional equivalency could be achieved, Dutch law does not prevent the requirements of regulation 15 of SOLAS, Chapter V to be satisfied by a shore based facility.

3.3. *As interpreted under national law, could an unmanned ship, failing to proceed with all speed to the assistance of persons in distress at sea as required by Regulation 33 of SOLAS Chapter V, successfully invoke the lack of an on-board crew as the reason for omitting to do so (provided that the ship undertook other measures such as relaying distress signals etc.)?*

Netherlands: It seems that the (positive) obligation to provide assistance under Regulation 33, SOLAS Chapter V, (at least as interpreted under Dutch law) is not absolute in nature, but rather relative and subject to the facilities and capabilities of the ship and the circumstances it finds itself in. Reference is made to Art. 9-1-f Ships Act (*Schepenwet*) and Art. 358a Dutch Code of Commerce.

It would seem to follow that the mere fact that the ship is unmanned does not discharge the ship from providing the assistance that it is capable of, although this fact may of course limit the assistance it is able to provide.

4. THE INTERNATIONAL REGULATIONS FOR PREVENTING OF COLLISIONS AT SEA, 1972 (COLREGS)

4.1. *Would the operation of an unmanned "ship" without any on board personnel, per se, be contrary to the duty /principle of "good seamanship" under the COLREGS, as interpreted nationally, regardless of the safety credentials of the remote control system?*

Netherlands: It seems that so far no national interpretation of COLREGS in relation to unmanned ships has developed yet. In our view the notion of 'good seamanship' constitutes an open norm that is primarily aimed at the navigational conduct of the ship. At present, the navigational conduct of ships is determined by human beings. If in the future, this were to change, it would depend on whether the algorithm used by the navigational system of an unmanned ship is as able as a qualified human being, to apply the duty/principle of 'good seamanship' in order to deviate from the navigational rules when necessary (to avoid collision). In the affirmative, it is our view that the autonomous operation of a ship without any on board personnel or any human supervision would be in accordance with the duty/ principle of 'good seamanship'.

4.2. *Would the autonomous operation of a "ship", without any on-board personnel or any human supervision, be contrary to the duty /principle of "good seamanship", under the COLREGS, as interpreted nationally, regardless of the safety credentials of the autonomous control system?*

Netherlands: See above under 4.1.

4.3. *As interpreted under national law, could the COLREG Rule 5 requirement to maintain a "proper lookout" be satisfied by camera and aural censoring equipment*

fixed to the ship transmitting the ship's vicinity to those "navigating" the ship from the shore?

Netherlands: If the use of these visual and aural aids is proven to be so reliable and robust that these can be considered the functional equivalent of members of the crew maintaining a 'proper lookout', and if redundant/back-up systems are in place in case automation and/ or communication systems fail, then it seems that the COLREG Rule 5 requirement to maintain a 'proper lookout' may be satisfied by camera and aural censoring equipment.

4.4. Would a ship navigating without an on-board crew constitute a "vessel not under command" for the purposes of COLREG Rule 3(f), read together with COLREG Rule 18, as interpreted under your national law?

Netherlands: Rule 3 chapeau and sub (f) COLREGS defines the term 'vessel not under command' as 'a vessel which through some exceptional circumstance is unable to manoeuvre as required by these Rules and is therefore unable to keep out of the way of another vessel.' It seems that a ship without an on-board crew is not necessarily a 'vessel not under command' in the sense of Rule 3 chapeau and sub (f) COLREGS since (1) it does not follow that the ship is unable to manoeuvre as required and (2) if it were, that would not be due to an exceptional circumstance.

5. THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING CERTIFICATION AND WATCHKEEPING, 1978 (STCW CONVENTION)

5.1. The STCW Convention purports to apply to "seafarers serving on board seagoing ships". Would it therefore find no application to a remotely controlled unmanned ship?

Netherlands: The wording 'serving on board seagoing vessels' probably excludes shore based operators from the application of the STCW Convention. We tentatively suggest that the training and certification of operators involved in the remote control of unmanned ships requires new international regulation. Similarly, new regulation will be needed in relation to standards for watch-keeping in relation to a remotely controlled unmanned ship.

5.2. As interpreted under national law, can the STCW requirement that the watchkeeping officers are physically present on the bridge and engine room control room according to Part 4 of Section A-VIII/2 be satisfied where the ship is remotely controlled? Is the situation different with respect to ships with a significantly reduced manning (bearing in mind that the scope of the convention only applies to seafarers on board seagoing ships)?

Netherlands: The STCW requirement (Regulation 2 of chapter VIII and the Dutch implementation in articles 3, 4 and 8 Seafarer Act (*Wet Zeevarenden*) that watch-keeping officers are physically present on the bridge and engine control room can probably not be satisfied where the ship is remotely controlled.

Dutch law contains an exemption clause which can be used to waive this requirement for ships with a significantly reduced manning.

6. LIABILITY

6.1. *Suppose a "ship" was navigating autonomously i.e. through an entirely computerised navigation /collision avoidance system and the system malfunctions and this malfunction is the sole cause of collision damage — broadly, how might liability be apportioned between shipowner and the manufacturers of the autonomous system under your national law?*

Netherlands: According to settled case law from the Dutch Supreme Court (Hoge Raad), there is fault of the vessel in the sense of Art. 3 Brussels Collision Convention 1910 *where there is the realisation of a special danger to persons or things that was created by a ship not meeting the requirements that one could make under the given circumstances*. See Hoge Raad 5 January 1940, Nederlandse Jurisprudentie 1940, 340 [Synthese/Rubens] and Hoge Raad 30 November 2001, ECLI:NL:HR:PHR2001:AD3922, Schip & Schade 2002, 35 [De Toekomst/Casuele]. In the given case the ship-owner would be liable in collision to third parties, but may have recourse against the manufacturers of the autonomous system.

6.2. *Arts. 3 and 4 of the 1910 Collision Convention provide for liability in cases of fault. As interpreted under your national law, does the fact that the non-liability situations listed in Art. 2 are not conversely linked to no-fault, leave room for the introduction of a no-fault (i.e. strict) liability (for e.g. unmanned ships) at a national level?*

Netherlands: From the perspective of Dutch law, the introduction of a strict liability for e.g. unmanned ships at a national law level would be problematic in the light of the rule of fault-based liability for collision under the 1910 Collision Convention. It would be different if the 1910 Collision Convention were amended or if a special liability convention similar to CLC, HNS, Bunkers, and WRC was created at the international level.

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