



Maritiem Instituut
Willem Barentsz

LECTORATE IN MARITIME LAW

A Catalyst between Law and Technology

Dr Welmoed van der Velde

A shortened version of the inaugural
lecture given on 18 May 2017 at
West-Terschelling

Rapid technological advances are bringing opportunities for the maritime sector. They are making shipping cleaner and more efficient, safe and secure. Technology needs legislation and professionals who are ready for the future. Together with students, lecturers, businesses and knowledge institutions, the Maritime Law lectorate conducts applied research at the interface between law and maritime technology.

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Sea Fever

John Masfield

I must go down to the seas again, to the lonely sea and the sky,
And all I ask is a tall ship and a star to steer her by;
And the wheel's kick and the wind's song and the white sail's shaking,
And a grey mist on the sea's face, and a grey dawn breaking.

I must go down to the seas again, for the call of the running tide
Is a wild call and a clear call that may not be denied;
And all I ask is a windy day with the white clouds flying,
And the flung spray and the blown spume, and the sea-gulls crying.

I must go down to the seas again, to the vagrant gypsy life,
To the gull's way and the whale's way where the wind's like a whetted knife;
And all I ask is a merry yarn from a laughing fellow-rover,
And quiet sleep and a sweet dream when the long trick's over.

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Colofon

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“To reach a port we must set sail
Sail, not tie at anchor.
Sail, not drift.”

Franklin D. Roosevelt

Prologue

Members of the Executive Board, highly esteemed audience,

It is my great pleasure to be giving my inaugural lecture here today, at the Willem Barentsz Maritime Institute (MIWB) on Terschelling, on the occasion of my appointment as lector in Maritime Law.

In 2016 I accepted the appointment to the position of lector in Maritime Law. The lectorate in Maritime Law, the lectorate in Maritime Innovation Technology and the lectorate in Maritime, Marine Environmental and Safety Management (MMMV) together form the Maritime research group of NHL University of Applied Sciences.

Rapid technological advances are bringing opportunities for the maritime sector. They are making shipping cleaner and more efficient, safe and secure. Technology needs legislation and professionals who are ready for the future. The legislature faces the challenge of creating international legislation that makes provision for new technologies. The task of maritime education programmes is to train professionals who can work with technology that has yet to be developed.

Together with students, lecturers, businesses and knowledge institutions, the Maritime Law lectorate conducts applied research at the interface between law and maritime technology. In this inaugural lecture I will discuss the aims that the lectorate pursues in its research projects, the role it plays in education, and the various partnerships in which it is involved.

Welmoed van der Velde, May 18th



“I’ve never done that before,
so I’m sure I can do it”

Pippi Longstocking

1. The lector

Welmoed van der Velde received her PhD in 2006 from the University of Groningen for her thesis on the position of sea-going ships in private international law. Her PhD research focused on the question of which national legislation applies to ships in international situations that are not covered by treaties.

From 2006 to 2014, she worked as a legislative lawye at the Ministry of Security and Justice. Van der Velde has negotiated international treaties at the International Maritime Organization (IMO) and European Union, and implemented these in Dutch law. From 2010 to 2015 she was Chairman of the Executive Committee of the International Oil Pollution Compensation Funds in London. Since 2012, Van der Velde has worked as a deputy judge. She has taught law at the Willem Barentsz Maritime Institute since 2014. Since 2016, Van der Velde has also been a member of the board of the Dutch lectors’ association (*Vereniging van Lectoren*).



“Freedom is not possible without authority - otherwise it would turn into chaos and authority is not possible without freedom - otherwise it would turn into tyranny.”

Stefan Zweig

2. Summary

The challenge for the maritime sector is to fulfil the mission of the International Maritime Organization (IMO): Safe, Secure and Efficient Shipping on Clean Oceans. This can only be achieved with new technologies, appropriate legislation and well-trained maritime professionals.

Technological innovations and legislation should work as each other's catalysts. Innovation requires modern legislation. Compliance with new, stricter legislation on safety, security and the environment requires innovative technologies. However, the maritime sector faces three problems with regard to the law:

- 1 Maritime legislation is complex and extensive;
- 2 Maritime legislation does not keep pace with technological developments;
- 3 Maritime legislation does not make sufficient provision for environmental protection.

The Maritime Law lectorate has three aims:

- 1 Strengthening the maritime sector;
- 2 Protecting the environment;
- 3 Strengthening the position of maritime professionals.

The first two aims are achieved by conducting applied research along two lines: strengthening the maritime sector and strengthening environmental protection. The lectorate's research consists of applied legal research into areas including the liability regulations for autonomous ships, and regulations regarding carbon dioxide emissions and wind farms. The lectorate realizes the third aim by enabling Maritime students at the university of applied sciences to develop their research competence through involvement in research projects. Students at universities of applied sciences must develop research skills that lead to reflection, evidence-based practice and innovation.

Since technology and legislation are constantly evolving, it is not sufficient to teach students about current technology and law in the here and now. This applies particularly to maritime students because they will be working in a field that is, by nature, international and in which legislation varies not only over time but also from place to place.

Together with students from various degree programmes and with lecturers and businesses, the Maritime Law lectorate conducts applied research at the interface between law and maritime technology. The lectorate is also responsible for the law teaching in the degree programmes of the Willem Barentsz Maritime Institute (MIWB) of NHL University of Applied Sciences. It is also involved in the further development of the curriculum for the Maritime Officer degree programme.

Law plays a role in all applied research, since every innovative product or process raises the question of whether it is permitted under existing legislation. In addition, every time new regulations are formulated, it is necessary to consider the consequences for the sector involved. Given this intertwinement of the law and other research areas, the Maritime Law lectorate seeks to establish the widest possible crossover collaboration with other lectorates within and outside NHL University of Applied Sciences.



“The use of the sea and air is common to all; neither can a title to the ocean belong to any people or private persons, forasmuch as neither nature nor public use and custom permit any possession thereof.”

Elizabeth I, 1580

3. Maritime Law

3.1 Introduction

Ninety percent of world trade takes place by sea. Transport by sea is cleaner and more cost-efficient than transport by road or air, so the economic and social relevance of shipping is evident. At the same time, sea transport involves risks for people and the environment. In order to minimize these risks, the maritime sector must comply with many rules and regulations. The maritime sector is, almost by definition, international. The following example illustrates how many countries may be involved in a single shipping incident.

On 5 December 2012, the Bahamian-flagged *Baltic Ace* was carrying 1,417 new cars from Zeebrugge in Belgium to Kotka in Finland. The owner of the *Baltic Ace* was based on the Isle of Man, and the ship had been chartered by a Norwegian company. The Cypriot-registered container ship *Corvus J* was on the way from Grangemouth in Scotland to Antwerp, Belgium. The two ships collided off the Dutch coast, outside Dutch territorial waters. The *Baltic Ace* sank within 15 minutes and 11 people of various nationalities lost their lives. The ship's fuel and cargo constituted a threat to the environment, and the wreck was a danger to shipping. The Dutch government commissioned the salvage operation, at a cost of more than 60 million euros. The Bahamas Maritime Authority in London instigated an investigation into the cause of the accident. The investigation considered aspects including collision-prevention regulations, crew training and the safety of the ship. The question arose as to who was liable for the costs engendered by the accident.

3.1.1 Maritime law

Maritime law concerns legislation for sea-going ships. The lectorate uses the English term 'maritime law' to reflect the international nature of shipping.

In the first place, I take maritime law to mean the regulations that apply between countries, for example with regard to territorial boundaries at sea. These regulations are mainly set out in the United Nations Convention on the Law of the Sea (UNCLOS) (Rothwell and Stephens, 2016). Second, maritime law is about relations between the government on the one hand, and individuals or businesses on the other. Examples include regulations for the registration and inspection of ships, environmental regulations, and criminal law on drug trafficking and piracy. Finally, maritime law concerns relations between individuals and businesses. These private-law regulations concern matters such as transport contracts, liability and insurance. The lectorate focuses on this private-law trade aspect of maritime law.

“The law of the sea is the oldest law.”

Prof. H. Schadee

Where it began

For centuries, countries and peoples have used the sea for trade. Five thousand years ago, maritime trade was already taking place between Mesopotamia (the country between the Euphrates and the Tigris), Bahrain and West India. Oil and dates were traded for copper (Stopford, 2009). The Code of Hammurabi, dating from the 18th century BC, set out rules for this trade. The trade between the Mediterranean and Baltic countries also required uniform regulations. The maritime laws of Rhodes provided the necessary legal protection for Mediterranean trade from 900 BC onwards. Three later maritime codes, the *Consolato del Mare*, the *Rôles d'Oléron* and the *Laws of Wisby* from the period 1000-1300 AD form the foundation of today's maritime law.

The *Consolato del Mare* set out rules for all manner of maritime matters: ship ownership, duties of crews and captains, cargo, etc. The maritime law includes the first examples of international treaties. International agreements of this type were not drawn up 'on land' until much later. Interestingly, these first maritime laws were not drafted by sovereign states as we know them today. Maritime law was regarded as customary or unwritten law. My own assessment is that such non-state law is becoming significant again, especially at a time when there is less political interest in international cooperation and agreements between states.

From the outset, therefore, the law of the sea was based on uniform rules specifically written for international sea trade. The rise of states and nationalism disrupted this uniformity. Countries made their own rules. Differences among legal rules and the choice-of-law systems are not usually conducive to legal certainty and unhindered trade. Which country determines the technical and safety requirements for a ship, the training a captain must have, the permitted level of emissions from the ship, or who foots the bill if the cargo is damaged?

If each country had its own regulations for these matters, it would hinder shipping and trade. An international sector such as the maritime sector is best served by regulations that are the same all over the world. This reinforces legal certainty, facilitates fair competition, reduces transaction costs and protects crews and the environment. This is why, since the end of the nineteenth century, attempts have been made to bring back maritime law that is internationally uniform. The *Comité Maritime International* (CMI) and the *International Maritime Organization* (IMO) work towards this end.



3.1.3 International Maritime Organization

Within the International Maritime Organization (IMO), a specialized agency of the United Nations, 172 nations negotiate maritime legislation. This has resulted in dozens of IMO conventions, the most important of which are:

- The International Convention for the Safety of Life at Sea (SOLAS);
- The International Convention for the Prevention of Pollution from Ships (MARPOL);
- The International Convention on Standards of Training, Certification and Watch-keeping for Seafarers (STCW).

UNCITRAL and the European Union

The United Nations Commission on International Trade Law (UNCITRAL), the core legal body of the United Nations system in the field of international trade law, has drawn up regulations for the transport of goods by sea, including the Hamburg Rules and the Rotterdam Rules. Parallel to the United Nations, the European Union also draws up regulations that result in uniformity among the EU Member States, but at the same time are detrimental to uniformity on a worldwide level. Examples of EU maritime legislation include the Athens Regulation relating to the liability of carriers of passengers by sea in the event of accidents, and the Directive on the Insurance of Shipowners for Maritime Claims.

3.1.5 Private international law

Despite the many international treaties, there are still differences between the maritime laws of individual states. For example, not all countries are signatories to every IMO convention, and it has not been possible to conclude conventions on all aspects. National law applies to aspects for which there is no convention. Dutch private maritime law, for example, is contained in the Dutch Civil Code (Burgerlijk Wetboek), the Seafarers' Act (Wet Zeevarenden) and the Commercial Code (Wetboek van Koophandel).

Rules have also been drawn up for determining which national private legislation applies to a ship sailing from Rotterdam to Houston under the Liberian flag with Russian and Philippine

crew on board. These are known as 'choice-of-law rules' or 'rules of private international law'. These rules specify which country's code of law applies when an international situation arises. For example, the law of the port of discharge applies when deciding whether a carrier is entitled to retain containers until the relevant charges are paid.

Every country has its own rules of private international law. Dutch choice-of-law rules for maritime law are set out in Book 10 of the Dutch Civil Code. Within the European Union, many rules of private international law have now been harmonized (Rome I and Rome II Regulations). However, these EU regulations were not drawn up specifically for maritime situations, and are therefore not always applicable to ships. One example of this is Article 4.1 of Rome II. The Article stipulates that '...the law applicable to a non-contractual obligation arising out of a tort/delict shall be the law of the country in which the damage occurs ...'. This EU regulation does not provide a solution for cases of damage or losses incurred offshore. In such cases, we must resort to national choice-of-law rules. Article 10:164 of the Dutch Civil Code stipulates that liability for damage on the high seas shall be governed by the law of the State where the relevant legal claim (right of action) is filed in court. However, other countries may have different choice-of-law rules that stipulate, for example, that the law of the ship's flag state applies (W. van der Velde, 2006).



3.2 Problem analysis

3.2.1 Legal spaghetti

The above discussion shows that the maritime sector has to operate within a legal spaghetti of national, regional and international rules and regulations. The first problem I identify for maritime practice is the fact that maritime legislation is complex and extensive. A second problem arises between technology and the law.

3.2.2 Technology and the law

Achieving international consensus on maritime legislation can be difficult and time-consuming, because of the conflicting interests involved. As a result, the law often fails to keep pace with technological advances. A further problem is that it may be possible to introduce a technological advance in one country but not in another, due to a difference in regulations or to the fact that uniform regulations are interpreted in different ways. One example is ballast water technology, for which US and IMO regulations differ.

Innovation may be hampered by a lack of clarity as to whether the introduction of a new technology is permitted. This is an undesirable situation, since it is technological advances that create opportunities for making the maritime sector even more efficient, safer and cleaner. Legislation takes time, and legislators do not have a crystal ball for predicting the rules that the maritime sector will need in the future. Therefore, the second problem I identify is that the law does not keep pace with technology.

There is a similar problem with maritime education programmes. We train students for occupations that do not yet exist and will involve technology that is still to be developed (K. Schwab, 2017). This problem is not new to law teaching. Unlike the laws of physics, man-made laws differ over time and from place to place. That is why we teach students more than just the law in the 'here and now'. Above all, we must teach them the skills they need to research, interpret, apply and possibly improve the law. In my view, these skills are relevant not only for students of law, but for all students at universities of applied sciences, in order to equip them for working with new technology and new legislation in the future.

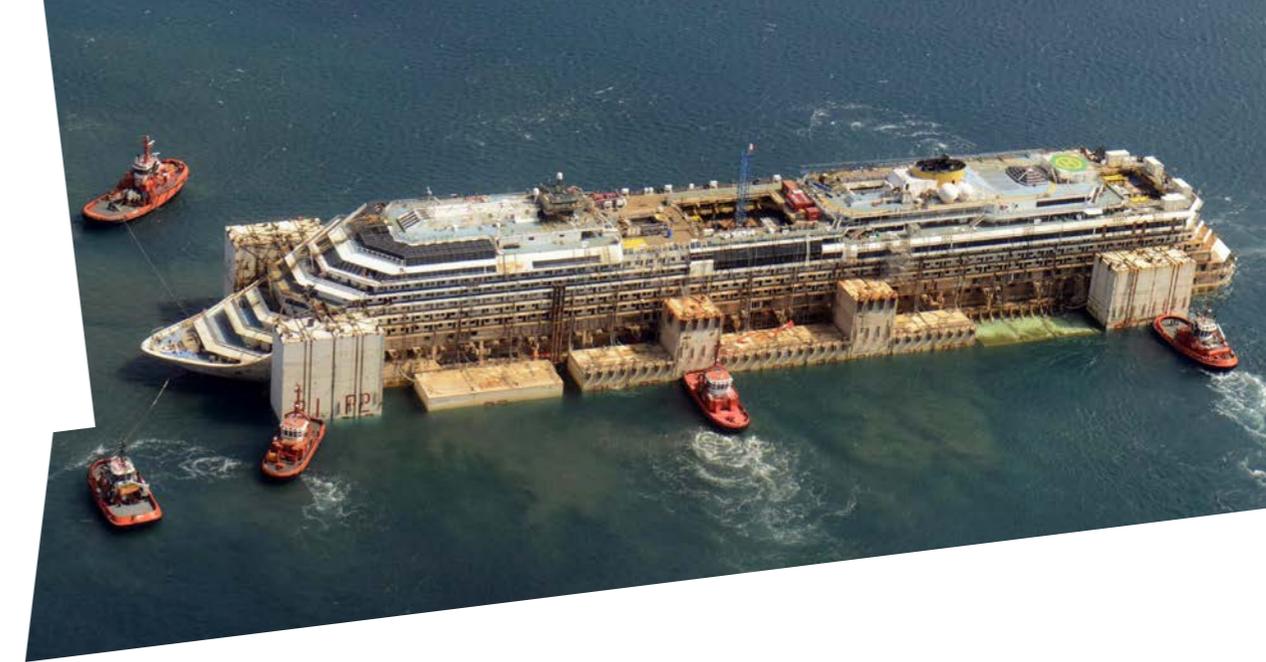
3.2.3 The environment

The third problem I identify with regard to maritime law concerns the environment. Ships affect the environment in different ways, such as greenhouse-gas emissions, pollution caused by cargo, waste, organisms in ballast water, antifouling paints and ship breaking. In this regard, it is important to place shipping in an international context. In the period 2007-2012, for example, shipping was responsible for 3.1% of worldwide CO₂ emissions (IMO, Third IMO Greenhouse Gas Study, 2014).

The above ways in which ships affect the environment are examples of effects arising from the 'normal' use of ships. Ships may also affect the environment when incidents occur. One example is the sinking of the oil tanker Prestige off the Spanish coast in 2002. The marine environment may be damaged not only by ships, but also by offshore installations. The Deepwater Horizon disaster is one example of this.

Many environmental regulations have been drawn up. However, there are still aspects that are not covered by maritime legislation. For example, international uniform rules do not yet exist for liability for damage caused by chemical tankers, LNG ships or offshore installations.

Ships are becoming cleaner thanks to new technology and alternative fuels. Shipping can also contribute to a cleaner environment, for example through the use of ships in the



construction of wind farms at sea, but the international regulations for this are neither clear nor comprehensive.

- In summary, the maritime sector faces three problems with regard to maritime law.
- 1 Maritime legislation is complex and extensive;
 - 2 Maritime legislation does not keep pace with technological developments;
 - 3 Maritime legislation does not make sufficient provision for environmental protection.

3.3 The challenge

The challenge for the maritime sector is to fulfil the mission of the IMO: Safe, Secure and Efficient Shipping on Clean Oceans. This can only be achieved with the use of new technologies. It means that our maritime students need new knowledge and skills relating to legislation and technology. They acquire the knowledge and skills through applied research at the interface between law and maritime technology. The Maritime Law lectorate forms the link between teaching, research and businesses. The aim of the Maritime Law lectorate is threefold:

- 1 To strengthen the maritime sector;
- 2 To protect the environment;
- 3 To strengthen maritime professionals.



“Laws, like sausages, cease to inspire respect in proportion as we know how they are made.”

John Godfrey Saxe, 1869

4. Research

4.1 Introduction

NHL University of Applied Sciences conducts applied research that focuses on two themes: Smart Sustainable Industries and Vital Regions. The Maritime Law lectorate focuses on the Smart Sustainable Industries theme. NHL University of Applied Sciences and Stenden University of Applied Sciences are planning to merge in 2018. The new university of applied sciences will then focus on a third theme: Service Economy.

4.1.1 Applied research

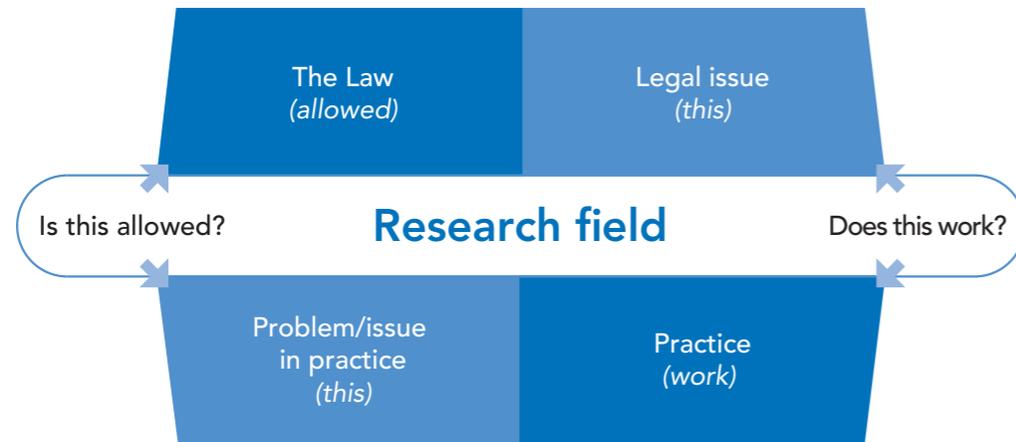
According to the 2010 Code of Practice for Applied Research in Higher Professional Education (Gedragcode praktijkgericht onderzoek voor het HBO 2010), applied research is research that is rooted in professional practice and contributes to the improvement and innovation of that practice. Applied research is geared to issues in professional practice that are often multidisciplinary, and is carried out in collaboration with the professional field and education sector. At the beginning of 2017, the working group on quality in applied research (Werkgroep Kwaliteit van Praktijkgericht Onderzoek) published its recommendations. According to these recommendations, applied research at universities of applied sciences must be Practically relevant, Methodologically thorough, and Ethically responsible.

In research in higher professional education, a distinction is made between research conducted by lectorates and research conducted by students. Lector Daan Andriessen therefore advocates using terminology that reflects this distinction: ‘applied research’ in the case of lectorates and ‘research competence’ in the case of students (Andriessen, 2016). He argues that research by lectorates must meet academic requirements and must result in new knowledge that can be transferred to contexts other than the one in which the knowledge was developed. These requirements do not apply to research carried out by students at universities of applied sciences.

The Maritime Law lectorate always involves students, teaching staff and businesses in its research. This ensures a win-win situation: students and teachers increase their knowledge, students develop their research competence, and the issues researched are relevant for professional practice, which benefits directly from the knowledge developed.

4.1.2 Applied legal research

Applied legal research is defined by Geertje van Schaaijk (Praktijkgericht juridisch onderzoek, 2015) as follows: ‘(...) applied legal research makes a direct contribution to solving a functional problem because it provides a reasoned answer to a law-related knowledge question through the use of legal and empirical research methods’. Van Schaaijk distinguishes between two types of applied legal research by asking two questions: ‘Is this allowed?’ and ‘Does this work?’ The ‘Is this allowed?’ question involves testing a certain practice against current law. The ‘Does this work?’ question involves looking into the consequences of a certain regulation for practice.



Van Schaaijk, 2015, Figure 1.4, p. 30

4.2 Lines of research

The Maritime Law lectorate bases its research on both these questions.

The Maritime Law lectorate conducts research along two lines that I will now explain:

- 1 Strengthening the maritime sector;
- 2 Protecting the environment.

4.2.1 Strengthening the maritime sector

In its strategic research agenda for higher professional education (Strategische onderzoeksagenda HBO 2016-2020), the Netherlands Association of Universities of Applied Sciences (Vereniging Hogescholen) states the following about the future of the transport sector:

“The transport sector is facing major changes that will bring opportunities for the further improvement of transport and logistics: the nature of goods and passenger transport will change radically in the coming years. (...) The changes have important consequences for transport models and logistics models that have to be reinvented, so to speak. In sustainable logistics, the focus is on the CO₂-neutral transport of goods, people and perishables. This involves, for example, smart technical modifications and more efficient use of the infrastructure through methods such as information-sharing and synchronicity. Logistics chains can be structured more intelligently through the use of IT and big data. There are increasing calls to make transport more sustainable (e.g. by eliminating CO₂ emissions).”

Innovation is taking place in the maritime sector. Examples include Smart Shipping, with the growing use of sensors, big data and smart communication systems, and the increased use of alternative fuels and energy sources such as LNG and wind (see also: K. Schwab, 2017).

It is often said that legislation hampers innovation. Technological advances often develop faster than the time it takes to formulate or amend related legislation with the 172 Member States of the IMO. An example of a regulation that can obstruct innovations such as autonomous vessels is Regulation V/24 of SOLAS:

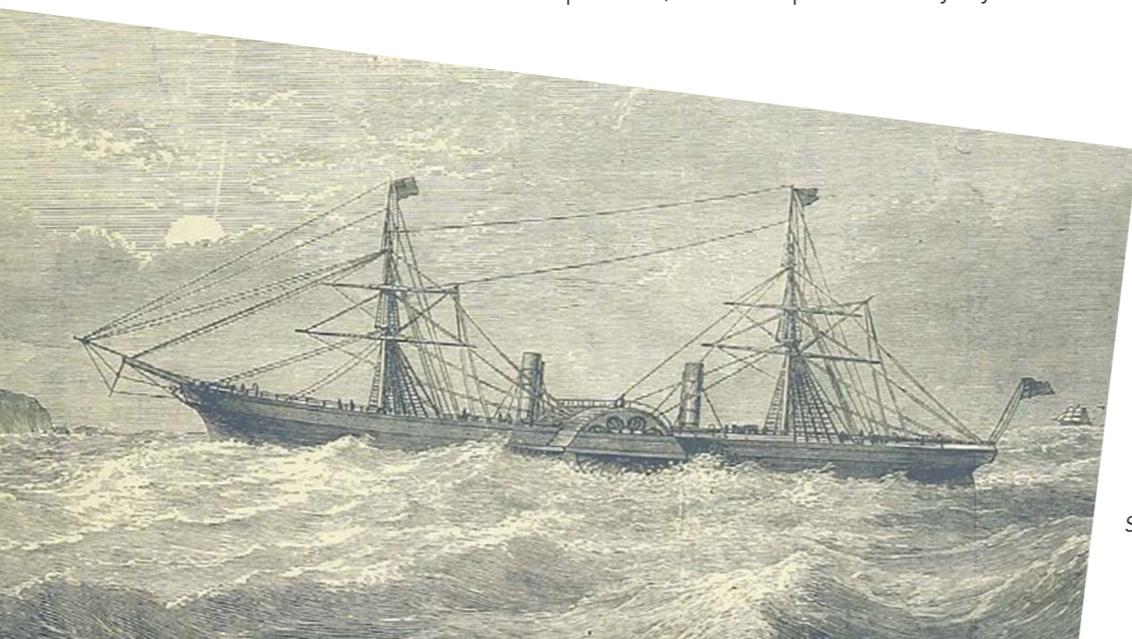
- 1 *“In areas of high traffic density, in conditions of restricted visibility and in all other hazardous navigational situations where heading and/or track control systems are in use, it shall be possible to establish manual control of the ship’s steering immediately.*
- 2 *In circumstances as above, the officer in charge of the navigational watch shall have available without delay the services of a qualified helmsperson who shall be ready at all times to take over steering control (...)*”

I wish to add some nuance to the argument that the law hampers technological innovation. Legislation has always lagged behind technological innovations. Think of the advent of the steam ship in an age when the rules were still for sailing ships (J.A. Weiss, *Sail to Steam*). The law did not prevent the development of the steam ship, any more than it will deter the development of autonomous ships.

Problems resulting from the fact that the law does not keep pace with technology have been, and are being, resolved in different ways. The following examples show that courts can interpret existing regulations in new ways, that laws and contracts can be amended, and that gaps in existing legislation can be filled by resorting to general maritime law.

Technology and law in the past

In 1868, the schooner *Bedell* and the steam ship *Potomac* collided in Chesapeake Bay. The steam ship changed course several times to avoid a collision, but the schooner changed course and speed too, and the ships collided anyway. As a result of this incident, the



Steam ship Scotia

Supreme Court had to clarify the rules for collision avoidance. At the time, the rule was that steam ships should give way to sailing ships. However, the Supreme Court ruled that sailing ships should hold their course until the danger of collision passed. The steamer was cleared of liability for the collision because it had taken steps to avoid it that would have been effective had the schooner not changed its course. The new rule was then included in the Collision Regulations of the IMO. Rule 17 reads as follows: ‘Where one of two vessels is to keep out of the way the other shall keep her course and speed’.

Another example is the case of the *Inchmaree*. The question arose as to whether damage caused by the pump exploding was covered under the insurance policy. The text of the policy (‘peril of the sea’) had not been written to cover the specific dangers of a steam engine. The House of Lords ruled that the damage was not covered. The regulations had therefore not been amended quickly enough after the new technology came into use. The *Inchmaree* Clause relating to damage caused by steam engines was subsequently included in insurance policies.

In the past, general maritime law was also applied in maritime situations not covered by national codes of law. The case of the *Scotia* is a striking example of this.

On 8 April 1867, the American sailing ship *Berkshire* and the British steam ship *Scotia* collided at night in the middle of the Atlantic Ocean. At the time of the collision, the ‘Regulations for Preventing Collisions at Sea’ (including ‘Rules concerning lights’ and ‘Steering and sailing rules’) applied in the United Kingdom. Notably, many countries, including the Netherlands and the United States, had declared that these regulations also applied to their ships.

According to British law, the steamship *Scotia* was displaying the required lights: a white light in the foremast, a green light to starboard and a red light to port. The American ship *Berkshire* was displaying only a white light at the bow, fixed at a height of approximately one metre above deck level. According to British regulations, however, sailing ships were bound to show only lights to port and starboard, and should not display white mast lights.

Because the sailing ship was showing only a white light, the crew of the British steam ship assumed it was a steam ship, at some distance away. The ships collided and the *Berkshire* sank in mid-ocean. In court, the owners of the *Berkshire* argued that the *Scotia* was liable for the damage because the steam ship should have changed course to avoid the sailing ship. The owners of the *Scotia*, however, claimed that the *Berkshire* had not complied with British regulations that had come into effect with regard to lights. The case was ultimately brought

before the Supreme Court, which had to decide which regulations applied on the high seas:

" (...) it was not the law of the United States, nor that of Great Britain, nor the concurrent regulations of the two governments, but that it was the law of the sea (...). That law is of universal obligation, and no statute of one or two nations can create obligations for the world. Like all the laws of nations, it rests upon the common consent of civilized communities. It is of force not because it was prescribed by any superior power, but because it has been generally accepted as a rule of conduct. (...)

Changes in nautical rules have taken place. How have they been accomplished, if not by the concurrent assent, express or understood, of maritime nations? When, therefore, we find such rules of navigation as are mentioned in the British orders in council of January 9, 1863, and in our act of Congress of 1864, accepted as obligatory rules by more than thirty of the principal commercial states of the world, including almost all which have any shipping on the Atlantic Ocean, we are constrained to regard them as in part at least, and so far as relates to these vessels, the laws of the sea, and as having been the law at the time when the collision of which the libellants complain took place.



Rolls Royce
autonomous ship

This is not giving to the statutes of any nation extraterritorial effect. It is not treating them as general maritime laws, but it is recognition of the historical fact that by common consent of mankind, these rules have been acquiesced in as of general obligation. Of that fact we think we may take judicial notice."

The Supreme Court ruled that the Scotia was not liable for the sinking of the Berkshire, because the Berkshire had violated maritime law by not displaying appropriate lights.

Technology and law in the future

These examples show that the law does not hold back technological advances, and that the law does eventually evolve in step with new technologies. But I would like to raise the bar: technological innovations and legislation should work as each other's catalysts. Innovation requires modern legislation, and compliance with new, stricter legislation on safety, security and the environment requires innovative technologies. A relevant development is the fact that the IMO now applies 'goal-based standards', rather than prescriptive (normative) regulations. Examples include The Polar Code and Goal-based Ship Construction Standards for Bulk Carriers and Oil Tankers.

Smart Shipping involves the use of information and communication technology to optimize the use of ships. This reinforces efficiency and safety in the shipping sector. From a legal perspective, the transition to autonomous ships requires a fundamentally different approach to maritime law. Legal terms such as 'qualified crew' in the STCW Convention, 'seaworthiness' in rules such as the Hague Visby Rules and Rotterdam Rules, and 'good seamanship' in, for example, the Collision Regulations (COLREGs), assume that there is a crew on board.

The development of autonomous ships is also raising many questions relating to private law, for example: who is liable for damage caused by a ship that is steered mainly from shore using IT systems? Such innovations are best served by legal certainty about the allocation of liability between the ship, shore, and the providers of the IT systems.

In February 2017, the European Parliament called for new laws to cover robotics. The Legal Affairs Committee had pressed for this. It was argued that there should be EU regulations for compulsory insurance and a compensation fund for self-driving cars. In the longer term, there should be a specific legal status ('electronic person') for autonomous robots. If such regulations are introduced, they may also be relevant for autonomous ships.

Research projects

Within the first line of research (Maritime Sector), the Maritime Law lectorate intends to conduct the following research:

- a Research in collaboration with students (of the Maritime Officer, Maritime Technology and Law programmes) and businesses into the question of the extent to which autonomous sailing is permitted within current law ('Is this allowed?');
- b Research into the effects of IMO regulations based on goal-based standards ('Does this work?');
- c Research into the consequences of draft EU regulations on robotics ('Does this work?').

4.2.2

Strengthening environmental protection

It has already been claimed that ships emit less CO₂ than other modes of transport do. Ships can also make a positive contribution to the environment through their use in the construction of wind farms. However, the maritime sector can also have a harmful effect on the environment, for example in the event of accidents.

Civil liability has a preventive effect. The prospect of liability makes shipowners more careful, and ensures that insurers place requirements on the safety of ships. This also improves protection of the marine environment. There is a robust international compensation system in place for pollution caused by oil tankers, in the form of the IMO's Civil Liability Convention (CLC) and International Oil Pollution Compensation Funds. However, there is no such international system in place for chemical tankers, LNG ships and offshore installations. The 2010 HNS Convention, drafted for chemical tankers, has still not come into effect, despite pressure from the IMO and European Commission. The Deepwater Horizon disaster showed that incidents involving offshore installations can have serious consequences for the people who work on them, the environment and the companies involved. Within the IMO, however, there is still no consensus on an international liability regime for transboundary damage from offshore activities (IMO, Legal Committee LEG 101/12).

New EU legislation, the MRV Regulation, requires shipping companies to monitor, report and verify CO₂ emissions from all ships entering and leaving any EU port (PbEU L 123/55). These data must be submitted to the European Commission and the flag state. On the basis of the information obtained in this way, an assessment will be made as to whether further EU legislation on CO₂ emissions is needed.



IMO has also drawn up new regulations for reducing hazardous emissions. Examples include the Energy Efficiency Design Index (EEDI) for new ships and the Ship Energy Efficiency Management Plan (SEEMP). These new regulations raise many technical and legal questions for shipping companies. These issues relate to aspects such as cyber safety. The question is also how the investment needed for reporting CO₂ emissions can be partly or fully recouped through actual reductions in fuel consumption (and the CO₂ emissions).

Research projects

Within the second line of research (Maritime Environment), the Maritime Law lectorate intends to conduct the following research:

- a Multidisciplinary research into the effects of an international liability regime for oil pollution from offshore installations ('Does this work?');
- b Research, in collaboration with students and shipping companies, into the consequences of the MRV Regulation for shipping companies and the environment ('Does this work?');
- c Research into the possibilities for constructing wind farms within current national and international law ('Is this allowed?').

The lectorate aims to use the knowledge resulting from this research to add an Offshore Wind component to the Offshore minor of the MIWB.





“Quand tu veux construire un bateau, ne commence pas par rassembler du bois, couper des planches et distribuer du travail, mais reveille au sein des hommes le desir de la mer grande et large.”

Antoine de Saint-Exupéry

5. Teaching

5.1 Willem Barentsz Maritime Institute

The Willem Barentsz Maritime Institute (MIWB), based on Terschelling, is part of NHL University of Applied Sciences. This merchant marine academy has existed since 1875. The MIWB offers Bachelor's degree programmes (Maritime Officer, Maritime Technology, Ocean Technology) and a Master's degree programme in Marine Shipping Innovations. The institute also has a well-equipped simulator centre. The MIWB is part of the Maritime Academy Holland, an alliance of maritime education programmes in the north and west of the Netherlands.

The lectorate's contribution to education

The Maritime Law lectorate contributes in three ways to the teaching at NHL University of Applied Sciences. In the first place, the lectorate provides the law teaching for the aforementioned Bachelor's and Master's degree programmes. It is also involved in the further development of the curriculum for the Maritime Officer degree programme. Because the lectorate conducts research with businesses, it is able to translate new and existing requirements for professional practice into education programmes. The aims of the lectorate include extending the scope of the Offshore minor with an Offshore Wind component,



and developing a new curriculum for the Maritime Officer programme that includes developments such as Smart Shipping. The third way in which the lectorate contributes to education is by strengthening the research competence of maritime students. In this way it also strengthens the position of the maritime professional.

5.2 Strengthening the position of maritime professionals

“By one popular estimate, 65% of children entering primary school today will ultimately end up working in completely new job types that don’t yet exist.”

“On average, by 2020, more than a third of the desired core skill sets of most occupations will be comprised of skills that are not yet considered crucial to the job today, according to our respondents.”

World Economic Forum (WEF) in het rapport ‘The Future of Jobs’

New technology is bringing new opportunities for maritime professionals. Ship-to-shore connections will be greatly enhanced by new IT systems. In addition, the transition to autonomous shipping has begun. This will have consequences for the position of the master and for the nautical and technical duties on board and on shore.

The maritime professionals of the future must be able to deal with change (M. Coenders, 2016). This change may result from technological advances, and from legislative and regulatory developments. In terms of law subjects, this means that we must teach students

about more than law in the here and now. This applies particularly to maritime students whose field of work is international, with rules that vary not only over time but also from place to place. We must therefore teach them the skills they need to research, interpret, apply and possibly improve the law.

The task of universities of applied sciences is to enable students to develop knowledge and competences that equip them to work as 21st-century professionals with new technologies within the framework of new international legislation. The key to this is ‘research competence’.

Students at universities of applied sciences must develop research competence that leads to reflection, evidence-based practice and innovation (HBO-raad, 2009). Andriessen identifies three components of ‘research competence’: an enquiring mind, applying knowledge from research done by others, and conducting one’s own research (Andriessen, 2014).

One of the three aims of the lectorate is to support maritime professionals. To this end, it seeks to develop students’ research competence. The lectorate’s students work on research projects at the interface between technology and the law. Students on the Maritime Officer programme who work on the development of onboard apps must find out which legislation applies and learn to interpret it. They will be able use skills like these when they are in a port across the world. The same applies to Maritime Technology students who conduct research into the question of how autonomous ships can comply with national and international regulations. I compare conducting research to the craft of a carpenter. It is not something that we can learn by watching. We learn by doing it ourselves, and chiselling away at it.

The lectorate facilitates collaboration between maritime students and encourages them to explore common ground with students of other disciplines such as Law and Computer Science. This is in keeping with the ‘ateliers’ of NHL and Stenden, where teaching staff, researchers and professionals from the field work together on innovations. In this way, students learn from each other, and this form of collaboration is also found in professional practice.

One example is a request received from a company for students of the Maritime Technology and Maritime Officer programmes to design a ‘connected’ ship with a smaller crew. Another example is a project on which a student on the Maritime Officer programme is working with the Serious Gaming lectorate and students of Communication & Multimedia Design (CMD). They are developing a serious game for onboard crew training. The final example is a research project on the consequences of sailing under a foreign flag for the administrative burdens on board, done by a Law student and a student of the Maritime Officer degree programme.



“Coming together is a beginning;
keeping together is progress; working
together is success.”

Henry Ford

6. The lectorate

The law affects every citizen and every business. Law plays a role in all applied research, since every innovative product or process raises the question of whether it is permitted under existing legislation. In addition, every time new regulations are drawn up, we need to ask what the consequences are for the sector involved, for example the healthcare, education or trade sectors (‘Does this work?’). Given this intertwinement of the law and other research areas, the Maritime Law lectorate seeks to establish the widest possible crossover collaboration with other lectorates within and outside NHL University of Applied Sciences.

In the strategic vision #hbo2025: Wendbaar en Weerbaar (Universities of Applied Sciences in 2025: Flexible and Resilient), the Netherlands Association of Universities of Applied Sciences outlines the main challenges, tasks and ambitions of higher professional education in the period 2015-2025. Nine ambitions are defined for applied research:

- 1 More lectors to reinforce research and teaching
- 2 Lectors become authorized to supervise PhD students
- 3 A growing number of lecturer-researchers
- 4 Collaboration between lectorates, joining forces to prevent fragmentation
- 5 Agreements on the focus areas of universities of applied sciences

- 6 More participating students, who have the ability to reflect and a multidisciplinary approach
- 7 Invest in living labs, field labs or 'knowledge factories'
- 8 A substantial increase in direct and indirect government funding for research
- 9 A strong position in the research and knowledge infrastructure (in Europe too), for example by collaborating in research chains with other research institutes and businesses.

I will now explain how the Maritime Law lectorate intends to realize these ambitions. In particular I will discuss ambitions 3, 4 and 6 regarding the collaboration with and involvement of lecturer/researchers, other lectorates, and students working in multidisciplinary contexts.

The Maritime Law lectorate, the Maritime Innovation Technology lectorate and the lectorate in Maritime, Marine Environmental and Safety Management (MMMV) together form the Maritime research group of NHL University of Applied Sciences. Lecturer-researcher from very different programmes such as Ocean Technology, Information Science, Maritime Officer and Chemical Technology are part of the Maritime research group. This ensures continual knowledge-sharing between various fields.

The three Maritime lectorates work together on various research projects, including the RAAK-PRO project *Maritieme Veiligheid op de Noordzee* (Maritime Safety on the North Sea) and the RAAK-MKB projects 'Port State Control' and *Vermindering Regeldruk* (Reducing the Regulatory Burden). These research projects align with the lectorate's lines of research.

"If you make 10.000 regulations you destroy all respect for the law."

Winston Churchill

In the maritime sector, the burden of regulation is regarded as one of the main obstacles to economic growth. Consequently, in 2014, the IMO issued recommendations for lessening the administrative burden for seafarers. The Maritime Law lectorate is conducting research into innovative ways to reduce the work pressure resulting from legislation and regulations for Dutch merchant vessels.

The use of innovative IT resources plays an important role in this context too. A RAAK-MKB grant was awarded for this research. Various shipping companies and other businesses are research partners. The research is being conducted by students and lecturers of the Maritime Officer degree programme, the Communication & Multimedia Design (CMD) programme

and the Law degree programme of NHL University of Applied Sciences, and is therefore an example of multidisciplinary research. A digital permit-to-work system for merchant vessels is one example of the work they are involved in.

Every year at NHL, the Maritime research group holds a Maritime Event at which it shares research findings from joint projects with the business sector and with students, lecturers and researchers at NHL and other institutions.

The Maritime Law lectorate is also part of the group of NHL lectorates that conduct research in the focus area 'Smart Sustainable Industries'. The Maritime Law lectorate is working with the Serious Gaming lectorate on the RAAK-PRO project on maritime safety. The research involves exploring how serious gaming can contribute to safety in the shipping sector.

The focus of the lectorate also extends to the lectorates of the Stenden University of Applied Sciences. We share common ground with the Department of Innovation in Hospitality, for example. We have already drawn up a research proposal with this department, based on the idea of enabling graduates of the NHL Maritime Officer degree programme as well as Stenden's School of Hotel Management to find employment on cruise ships.

In the Netherlands, Maritime Law is taught inter alia at Leiden University, by Prof. M.H. Claringbould, and at Erasmus University Rotterdam by Prof. F.G.M. Smeele. The lectorate looks forward to collaborating with both professors in teaching and research. The lectorate is also working on research proposals with other universities and institutions. One example is a proposal on autonomous shipping. This is being prepared with partners including TU Delft and the MARIN research institute.



“Silent gratitude
isn't much use to anyone.”

Gertrude Stein

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I have spoken



René ten Bos

WATER

CRIMINAL JURISDICTION OVER PERPETRATORS OF SHIP-SOURCE POLLUTION
ALLA POZDNIKOVA

HUGO DE GROOT

van der Velde De positie van het zeeschip in het internationaal privaatrecht

THE INTERNATIONAL LAW OF THE SEA SECOND EDITION ROTHWELL AND STEPHENSON

INTERNATIONAL
SHIPPING
PUBLICATIONSINTERNATIONAL
CONFLICT
OF LAWS
Common, Civil
and Maritime

TETLEY

JSP

LLOYD'S SHIPPING
LAW LIBRARYLIMITATION
OF LIABILITY
FOR MARITIME
CLAIMS
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RICHARD WILLIAMS
JEREMY FARR

Maritime Economics

Martin Stopford

ROU

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