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Working time limits at sea, a hundred-year construction

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ABSTRACT

In a view to protect workers from extended work periods as well as to comply with the Versailles Peace Treaty requirements, the International Labour Organization (ILO) regulated hours of work from 1919 using ‘8-hour workday and 48-h workweek’ as yardsticks. However, a historical perspective demonstrates the ILO’s difficulties in integrating such standards for sea workers. From 1920 to 1958, the ILO endeavoured to anchor the 8-hour workday principle in maritime conventions on working time and to ensure compliance by quantifying manning levels. Facing sectoral opposition and the obstacle of the minimum tonnage requirement, none of the conventions adopted during the first period entered into force. A second regulatory wave (1995–2007) initiated by the International Maritime Organization (IMO) orientated working time towards fatigue management and adopted the 14-hour workday. Absorbed by the ILO from 1996, this threshold facilitated the implementation of working time standards for sea workers. The existence of autonomous maritime governance at the ILO and the IMO complemented by the incorporation of the tonnage clause in maritime convention allowed the acceptance of the 14-hour workday system in spite of breaching the universal principles established a century ago. The departure between maritime and land standards show that sectoral interests prevail over labour rights. More decisively, current standards detached labour rights from workers’ human nature and attached them directly to sectoral interests.

1. Introduction

The control of working time is vital for employers and workers [1,2]. The employers correlate the hours of work with productivity, competitiveness, and profits. On the other hand, the wage-earners stress that excessive work periods affect occupational safety and health (OSH) and impair quality of life [3].

Promoters of hours of work reduction justify their position with other arguments such as compensation for the wealth generated by modern industry, workers’ well-being and moral welfare, economic efficiency, and reduction of unfair competition have also been put forward [4–6].

The national and international developments of working time regulations correspond to the 19th century’s industrial actions and postwar international crisis (1917–1920) [7]. These regulations are among the very first areas contemplated in labour law [5]. Unsurprisingly, the very first Convention of the International Labour Organization (ILO) addressed hours of work to “[…] safeguard not only workers’ health but also decent working and living conditions, as well as economic problems relating to production” [5]. Adopted in 1919, the Hours of Work (Industry) Convention, No.1 established the 8-hour workday and 48-hour workweek principles. Globally, the ILO considers that workperiods determine the "quality of work but also life outside the workplace" [8] because it corresponds to “the equal distribution of the day between work, rest and leisure[…].” [7].

Recent research demonstrated that the hundred-year-old standards remain consistent with their objectives to ensure proper work-life balance and protect safety and health. The 8-hour sleep per day has been recommended as a minimum for adults by the National Sleep Foundation [9]. Additionally, working beyond 48 hours per week has proved to have detrimental effects on the safety and health of workers and work-family relationships as, inter alia, disclosed by the 2008 Tripartite Meeting of Experts on the Measurement of Decent Work [8,10–13]. Despite being globally accepted and implemented [8], the applicability of 8-h and 48-h principles have been questioned, postponed, and re-adjusted for sectors such as sea and agriculture. \(^1\)

The first instruments to regulate working time for seafarers and

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\(^1\) The case of agriculture is beyond the scope of this work.
fishers entered into force\(^2\) respectively 76 years and 98 years after the general workforce. Notably, the substance of sea standards has diverged from the established 1919 working time norms. Indeed, the daily work limit moved from an 8-hour to 14-hour and weekly standards (based on rest hours) allow up to 98-hour workweek instead of 48-hour.

As reported in recent IMO debates and consistent with the literature, the current maritime standards are questionable in their ability to address safety, health and well-being of seafarers and fishers as well as to support the safe operation of ships \([10,12,14–26]\).

Consequently, the article follows two objectives: (1) to discuss the appearance of the current international maritime standards on working time; and (2) to propose an analysis. Its purpose is not to discuss the details of the current hours of work and rest regimes but to investigate the move from 8-hour weekday to 14-hour workday reference.

The paper is organized as follows: Section 2 presents the origins of the working time norms at the ILO; Section 3 to set up maritime exceptionalism at ILO; Section 4 introduces the first ILO instruments adopted from 1936 to 1958 to regulate the working time of seafarers and fishers; Section 5 discuss the involvement of IMO on working time standards and the rationale behind the 1993–1995 instruments; Section 6 presents the 1995–2007 period when current standards were adopted at ILO and IMO; Section 7 discusses the social construction which allowed the move from 8-h to 14-h workday reference; finally, Section 8 concludes the paper.

2. ILO construction of a working time norm

Born in the aftermath of the first world war (WWI), the ILO emerged as a reformist response to workers’ pressure expressed during the war (e.g., Conference of Leeds in 1916 and Berne in 1917) and to moderate social anger exemplified by post-war uprisings \([5,27–30]\). The preamble of the ILO Constitution linking peace and social justice also highlighted the urgent need to improve working conditions and, inter alia, “[…] hours of work, including the establishment of a maximum working day and week […]”.

Echoing the terms of the Versailles Peace Treaty (art.427), which “urged the adoption of an eight-hour work day no mention was made of its limitation to certain classes of work” \([31]\), the first ILO Conference in Washington (1919) adopted six conventions, including three related to working time. The three instruments defined daily and weekly standards\(^3\) and night work for some workers.\(^4\)

From 1919 to 1936, the ILO reference system on working time emerged \([8,32]\). The article 2 of C001 established that “[…] working hours of persons […] shall not exceed eight in the day and forty-eight in the week”. In addition, the article 2 of 1921 Weekly (Industry) Rest Convention No.14 required that “in every period of seven days a period of rest comprising at least twenty-four consecutive hours” be provided.

The Hours of Work (Commerce and Offices) Convention, 1930 (C030) extended the application of the standards and confirmed the 48-hour workweek. However, the C030 tolerated a maximum of a 10-hour workday.\(^5\) During the Great Depression, the ILO adopted the principle of a Forty-Hour Week with the Convention No.47\(^6\) (1935) and the Holidays with Pay Convention, No.32 in 1936 \([5]\).

Furthermore, the ILO adopted regulations associated with work patterns. Since 1919, night work provisions intend to protect women and young workers’ health; and, in 1990, the ILO extended protection against the deleterious effects of night work to all workers through the Night Work Convention (C171) and Recommendation (R178).

In short, the ILO constructed an international norm around the 8-hour workday principle, implying the 48-hour workweek with 1-day rest. The ILO completed working time standards with a limit of 10 hours of work per day; paid holidays, the 40-hour workweek target; as well as provisions for night work and special arrangements for women and young workers.

Despite aiming at universality as underlined by the Versailles Peace Treaty, ILO Conventions on working time explicitly excluded sectors such as shipping, fishing, and agriculture \([31]\). Consequently, the workers of these sectors were set aside from the enacted normality. It signifies that the labour rights (in terms of working time) for these categories of workers needed ‘adjustments’ to meet sectoral constraints or demands which detached the working time standards from the worker and attached them to the sector.

3. The separation of sea workers

The non-application of “common” rules to sea workers appeared with the establishment of a dedicated ILO machinery \([33]\).

3.1. Legal origins of a separation

During the 1919 Versailles Peace Conference, seafarers’ organizations suggested creating a maritime institution empowered with maritime questions \([31]\). Two reasons motivated the rejection: (1) to avoid ‘breaking the organic unity’ of the ILO; and, (2) to elude that a separation between workers became ‘detrimental to sea workers’ \([34]\).

Nevertheless, to accommodate such aspirations, the first session of the Governing Body of the ILO reported it desirable to address specific questions related to safety in “special branches or subsections for certain industries such as mining and shipping” \([35]\). The intention was to ensure an equivalent level of protection to vulnerable workers (e.g., women, young workers or migrants), and those exposed to high-risk environments and/or working in unusual places (e.g., sheet glass works, agriculture, plantations, mining, and shipping).

Rodgers et al. \([27]\) recalled that “Since its earliest days, the ILO has adopted measures for particular categories of workers. In addition to the situation of children, much attention has been paid to such groups as disabled persons, as well as to occupational categories including, inter alia, merchant seafarers.” In summary, risk exposure and vulnerability justified differentiated standards at ILO.

Regulatory developments directed to land-based vulnerable workers and high-risk environments remained within the standard ILO

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\(^2\) The prolonged absence of international standards does not mean that working time on ships was unregulated. Some States adopted national provisions on hours of work. As early as 1921, the Iceland Act, No.53 regulated rest periods of fishermen on trawlers (12 h rest per 24 h and shifts not longer than 6 h).

\(^3\) Hours of Work (Industry) Convention (C001), 1919.

\(^4\) Night Work (Women) Convention (C004), 1919 and Night Work of Young Persons (Industry) Convention (C006), 1919. To extend the protection against deleterious effects of night work, the ILO adopted in 1990 the Night Work Convention (C171) and Recommendation (R178). The intentions of these instruments are to cover all workers through the development of “specific measures […] in order to protect their health, assist them to meet their family and social responsibilities, provide opportunities for occupational advancement, and compensate them appropriately” (art.3).

\(^5\) In 1957, the Weekly Rest (Commerce and Offices) Convention (No. 106) established a 24-h rest period per week for these workers.

\(^6\) Complemented by the 1962 Reduction of Hours of Work Recommendation (No. 116), the ILO emphasized that “[6] […] normal weekly hours of work are either forty-eight or less […]” and “(16) All hours worked in excess of the normal hours should be deemed to be overtime, unless they are considered in fixing remuneration in accordance with custom.”

\(^7\) Own translations from French.
machinery. For example, the specific ‘nature’ of underground mining activities never marginalized the sector. The ILO just adapted its core standards to mining conditions, such as the 1931 regulations on working time allowing a maximum of 74½ hours in the mine.

Contrary to any land occupation, maritime questions have been excluded from general scrutiny before being marginalized. A three-act production sanctioned the separation between sea workers and others. First, the Versailles’ Commission on International Labour Legislation decided to dedicate a session of the International Labour Conference to maritime issues in Genoa 1920 [34]. Second, the Governing Body of the ILO formally enacted the separation of maritime affairs from general labour law by establishing a Maritime Section with a Joint Maritime Commission (JMC) [35]. Finally, the Third International Labour Conference in Geneva (1921) endorsed the split between sea and land-based workers [31].

As noted by Wiswall (1970), with the separation “it was resolved that no ILO instrument should apply to seafarers unless the questions involved had previously been considered by the Commission and then passed as a special maritime question on the agenda of the Conference.” Since that time, the Maritime Section and the JMC act as filters adapting labour questions and standards to the sectoral specifics [31, 34].

3.2. Justifying the separation

The concentrated nature of shipping [36] facilitated the acceptance of separate maritime governance. It was an undeniable success for shipowners who argued that “[…] questions affecting their industry should be dealt with at special Sessions of the Conference with an exclusively maritime agenda and so composed as to represent only countries and organizations really concerned in maritime questions.” [31] Mercantile States were particularly receptive to shipowners’ argumentation as exposed during the first maritime conference (1920): “[…] recognizing the paramount interest which the High Contracting Parties have in not injuring the shipping trade – so vital to the restoration of normal conditions of human life – by attempting to give effect to unproved theories [such as the application of 8-hour day and 48-hour week]”.

However, a conclusive listing detailing the sector’s specificities justifying the separation from other workers remained unavailable. A reconstruction of the 1920s arguments can be established from interwar publications by the ILO (the second International Conference maritime session, 1920; the International Seamen’s Code, 1921; ‘les marins et le bureau international du travail’, 1930; and the ILO review of the first decade, 1931). Five arguments supported the separation: (1) the international nature of shipping - because ships are not anchored in a single territory, sea workers are exposed to the vicissitudes of global competition; (2) ships operate beyond national control - sea workers cannot be protected by national standards and their control mechanisms; (3) sea workers are wage-earners inserted in international labour markets; (4) common customary rules governed the sector and some of its social relationships; (5) the working system became quasi-militarized and imposes sanctions without land equivalent.

These sectoral characteristics show that labour remains a commodity directly affected by international competition. The global labour markets affect seafarers negotiating capacities. The power imbalance is further accentuated by harsh structural discipline [10].

Noting that the socioeconomic conditions of shipping proved to have detrimental effects on this vulnerable class of workers who need special attention [27], the ILO detached the maritime sector to best adapt standards such as working time to the sectoral specifics [31, 36].

[10] Historians from the early 20th century considered that “harsh class relationships were intrinsic to maritime life,” arguing that to overcome the hostility of the environment, an authoritarian structure of command was necessary [76]. The discipline has also been justified by the porosity between shipping and navy. However, recent debates about discipline in shipping and navy revealed more complicated. Indeed, the navy historian ‘Nicholas Rodger has argued that harshness of command was never the rule at sea, even in the British navy’ [76]. Additionally, the 1960s historians R. Davis and J. Lemisch suggested that “the authoritarian character of shipboard relationship was not a natural but a social construction.” [76] Following this approach, M. Rediker [97] argues that strict discipline on British and American merchant fleets has to be associated with the development of capitalism in the 18th century, underlining that “Discipline in the merchant shipping industry was a necessary part of a process of exploitation, the creation of value, and the extraction of surplus value.” Additionally, he noted that “Relative to other seamen [on domestic and small ships], they sold their labour in a large and impersonal labour market, sailed big ships amid a strong collectivity of labour and a demanding labour process, made long voyages, and experienced the systemic uncertainties of their employers (merchants and captains) about profits to be realized in far-flung markets, all of which combined to increase the incidence of both discipline and resistance in their lives. These characteristics of social life at sea made seafaring discipline an urgent part of an increasingly global marketplace.” Fink [98] confirmed that harshest conditions prevailed in capital-intensive long-distance trade. Sherwood [99] also stressed the link between ocean-going ships and exceptional disciplinary measures when analyzing the case of ‘las-cars’ working on British colonial fleet. In other words, the disciplinary regime served to overcome seafarers’ resistance while channeling the profits toward Capitalists. The resistance of seafarers to brutal class relationships came from the capture of profits by merchants and masters which was in contradiction to pre-capitalist practices when “The share system, in which each crew member had a stake in the cargo, contained its own system of discipline, binding each crew member to a larger interest in the success of the voyage.” [57] The link share-system/discipline had previously been commented by C.E. Ayble about the Hanseatic league practices in 1933. For Gerstenberger [71] validated this approach for Germany: “Neither the functioning of the sailing vessel nor the difficulties of living together in a very restricted space required a ‘naval’ system of discipline aboard merchant ships. This only became necessary when the economic use to which vessels were put began to run counter to old seafaring customs.” For Gerstenberger, the authorities of German cities progressively dismantled the ancient seafaring practices by granting “[…] merchants the right to violate seafaring customs […]” The disruptive turn towards authoritarian command began when local authorities abolished “the seafarers’ privilege to transport a certain amount of merchandise on their own account free of charge” and banned possibilities for seafarers to conduct their own business during port stay. Seafarers attempted to resist the new order but, in 1841, “Prussia transformed disobedience aboard ship into a criminal act to be punished by imprisonment,” and in the 1854 law transformed “[…] a private labour contract into a state-sanctioned social relationship by making desertion a criminal offence.” [71] It signified that seafarers were denied the right to complaint or to leave the ship even on safety grounds or when facing unjust working situations. Merchants’ interests modified seafarer labour regime and subjugated workers. From honorable seamen, sharing risks and profits, seafarers became wage-earners subject to heavy discipline. A simple objective motivated the various disciplinary regimes: the enhancement of the power of owners who can master expenditures and capture the profits without dispute. It is noticeable that this historical approach meets the M. Foucault analysis made by in his book Discipline and punish: The birth of the prison. For him, the strict discipline of labour emerged during the 18th century as a fundamental condition to incorporate human activities into a society organized around the economic calculation.
4. The ‘8-hour anchorage’ - the first regulatory period (1920–1958)

Held in Genoa in 1920, the second International Labour Conference and first maritime Conference debated, *inter alia*, the “Proposed Draft Convention limiting working hours on board ship”. Motivated by the first ILO Convention, the proposal integrated the 8-hour workday and 48-hour week principles (art.1).

The draft laid down that “employment at sea shall be organized in three watches at least” (art. 2) for ships of more than 2,500 tons. Interestingly, this directly associated working time with manning levels to ensure the practical implementation of the standards. Additionally, the three watch principle explicitly banned the two-watch system (6On/6Off) for ships above 2,500 tons. For smaller ships (700–2,500 tons), “the hours work should not exceed twelve hours per day” (art.3) which remains below the current regulations of 14-hour workday. Finally, the draft required the national authorities to cooperate with social partners to regulate the working time for fishers and other seafarers. When determining such limits, the reference remained an 8-hour workday and 48-hour workweek.

However, the 1920s’ discussions on hours of work at sea engaged in post-war depression [37]. Signs of shipping crisis combined with the 48-hour workweek. The draft required the national authorities to cooperate with social partners to regulate the working time for fishers and other seafarers. When determining such limits, the reference remained an 8-hour workday and 48-hour workweek.

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4.1. The first ILO working time Convention for sea workers (1936)

Motivated by C001/C014/C030 and the failed 1920 draft, the Convention No.57 reaffirmed the 8-hour workday principle and the 48-hour workweek.

Despite some exclusions (e.g., radio officers) and fragmentation of the crew standards (e.g., officers, ratings, catering, etc.), the C057 provisions included (additional details in appendix):

- **Hours of work**: 8-hour day (as C001) but up to 10-hour day for catering and clerical department (as C030);
- **The maximum period of work**: no more than 12 hours per day (as 1920 draft);
- **Weekly limitations**: for day workers 48-hour workweek and watchkeepers 56-hour workweek;
- **Hours of rest**: one day of rest per week and, for catering and clerical department, not less than 12 hours rest per day with a minimum 8 consecutive hours (art.9).

Following the 1920 draft, the Convention associated hours of work with manning. Interventionist, the manning provisions contained in Part III of the 1936 Convention No.57 prescribed minimum numbers for deck officers, ratings and engineers according to ship size and engine power (e.g., at least 2 to 3 deck officers in addition to the master, at least 6 to 9 ratings, and a minimum of 3 engineers). These numbers established the de facto three-watch system and banned the “Master/Chief Mate two-watch watchkeeping system [which] is inherently unsafe and does not allow the officer and master to fulfill all the duties necessary for the safe operation of the ship.” [39].

Remarkably, the 1936 Convention restricted shipowner’s power on manning levels; this unprecedented attempt to frame shipowners’ freedom will never be reiterated.

Only three countries on the required “[…] five Members of the Organisation, each of which has a mercantile marine tonnage of not less than one million tons.” (Art.24/2) ratified the convention (Belgium in 1938, the United States in 1938 and Bulgaria in 1949).

One claimed reason for not ratifying was the non-inclusion of a provision on wages [38]. Another hindrance was the modification of entry into force criteria (EIF) in terms of the minimum number of required member state ratifications and the inclusion of tonnage thresholds.

In 1936, the ILO also adopted the Holiday with Pay (sea) Convention, No.54. The Convention entitled officers to 12 days and rating to 9 days of paid holidays after twelve months of continuous service. Including the same tonnage requirements as the C057, the Convention C054 never entered into force.

4.2. The second ILO regulatory wave – 1946 to 1958

From 1946 to 1958, the ILO adopted a second wave of conventions addressing hours of work (C076/C093/C109). The standards elaborated on the 8-hour and 48-hour principles (additional details in appendix) but allowed enhanced flexibility (e.g., creation of a near-trade category with lower standards, 112 hours in a period of two consecutive weeks).

The most significant change was the softening of manning provisions. Far from benign, this alteration re-established the absolute freedom of shipowners on determining manning levels. The 1936 strictly quantified manning levels were replaced by a revised wording “[…] preventing excessive strain upon the crew and avoiding or minimizing as far as practicable the working of overtime” (Art.20-C076 & Art.21-C109).

Another innovation was the inclusion of wage and overtime compensation because remuneration is working-time dependent. However, the conventions (C076/C093/C109) emphasized that “The consistent working of overtime shall be avoided whenever possible.” Because excessive overtime indicates “[…] inadequate employment involving inadequate salaries […]” [11].

Unfortunately, none of these conventions entered into force. No country ratified the C076, while five countries (Cuba, Philippines, Uruguay, Brazil, Iraq) ratified Convention No. 93. Entangled in wage debates and blocked by the tonnage requirements the C109 never entered into force despite fifteen ratifications. Some non-ratifying countries cited difficulties in applying wage provisions [38].

The period also saw the revision of holidays for seafarers (C054) and the adoption of two Paid Vacations (sea) Conventions (C072–1946 and C091–1949). The substance of these conventions changed marginally; after 12 months on board no less than 18 days for officers, and no less than 12 days for ratings; for contracts between 6 and 12 months, the ratio is one and half working day for officers and one day for rating for each complete month on board.

With five ratifications, the C072 did not enter into force, but on 15 September 1967, the Paid Vacation (seafarers) Convention, No.91 became the first ILO Convention to regulate an aspect of working time at sea.

4.3. The established link manning and safety at sea

Before the ILO debates on hours of work and manning, the international conference signed at London in 1914 to adopt the Convention for
the Safety of Life at Sea (SOLAS) recognized the importance of manning for ship safety. Indeed, the article 15 instructed parties to the Convention “[…] to maintain, or […] to adopt measures for the purpose of ensuring that from the point of view of safety of life at sea, the ships […] shall be sufficiently and efficiently manned”. Unfortunately, WII postponed the implementation of the Convention.

The 1929 version of SOLAS Convention expanded manning requirements to all ships (art.48) as required today. The substance of the article12 survived the transfer from the United Kingdom to the Inter-Governmental Maritime Consultative Organization (1948) later renamed IMO [40]. Since that time, the international maritime instruments addressing safety at sea cover workload of seafarers “[…] from the point of view of safety of life at sea […]” (SOLAS, 1914) but not from a social rights standpoint contrary to ILO’s approach.

While the labour-driven attempt to regulate hours of work at sea failed, the incorporating of ‘manning’ in safety inspired a second wave of regulations directly instigated from within the maritime-sector.

5. The IMO takes the helm - the post-1993 period

After the unsuccessful 1920 and 1936 attempts to strictly quantify manning levels, the maritime and labour communities espoused the imprecise SOLAS wording on manning. The notion of ‘ships sufficiently and efficiently manned’ migrated from SOLAS to ILO when the 1946 Wages, Hours of Work and Manning (Sea) Convention No.76 adopted new manning requirements. Finally, the notion naturally penetrated the IMO when SOLAS became an international treaty.13

In 1981, the IMO slightly clarified the notion by adopting the first resolution A.481(XII) on principles of safe manning [40]. Two factors were introduced to determine safe Manning: quality and quantity of seafarers (e.g., training and sufficient restorative periods).14 It is noticeable that the IMO introduced principles of ‘safe manning’ but not on ‘sufficiently and efficient manning’. This restricts the minimum manning to safe navigation and neglects aspects such as commercial operation and maintenance or administrative duties. At this stage, the IMO expressed principles but did not strictly quantify minimum rest periods and/or maximum hours of work.

The Herald of Free Enterprise (1987) and Exxon Valdez (1989) casualties triggered major regulatory development at IMO because the investigations revealed fatigue and inadequate manning as important contributing factors to the accidents [41–44]. Under pressure by member States, the IMO reacted by the adoption of resolution A.772(18) on Fatigue factors in manning [45]. This initiative spread ‘fatigue management’ in IMO’s framework, which ultimately allowed the Organization to take a leadership role over working time at sea.

The IMO prompted three regulatory developments directly and indirectly affecting working time. The 1995 amendments of the 1978 International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) represents the most significant action (5.1) because minimum rest hours became mandatory. The second move (5.2) was the inclusion of fatigue in the principles of safe manning; and, finally, (5.3) the IMO produced guidance and guidelines on fatigue.

5.1. Fitness for duty in STCW to protect ships from the crew (1995-2010)

For the “purpose of preventing fatigue” (STCW regulation VIII/1), the 1995 amendments to STCW 78 introduced regulations on ‘fitness for duty’. The requirements laid down minimum hours of rest for watchkeepers. The intention was to protect the ship from unrested/unfit workers. Consequently, regulation VIII/1 tasked Flag States to “establish and enforce rest periods for watchkeeping personnel […]” in line with the requirements of the STCW Code section A-VIII/1 and B-VIII/1. Enforceable at their E1F (Feb.1997), the STCW provisions became the international ‘yardstick’ imposing minimum restorative periods at sea.

Re-amended by the 2010 Manila conference, the regulation was enriched to accommodate MLC, 2006 requirements. However, both instruments do not perfectly align. For example, the STCW 78 as amended does not integrate hours of work, offers more flexibility than the MLC, 2006, and includes restrictions on alcohol use [46].

Without ambiguity, section A-VIII elucidated the aim of the regulation: “Administrations shall take account of the danger posed by fatigue of seafarers, especially those whose duties involve the safe and secure operation of a ship” (paragraph 1). This short sentence underlines the objectives of the regulation to protect ships and the marine environment from the fatigue of seafarers. The target is to preserve the cognitive abilities of the most critical workers for ship safety.

It is certain that the drafters of the text are sensitive to the occupational safety and health of seafarers.15 However, the point of view conveyed by the text is quite different from that which arises from the phrase “the danger posed by fatigue to seafarers”. With such later wording, fatigue management becomes associated with ship safety and occupational safety and health (OSH) [47].

The rationale behind STCW is the preservation of the ship operation from human errors related to unsafe actions/decisions performed by unfit/unrested crewmembers. In other words, ship safety motivates the IMO more than workers’ health and well-being. The restricted application, initially to watchkeepers and then broadly to those engaged in safety-related duties (but still not all) supports this hypothesis. Some national provisions incorporate this approach.16

McConnell et al. [33] confirmed this utilitarian approach: “Fatigue, particularly for in seafarers with watchkeeping responsibilities, is linked to ensuring ship safety and avoid the risk of maritime incidents.” Such an approach means workers exist only to serve the production systems and to ensure they do not endanger its functioning. While in line with the IMO mandate and motto ‘Safe, secure and efficient shipping on clean oceans’, the current STCW 78 as amended remains disconnected from other dimensions attached to working time as promoted by the United Nations.17

With such limited acceptance of the meaning of work, the human, social and cultural dimensions of work are obliterated, which, unfortunately, characterize the decline of the ‘spirit of Philadelphia’ [48] and the era of disruption [49].

The particularity of STCW 78 as amended is to quantify recuperative periods in terms of minimum rest periods instead of directly tackling the issue of hours of work. The member States negotiated the following rest

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12 From SOLAS Article 48 Chapter V in 1929, to Regulation V/13 in SOLAS 1948/1960/1974, and currently in Regulation V/14 Ship’s manning since 2012 amendments [100].

13 Indeed, the Inter-Governmental Maritime Consultative Organization (IMCO), which became IMO in 1982, inherited SOLAS from the Government of the UK.

14 The IMO emphasized that “safe manning is a function of the number of qualified or experienced seafarers […] [and […] their continuous efficiency through conditions relating to training, hours of work and rest, occupational safety, health and hygiene and the proper provision of food.” A-481(XII).

15 As demonstrated by Guidelines on the Basic Elements of a Shipboard occupational health and safety programme (MSC-MEPC.2/Circ.3) which mentioned fatigue as a contributing factor to accidents [101].

16 Belize exemplifies the approach. Its regulation explicitly associates fatigue with ship safety without considering OSH. Indeed, the wording underlines that ships: “need to be properly manned and the crew be well rested and free of fatigue for watchkeeping so as to attain the highest level of safety of life and property at sea and the protection of the marine environment.” In Merchant Shipping Notice MSN-0024 on working hours and rest periods, IMMARBE (International Merchant Marine Registry of Belize), 31 Oct.2006.

17 Such as Art.24 of the Universal Declaration of Human Rights and Art.7 of 1966 International Covenant on Economic, Social and Cultural rights as well as in ILO working time instruments.
hours thresholds:

- **Daily standards**: “a minimum of 10 hours of rest in any 24-hour period”.\(^{18}\) This standard allows (by subtraction) up to 14 hours of work per day, without interruption (i.e. it is above the 8-hour workday and the maximum 12-hour per day for sea worker as adopted in 1936 ILO Convention No.57 and suggested in Convention No.109);

- **Minimum rest period**: can be “divided into no more than two periods, of which at least shall be 6 hours in length”. The provision has been purposely-designed to accommodate the 2-officer watch system;

- **Weekly standards**: “77 hours of rest in any 7-day period”. This weekly threshold allows up to 91 hours of work per week. In addition, “Parties may allow exceptions from the required hours of rest […] provided that the rest period is not less than 70 hours in any 7-day period” (i.e., by subtraction, up to 98 hours per week are allowed. It means 14 hours of work per day without off days).

Finally, the regulation permits deviation/exemptions in “case of emergency or drill or in other overriding operation”. The notion of overriding operation is briefly commented on in a non-binding part of the STCW Code (Section B-VIII/1) but is widely open to interpretation. Focused on ship safety, the current thresholds are established a 14-h workday reference system for seafarers.

### 5.2. Post-1993 principles of safe manning – incorporation of fatigue

The resolution A.890(21) [50], amended by A.955(23) [51], integrates fatigue by emphasizing the responsibility of the company and the master to ensure that crewmembers “do not work more hours than is safe in relation to the performance of their duties and the safety of the ship […]” and that “Manning levels should be such as to ensure that the time and place available for taking rest periods are appropriate for achieving a good quality of rest.” (Annex 2 paragraph 2)

Finally, the most recent resolution A.1047(27) on ‘principles of minimum safe manning’ [52] continues to link fatigue and manning. The Annex 3 on responsibilities in the application of principles of minimum safe manning recalls that, when proposing manning level, the company should, inter alia, “ensure that fitness for duty provisions and record of hours are implemented; […]”, and “ensure that the safe manning is adequate at all times and in all respects, including meeting peak workload situations, conditions and requirements, […]”.

In essence, the IMO resolutions on safe manning provide guidance on how to determine manning level and indicate a process. Contrary to ILO Convention No.57 imposing absolute quantification of manning levels, the IMO resolutions do not restrict shipowners’ freedom. Additionally, the resolutions systematically use the term “should” instead of “shall” which limit its power.

### 5.3. IMO circulars on fatigue (1999-2019)

From 1999 to 2001, the IMO prepared guidance “to provide appropriate information on fatigue to all parties concerned” (including seafarers, shipowners, and shipbuilders) (MSC/Circ.1014 paragraph 1). The circular stressed that fatigue mitigation is a shared responsibility [53], and required to promote the text because “in addition to the threat of ship safety, shipboard fatigue can jeopardize seafarers’ physical and psychological health, at a high cost to the individual and the industry.” (module 7 on ship design)

Considering that fatigue remains an acute problem among the seafaring community [54], the IMO Subcommittee on Human Element, Training and Watchkeeping (HTW) adopted the new circular (MSC.1/Circ.1598) on Guidelines on Fatigue [55]. This latter instrument emphasized again that “Fatigue is a hazard that affects safety, health, and well-being. It presents a considerable risk to safety of life, property, health, security and protection of the marine environment.” (MSC.1/Circ1598) Additionally, the Guidelines on Fatigue lists the cognitive, physical, and behavioural consequences of fatigue: “long-term effects on health and clinical illnesses, increasing the risks of pain, stress, obesity, coronary heart disease, gastrointestinal disorders, and diabetes. Long-term effects also point to mental health problems such as negative mood states and depression.” (#46)

Interestingly, the IMO quantifies and qualifies sleep (not rest) for the first time in MSC.1/Circ1598. The circular highlights that “[…] to satisfy the needs of the human body, the sleep must have three characteristics to be most effective. 1 Quantity: it is generally recommended that a person obtain, on average, seven to eight hours of good quality sleep per 24-hour period .2 Quality […] People need deep sleep […] .3 Continuity: […] sleep needs to be uninterrupted […]” (Module 1). In line with the Guidelines on Fatigue, research conducted by Yale University recommends, inter alia, “[…] to ensure that seafarers have adequate, uninterrupted sleep for the avoidance of fatigue and associated depression.” [56].

Remarkably, the quantification of sleep in the Guidelines (7–8 hours of continuous sleep) implicitly questions the STCW78 as amended. Indeed, this mandatory instrument does not elaborate its provisions on such thresholds of uninterrupted sleep but allow minimum 6 hours of rest.

Regrettably, the guidelines are informative but non-binding. This confirms the IMO’s soft approach to fatigue and disinclination to tackle the source of the problem: the manning level which is directly associated with crew expenditures and freedom of shipowners.

At the end of the period, the IMO possesses mandatory requirements on rest hours; and, subsequently, hours of work. The IMO fatigue and rest hours approaches established a legal precedent in maritime sector and demonstrated that the maritime community could consent to working time standards if they meet industry practice signifying deviance from ILO norms. While the Organization explicitly recognizes the detrimental effects of fatigue and alcohol on seafarers’ cognitive performance, its approach denotes a utilitarian view of fatigue. Indeed, the regulation is not motivated by OSH drivers but focuses on ship safety. Despite its imperfections, it remains the first international instrument addressing hours of work at sea to enter into force.

### 6. The third period (1996–2007) – the normative split within ILO

Contemplating its failure to regulate working time since 1919, the ILO could not ignore the IMO success and the pressure to regulate hours of work at sea.

When presenting a revision of the convention on hours of work, the Report II (1996a) to 84th (Maritime) Session of the International Labour Conference recalled the context of the period and exposed the IMO’s approach. In short, the 1990s’ context facilitated the integration of IMO’s fatigue management options (i.e., rest hours) in the draft proposal discussed during the 1996 maritime conference.

The draft proposal softened the IMO’s requirements by laying down a minimum of 84 hours of rest per 7-day period. However, the conference compromised, and the following thresholds were adopted in the Seafarers’ Hours of Work and the Manning of Ships Convention, No.180:

- “1. The limits on hours of work or rest shall be as follows:
  
  (a) maximum hours of work shall not exceed:
    (i) 14 hours in any 24-hour period; and
    (ii) 72 hours in any seven-day period;
  
  or

  (b) minimum hours of rest shall not be less than:

\(^{18}\) The 1995 version allowed to reduce rest to 6-h per day.
6.1. Hours of work and rest in MLC, 2006 Regulation 2.3 and in fishing sector

A significant innovation of the MLC, 2006 is its application to all seafarers. The previous fragmentations, between officers and ratings or departments, are erased.

The standards re-affirm the alignment on IMO’s objectives (fatigue and safety) by emphasizing fatigue management “[…] especially for those whose duties involve navigational safety and the safe and secure operation of the ship” (Standard A2.3 paragraph 4) and by introducing quantification of rest periods.

However, instead of focusing only on rest hours as STCW, the ILO recalled its origin by highlighting that (A2.3 # 3) “[…] normal working hours’ standards for seafarers, like for other workers, shall be based on an eight-h day with one day rest per week and rest on public holidays”.

However, the ILO contradicts its norms by allowing Members to set minimum rest hours or maximum hours of work (A2.3 # 2).

By offering such a choice, the MLC, 2006 implicitly recognized an equivalence between both standards in A2.3 paragraph 5 (a) (work) and (b) (rest). However, a simple calculation demonstrates their non-equivalence.

Based on the definition of hours of work and hours of rest, the following Table 1 compares Standards: A2.3 # 5 (a) hours of work and A2.3 # 5 (b) hours of rest. On the upper part of the table, the hours of work Standards (in black and bold font) are converted into rest hours standards (non-bold font). The lower part of the table converts the rest hours standards into hours of work standards (same color code).

From this simple exercise, it is clear that the standards are different. While the daily limits remain equivalent, the weekly limits are significantly different because the rest hours standards align with IMO thresholds.

As presented above, should a member State choose to comply with the hours of work standard of 72 hours of work in a 7-day period listed in A2.3 # 5 (a), the calculated hours of rest would be 96 hours in any 7-day period. However, if a member State follows the hours of rest standard listed in A2.3 # 5 (b), the 77 hours of rest in a 7-day period calculates to allow 91 hours of work in any 7-day period. As such, following the standard of rest criteria is far more favourable to shipowners in that it allows for 91-hour workweek, while the hours of work standards allow for just 72-hours workweek; a difference of 19 hours of work per week.

In short, the ILO and IMO reference systems coexist in the same ILO text. Surprisingly, the 8-hour workday principle and maximum/minimum standards are not strictly contradictory but instrumental to deviance.

The 8-hour workday provides the ‘normal’ working time matrix (paragraph 3) on which other factors such as wage, overtime, and vacations are calculated [33].

The second standard (paragraph 5) normalizes the persistence of extensive overtime and long hours of work. This normalization allows reduced manning, imposing the scarcity of resources on ships [43, 57, 58]. Finally, it is essential to recall that those long working hours and extensive overtime result from organizational choices related to the determination of manning levels.

Additionally, other possibilities to extend work periods are possible. Regulation A2.3 paragraph 6 allows the distributing of rest in two periods with one period of at least six continuous hours. Furthermore, hours of rest may be suspended in case of emergency and for safety reasons but not for overriding operations contrary to STCW A-VIII/1.

Finally, there are no specific provisions considering night work except for young workers (Guideline B2.3 and Standard A1.1 paragraph 2)

Further, the ILO Work in Fishing Convention (WIFC, 2007) absorbed the fatigue mitigation approach “[…] to ensure safety and health” (article 13(b)).

For the first-time working time provisions for fishers have been adopted by an international instrument but its scope remain restricted. Considering that minimum periods of rest are applicable only to fishing vessels “remaining at sea for more than three days” (article 14 paragraph 1(b)), the regulation, de facto, excludes most of small-scale fisheries representing about 90% of world fishing fleet [59]. Moreover, rest hour periods are subject to exceptions (article 14 paragraph 2).

Surprisingly for an ILO instrument, the WIFC, 2007 focuses on minimum hours of rest but completely disregards hours of work. It implies that the ILO norm of 8-hour workday should never apply to fishers. What would justify such omission: the nature of individual fishers or the preservation of fishing practices? The question contains the answer but shows that for fishers the working time regulation was clearly developed to meet sectoral demands but not human needs.

| Standard A2.3 paragraph 5 (a) Hours of work | Equivalent to 10 hours of rest in any 24-hour period |
|---------------------------------------------|-----------------------------------------------|
| 14 hours in any 24-hour period               | Equivalent to 96 hours of rest in any 7-day period |
| 72 hours in any 7-day period                 | Standard A2.3 paragraph 5 (b) Hours of rest |
| Equivalent to 14 hours in any 24-hour period | 10 hours in any 24-hour period |
| Equivalent to 91 hours of work in any 7-day period | 77 hours in any 7-day period |

6.2. Limits beyond norms ILO and safe standards

Notably, the standards enforced in the maritime domain go far beyond the 1919 principles as section A-VIII/1 allows 14-hour workdays (instead of 8) and up to 98-hour workweeks (instead of 48). These limits are questionable in their ability to effectively address fatigue [39, 54, 61–64].

The departure from ILO standards does not only relate to daily and weekly provisions because the regulation does not consider night work.

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19 Indeed, the preparatory works to the MLC, 2006 showed that the shipowners’ group and some Governments wanted to perpetuate the fragmentation of crew and promoted the exclusion of ships’ masters and chief engineers from hours of work restrictions [32, 33].

20 In compensation of missing IMO definition of hours of rest, Standard A2.3 # 1 (b) enacts hours of rest as “[…] time outside hours of work; this term does not include short break.”

21 Daily hours of work or rest = 24h - daily standards; and weekly hours of work or rest = 168h (i.e.24x7) – weekly standards.

22 While the hours of work standards allow 72 h of work, the hours of rest standards allow up to 91 h of work per week.
Despite the fact that seafaring activities require 24/7 vigilance and a crew organized in watch and a few day workers, none of the ILO instruments regulating night work includes seafarers or fishers.

It is hard to believe that the detrimental impacts of night work, as profusely demonstrated in literature [8,10–12,21,25,60], do not affect sea workers’ safety, health, and well-being. Interestingly, the night work protections for women granted by ILO since 1919 were waived for female sea workers.

6.3. Initial comments on the rest hours limits in ILO instruments

As reported in the 1996 debates related to the C180 [38]: “[…] the maximum hour limitations provided […] are not to be considered normal hours of work”. It means that extended periods of work should be the exception, not the norm.

However, the current wording of the MLC, 2006 and WIFC, 2007 authorizes a 14-hour workday and the WIFC, 2007 allows up to 98-hour while the MLC, 2006 authorizes up to a 91-hour workweek without adequate restrictions in duration. These limitations elaborate on the 14-hour workday reference system. This reference has continuously been promoted by shipowners’ groups and some countries because it ensures flexibility during ship operation and, more importantly, the perpetuation of the two-watch system [38,65].

The engraving of such rest hours thresholds normalizes the deviation from the 8-hour norm as academic literature on the topic has amply demonstrated, particularly for shipping [15,54,58,61,66]. In essence, current standards detached labour rights from the human nature of workers and attached them directly to sectoral functioning. Thus, outdated practices and sectoral vicissitudes determine the extent and type of labour rights sea workers have access to. Their labour rights are not absolute but conditional to the maritime sectors satisfaction. In this respect, maritime labour rights are not individual rights.

Further, the existence of working time standards (whatever they are) demonstrates to the public that shipping and fishing regulators act to integrate human factors in ship operation. Currently, the shipping and fishing sectors operate their ships with reduced manning without violating any international standards as both sectors succeed in departing from the land-based normality.

In short, from 1995 to 2007, the IMO and ILO have rooted working time at sea standards back to the 19th century when “[…] working days of 14 or 16 h were not uncommon” [5,8]. However, some would argue that the departure from ILO norms was a necessary evil to surmount the resistances hindering the entry into force of working time Conventions in the maritime domain.

7. Construction of sectoral isolation

According to Lee at al. (2007), the hundred-years-old standard (8-hour workday and 48-hour workweek) represents “the legal standard closest to the point beyond which regular work becomes unhealthy, which is identified in the health literature as 50 hours” Consequently, no scientific grounds justify working beyond these limits without knowingly causing harm to workers. It is no surprise that, despite disparity among countries, the ILO [8] reports that “globally, average weekly working time is approximately 43 hours”. It signifies that the 1919 universal objectives to protect workers from excessive work periods have been achieved on land but have fallen short at sea.

As highlighted previously, the current maritime regime grants 14-hour workdays to preserve outdated operational practices such as 6On/6Off. The 14-hour limit does not seem “[…] moved by sentiments of justice and humanity […]” (preamble of the 1919 Constitution of ILO) but by pressing sectoral interests. Moreover, the 14-hour standard breaches the ILO standards and hinders the ability “[…] to secure and maintain humane conditions of labour for men, women and children […]” as requested in 1919 by the article 23 of Versailles Peace Treaty. Finally, the institutionalization of the 14-hour workday invokes a radical divide between land-based and sea-based regulations as well as questions its effectiveness to mitigate fatigue.

7.1. The four-step deviation

It is suggested that four steps facilitated the great deviation on hours of work limitations at sea.

The first step (1) was the public acceptance of the ‘special nature’ of shipping requiring differentiated attention. The second step (2) formalized autonomous organizational structures to regulate the maritime sector. Both initial steps extracted seafarers and fishers from common labour law which opened the possibility of distinct rights.

The third step (3) is the tonnage clause which became imperative legislation in securing the prevalence of shipping interests. Finally, structural changes in shipping (ownership and registration) facilitated transformation and finalized the process (4).

(1) From the ‘special nature’ of shipping

As any industry, the maritime sector reacted to the emergence of labour law. During the second part of the 19th century, shipowners organized sectoral isolation to overcome industrial actions and prevent the penetration of labour law in the sector [67–69]. They claimed the ‘special nature’ of the sector, which encompassed the shipping, the ship, and the crew, then required separate regulation. The ignorance of the general public on the subject matter (operations out of sight and out of mind) and the shipowners’ will to control the maritime agenda naturalized the separation [70].

Consequently, the employers’ construction of a distinct ‘nature’ dissociated sea workers from the general workforce. When accepted by regulators, the ‘special nature’ of shipping conditioned the growth of maritime labour law, as exemplified in Germany [71].

During the 19th and 20th centuries, social control over seafarers has been easily accepted and enforced by regulators. Indeed, the governments adhere to shipowners’ views that commerce, mass production, and colonization necessitate low transportation costs. Therefore, the quest for low cost and predictable shipping became a determinant in market societies and an imperative for empires.

Furthermore, the naturalization of maritime activities signified that external constraints (e.g., safety regulations) and dynamics (e.g., social changes) were unwanted or harmful to the sector. Therefore, any labour law development deemed detrimental or untimely to the sector’s interests was intensely opposed by shipowners and their political allies. For example, the 1880 Employers Liability Act excluded British shipping [72]. Despite unmatched numbers of injuries and death [72], British seamen acceded to industrial accident insurance 26 years after the general workforce [73].

24 The objective of ILO is to ensure that the conditions of execution of work are supportable but not to question the nature of the work itself [102].

25 Like any sector [103], shipping and fishing professes exceptionalism. Undeniably, there are peculiar features associated with maritime activities. Other sectors, such as the mining, the aviation or the nuclear sectors, have also distinctive natures and each sector has its own characteristics. But for the non-maritime domains, the ‘special nature’ associates with the sector itself. These sectors do not transform the nature of its workers. Contrary, the maritime sector succeeded in endowing seafarers and fishers with special natures allowing the possibility of separated treatment as exemplified by the hours of work.
Past social constructions supported by present misunderstandings continue to prejudice maritime labour [70,72,74–76]. Indeed, the 20th century[28] through the current period provide multiple examples of unfair treatment[29] and degraded work conditions. In a recent paper, Zhang et al. [77] argue that maritime stakeholders should mobilize to ensure to seafarers the same ‘right to life’ that exists for onshore workers.

In summary, the endowment of seafarers and fishers labour with a special nature detached them from common rules and substantial protection mechanisms. The acceptance of a shipping ‘nature’ by the regulators prompted the construction of governance mechanisms, which ultimately endowed seafarers and fishers with distinct labour rights.

(2) Autonomous maritime structures

In 1921, the ILO formalized separate maritime governance structures. Since that time, the maritime labour debates have mobilized maritime experts from governments, employers’ organizations, and maritime trade unions.28 The discussion in isolation withdrawn the maritime community within itself and perpetuate its ancient power balance and constructions. Therefore, the maritime labour questions became more maritime-influenced than labour-driven.

The 1920s’ dream of shipowners came to fruition [31] and the 1919 supposition about the risks for sea workers to develop a separate labour organization [34] was realized within the ILO (see chapter 3.1 - Legal origins of a separation).

Currently, the ILO maritime machinery and the IMO represent formal yet separate organizational structures to debate and guide maritime labour concerns. In short, the maritime sector succeeded to self-organize with the international machinery and to limit external inputs.

The separation had consequences on the sector and its worker

26 The statements made by countries’ representatives in the preliminary works on the International Seamen’s code [104] are explicit about how evident shipping must, in their eyes, preserve its traditional employment conditions. To answer the question: “In particular, should the seamen’s contract of employment be brought into line or not with that obtaining generally in the case of other workers: [...]?”, respondents stated: “The requirements of the sea service make it necessary that more stringent disciplinary measures be applied to seamen [...]” (United States of America); “It is impossible to assimilate the working agreements of seamen to those of workers on land” (Belgium); “[... ] it does not appear that it would be practically possible or even desirable for the practical working of merchant ships to create an absolute and complete assimilation between workers on land and workers at sea.” (France); “The engagement and discharge and discipline sections in Part IV of the Merchant Shipping Act have worked well [...]” (UK); “[... ] the special conditions under which seamen perform their work require special provisions for their working agreements” (Netherlands); “[... ] the characteristic features of the seafaring trade must necessarily entail certain peculiarities in seamen’s legal position with regard to their contracts of employment” (Sweden). The Dutch and French comments summarized the views when recalling that the employment conditions should adapt to practices of the sector and not the contrary. The requirement that labour regulations for maritime should adapt to the sectoral practices remained visible in 1991 shipowners’ group comment about a new instrument on working time: “Those [provision] pertaining to hours of work must be such that they could be applicable to different types of ships, to ships engaged in different types of trade, and to ships with different arrangements as regards manning.” [38].

27 Criminalization have been regularly described in literature [81,105–107]. About unfair treatment, the IMO developed Guidelines A.987(24) [108]. Still concerned, the Organization adopted the resolution A.1056(27) to accelerate the intake of the guidelines by member States [109].

The final list of delegates to ILO maritime conference shows that nearly all countries’ delegations contain shipping delegates. Delegations of large flags and purpose-made governance structures. Consequently, the shipping and fishing sectors organize their self-isolation and remain barely known or studied outside maritime confines. Softly excluded, landlubbers are invited to forget the maritime and demonstrate little concern for the domain in general and its labour in particular.

(3) The validation of sectoral prevalence

In addition to autonomous organizational structures, the maritime community validated the prevalence of owners’ interests in international labour developments via a unique system. The minimum tonnage requirements for entry into force embodies this control mechanism.

Surprisingly (or not), the tonnage clause emerged with the most progressive maritime regulations on working time (the 1936 conventions No.57 and No.54). The inclusion of tonnage in such conventions represented a compromise between ILO partners. It demonstrated goodwill while endeavoring to ensure that the regulations would never enter into force without tonnage owners support.

Since their inception, the tonnage criteria have found their way into other (but not all)[29] ILO maritime conventions. From 1936 onwards, instead of one criterion for ‘common’ conventions (minimum number of countries), maritime instruments require the fulfilment of two criteria (minimum number of countries and minimum tonnage) before entering into force. Therefore, the tonnage criteria attached maritime instruments to sectoral interests because without the cooperation or favor of maritime nations, no seafarers’ labour convention can reach entry into force thresholds.

The tonnage clause is of particular significance because it augments, de facto, the power of large flags and distinguishes between the most influential States (which own or register large fleets) and the others. In this respect, the procedure questions the principle of equality in international law.

Additionally, this entry into force procedure impacts tripartism because the minimum tonnage threshold has become instrumental to shipowners in curbing unfavorable debates. For example, during the discussion related to the adoption of C180, shipowners’ groups explicitly warned the social partners: “Such attempts were likely to make the proposed Convention too rigid and hinder its ratification” or “The Seafarers’ insistence on one day’s rest per week could be an obstacle to ratification.” [38]. In this respect, the abandonment of the 8-hour

29 Exception for Conventions No.74 (Certification of Able Seamen Convention, 1946), No.133 (Accommodation of Crews (Supplementary Provisions) Convention, 1970), No.134 (Prevention of Accidents (Seafarers) Convention, 1970), No.145 (Continuity of Employment (Seafarers) Convention, 1976), No.146 (Seafarers’ Annual Leave with Pay Convention, 1976), No.163 (Seafarers’ Welfare Convention, 1987), No. 164 (Health Protection and Medical Care (Seafarers) Convention, 1987), No.165 (Social Security (Seafarers) Convention (Revised), 1987), No.166 (Repatriation of Seafarers Convention (Revised), 1987), No.176 - Labour Inspection (Seafarers) Convention, 1990), No.179 (Recruitment and Placement of Seafarers Convention, 1996).
principle became a pre-requisite to the entry into force of hours of work-related Conventions.

Unsurprisingly, the IMO incorporated this procedure from its inception. Until today, the tonnage clause infringes upon international maritime governance because the shipping industry advances its desires with limited room for opposition. It signifies that the incorporation of shipping industry will cannot be overcome when drafting and negotiating maritime instruments.

The NGO Transparency International (2018) summarizes the situation in these terms: ‘States with greater tonnage enjoy an advantage in the policymaking process […] in terms of whether or when a convention comes into effect. Due to the concentration of tonnage in a handful of states, this mechanism is potentially open to abuse by major flag states […]’.

In short, the combination of autonomous governance (JMC and IMO) and the tonnage criteria have secured the over-representation of shipping interests. Interestingly, the fishing sector also introduced additional criteria for some regulations. While the ILO WFC, 2007 criteria were surmountable (at least 8 coastal States among the 10 ratifications demanded), the IMO requires for its fishing vessel safety conventions, protocol, and agreement (1977, 1997, 2012) a minimum number of fishing vessels to ensure prevalence of countries possessing large fleets of industrial fishing vessels (more than 24 m).

(4) Structural transformations in shipping and ILO decline

The acceptance by ILO Members of the 14-hour reference system reveals the changes in the shipping post-1960s [79] as well as the post-1970s decline of ILO’s influence [84].

The main driver to structural changes in shipping has been when shipowners exercise their freedom to register ships wherever they wish. It enhanced possibilities for shipowners to choose their legislation and hire from anywhere.

The decline of the western empire, the will to overcome unions in the United States, decolonization and the abandonment of maritime pride facilitated massive reflagging [85,86]. From 10% in 1955 [87], Flags of Convenience (FOC) and open registries account for 71.3% in 2015 [88].

The grip of traditional maritime nations on shipping governance weakened with the selection of Flag of Convenience (FOC) and open registries by shipowners. This means that with the tonnage clause in effect no maritime instrument can enter into force without the acceptance of flags whose business model requires shipowners’ satisfaction [89].

Additionally, globalization and the establishment of a global market [48] destabilized the traditional maritime world and disrupted seafarers’ organizations [78,79,85,86,90]. Consequently, the recruitment of seafarers diversified [91]. The international maritime labour market expanded with detrimental impacts on the capacity of workers to bargain, unite and oppose employers demands [78,92].

In short, with flag-hopping and class-hopping 30, shipowners can circumvent national frameworks and enforcement regimes, particularly when associated with labour [86,91,93,94].

The globalization movement boosted seaborne trade as never before [95,96] which enhanced global shipping-dependence. Therefore, the preservation of low transportation costs became an imperative need to sustain economic developments based on long-distance trade. In this context of minimization of transportation costs, seafarers’ rights and wellbeing have little consideration, particularly if such rights may impact transportation expenses.

In parallel, the ILO influence began to decline. From 1970, labour negotiations were affected because “[…], the balance of power shifted in advanced capitalism” due to ideological changes. The neoliberal offensive reoriented national policies toward anti-labour supply-side economics to counter the erosion of profits. Additionally, the United States of America championed deregulation against the ILO, which undermined its intellectual aura and resources [84].

Finally, the ILO renewed its strategy. The 1998 ILO declaration on fundamental rights and principles and the 1999 decent work campaign altered the original principles [84]. Subsequently, the emphasis of the ILO centered on a limited number of objectives related to civil and common law for all workers. Consequently, it “devalued all non-core conventions” and created a “new normative hierarchy” [84].

During this unfavorable period, it is no surprise that working time regulations at sea responded only to marine casualties and emphasized the detrimental impact of fatigue which lead to the acceptance of the 14-hour workday principle.

7.2. Any light ahead

Despite the 2008 financial crisis and post-COVID-19 economic uncertainties, the neoliberal momentum continues to influence global policy developments.

In shipping, there are limited signs of will to mitigate legislative competition by flags 31 and the legal shortcomings allowing for the commodification of seafarers and the existence of a separate maritime governance with a tonnage procedure hinders substantive changes in a close future.

In the near term, it is suggested to institutionalize research on human factors and fatigue which demonstrate the detrimental impacts of 14-hour workday standards on ship safety and OSH. Maritime stakeholders should coordinate to eliminate the 6On/6Off watch protocol and modify the regulations accordingly. The move toward a strict maximum of 12 hours daily as originally proposed in 1920 would also be an achievable short-term possibility.

Mid-term strategy should be to move toward the promotion of a 10-hour and 8-hour workday and strengthen manning level regulations with absolute quantification. Additionally, the incorporation of human factor research and just culture practice from other industries such as aviation or nuclear sectors would benefit the safety and environmental protection in the maritime sector.

Long-term objectives should aim to detach maritime labour from sectoral domination and prioritize the humanity of seafarers as workers. Additionally, incorporation of non-maritime expertise and ideas would bow the conservative attitude of maritime governance structures toward labour. It would allow the suppression of the tonnage clause and/or complement it through a mechanism to allow for labour-supplying country enhanced participation. The governance of the maritime sector should not remain in the sole hands of the sector as shipping and fishing are vital for all and can be considered as common goods for mankind.

8. Conclusion

“Already in the early 19th century it was recognized that working excessive hours posed a danger to workers’ health and to their families. […]” [32]; therefore, the core objective of work hour limitations is to “[…]” 33

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30 Flag State according to UNCLOS article 94 have the responsibility to implement and enforce national regulation (and international standards when ratified). Classification societies developed standards for ships and their certification is mandatory with SOLAS.

31 The IMO Legal committee works on denouncing the worst abuses and practices relating to FOC and the IMO sub-committee on Implementation of IMO instruments works on the harmonized implementation and enforcement of maritime instruments.

32 ILO webpage dedicated to working time https://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/working-time/lang–en/index.htm
safeguarding workers’ physical and mental health". Consequently, the ILO developed from 1919 a reference system based on an 8-h workday and 48-h workweek because beyond such limits work may affect safety, health, and wellbeing.

While undeniable success has been achieved onshore [8], the 8-hour norm has not been implemented at sea. The 19th century construction of a ‘special nature’ of shipping and fishing detached sea workers from other sectors and facilitated their isolation. Consequently, the sea workers’ standards of work attached to the nature of the sector more than to their human nature.

The establishment of separate maritime governance at the ILO in 1921 and the insertion of a tonnage clause (1936) in maritime conventions locked the regulatory developments in the hands of maritime interests.

Such closed governance eludes external influences and enables the preservation of outdated practices. Consequently, the current maritime regulations impose the 14-hour workday principle in shipping and fishing. A reference system that disappeared in the late 19th century onshore. It seems that the sea workers’ right to life [77] appear insignificant when facing sectoral necessities.

As shipping and fishing externalities are becoming unsustainable (e.g. air pollution and overfishing), it is expected that non-maritime interest may play an increasing role in maritime governance and question the current standards.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.marpol.2020.104101.

Appendix

| Convention | General and Definition | Scope | Distinctions in crew | Key Standards |
|------------|------------------------|-------|----------------------|---------------|
| C057 - Hours of Work and Manning (Sea) Convention, 1936 | "(d) hours of work means time during which a member of the crew is required by the orders of a superior to do any work on account of the vessel or the owner, or to be at the disposal of a superior outside the crew’s quarters (art.2)" | Ships types (art.1) | • by rank (officers and ratings); • by departments (deck, engine room, radio, catering and clerical); • between watch keepers or day workers; • between work at sea and work in port; and, • finally, between passenger ships and other vessels. | Hours of work (art. 4 to 7) |
|            | Despite reference to rest, there was no proper definition. | Applies to ‘every sea-going mechanically propelled vessel whether publicly or privately owned […]’ |          | 8-h day principle recalled C001 /exception for catering and clerical department on 10-h day which reflects the C030 |
|            | Excluded: (a) sailing vessels (b) vessels engaged in fishing […] |          |          | Day workers: 48-h week |
| C076 – Wages, Hours of Work and Manning (Sea) Convention, 1946 | In addition to manning and hours of work, it included wage (and considered overtime limitations) | Ships types |          | Watchkeepers: 56-h week |
| C093 – Wages, Hours of Work and Manning | (d) the term hours of work means time during which a person is required by the orders of a superior | Application same as previously |          | ‘[…] in no case shall any officer be required in virtue of this paragraph to work more than 12 h in any day.’ (article 6.3) |
|            |          | Exclude |          | Maximum 12 h of work per day whatever the category of worker |
|            |          | • Vessels less than 500 tons |          | Rest periods |
|            |          | • by rank (officers and ratings); |          | One day of rest per week (art.8) |
|            |          | • by departments but gather together deck, engine room and radio but catering remained separated (and clerical and purser excluded); |          | • catering and clerical department on passenger ships establishment of minimum rest periods: ‘[…] not less than 12 h’ rest during any period of 24 h, including a rest period of at least eight consecutive hours.’ (article 9.1) |
|            |          | |          | Manning (art.13to 17) |
|            |          | |          | • Manning adequate to respect hours of work standards |
|            |          | |          | • Art.14 to 16 imposed minimum numbers of crewmembers: for certified deck officers (from 700 to 2000 tons, at least two officers in addition to the master /over 2000 tons, at least three officers in addition to the master); for ratings (from 700 to 2000 tons, at least six /over 2000 tons, nine or determined nationally); and, for engineers (at least three for ships over 700 tons or 800 HP) |
|            |          | |          | • No night work below 16 years old |
|            |          | |          | Hours of work /Near trade ships standards |
|            |          | |          | • At sea maximum 24 h in any period of two consecutive days (art.13 #2b) |
|            |          | |          | • In port 8-h day and two work hours maximum during rest day |

(continued on next page)

33 Both quotations extracted from ILO Web site retrieved on 02 Nov. 2019 - https://www.ilo.org/global/standards/subjects-covered-by-international-labour-standards/working-time/lang–en/index.htm
| Convention | General and Definition | Scope | Distinctions in crew | Key Standards |
|------------|------------------------|-------|----------------------|---------------|
| (Sea) Convention (Revised), 1949 C109 – Wages, Hours of Work and Manning (Sea) Convention (Revised), 1958 | do work on account of the vessel or the owner. (c) preventing excessive strain upon the crew and avoiding or minimizing as far as practical the working of overtime.” (Article 20 of C076 and C093 /article 21 of C109) | • Wooden vessels  
• Fishing  
• Estuarial crafts  
Excluded from the convention  
• Master  
• Pilot  
• Medical teams  
• Self-employed persons with shares or interested in ship or cargo  
• Persons not employed by shipowner  
• Travelling dockers  
• Whaling factory ships employees  
• Not employed as crew but as service providers Excluded from hours of work  
• Chief officer or chief engineer  
• Purser  
• Officers in charge of department who does not keep watch  
Certain categories of clerical and catering department members | • between watch keepers or day workers;  
• between work at sea and work in port;  
• between near trade ships and distant trade ships; and,  
finally, between passenger ships and other vessels. | • “one hundred and 12 h in a period of two consecutive weeks” (which represented 56 h per week)  
• Seafarer working in excess would be compensated  
Hours of work /Distant trade ships similar to C057  
• At sea maximum 8 h of work per day  
• In port, same standards as near trade ships  
• Time worked in excess entitled the crew to compensation (with pay overtime of time off duty and off the vessel)  
• If weekly work exceeded 48 h, compensation  
Specific hours of work system for catering department  
• On passenger ship, at sea maximum of 10 h in any consecutive period of 14 h; in port idem when passengers onboard, if not, 5 h per day  
• On non-passenger vessels, at sea maximum of 9 h in any consecutive period of 13 h; in port maximum 5 h per day  
• When exceeding one hundred and 12 h in a period of two consecutive weeks, the person shall be compensated  
Overtime risk While C57 underlined the need to compensate overtime, C076/C093/C109 highlighted the risk of overtime becoming a norm. While C076 article 18 prohibit “consistent working of overtime, later convention softened the requirement: “the consistent working of overtime shall be avoided whenever possible” (C093 art.18; C109 art.19)  
Rest periods  
• One day of rest per week  
• Contrary to 1936 regulations, minimum rest period per day and continuous rest without interruption were omitted.  
Manning  
• Contrary to 1936 regulations, C076/ C093/C109 did not prescribe minimum numbers of deck officers, ratings and engineers.  
Regulations on Manning recalled SOLAS principles of ships “sufficiently and efficiently manned” and clarified the notion by adding (a) ensuring safety of life at sea; (b) giving effects to hours of work provisions; (c) preventing excessive strain and avoiding excessive overtime. |
