



Water Transport Employment in Europe

The Role of Governance



Case-Specific Policy Analysis

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International Transport Forum
2 rue André Pascal
F-75775 Paris Cedex 16
contact@itf-oecd.org
www.itf-oecd.org

Case-Specific Policy Analysis Reports

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Executive summary

What we did

This report assesses the current state of water transport employment in Europe and links it to water transport governance. Authorities generally consider the skillset required by employees in water transport strategically important. However, evolving governance frameworks might have undermined the possibility of maintaining these skills in Europe. This report assesses incoherence in government policies and provides recommendations for reform to ensure the relevant skills needed in water transport can be maintained. It builds on discussions with experts and relevant stakeholders, as well as workshops with European Transport Workers Federation member organisations.

What we found

The data on employment in water transport in Europe are limited. The existing numbers suggest that general employment by European companies has increased in sea and coastal transport, inland waterway transport and maritime services. By contrast, it has halved in the fisheries sector between 1995 and 2019. There are no reliable figures on the number of seafarers that are nationals of the EU/EEA.

Labour costs make up a considerable share of the operating costs of water transport sectors, ranging from around a third to more than half of their operating costs. Trends in labour costs have differed across sectors. Labour conditions in water transport have improved in some respects but worsened in others. Chemical accidents in ports have become fewer since the 2000s, and working and living conditions on ships improved since 2010. At the same time, there is no discernible trend towards fewer fatal accidents over the past decade. Fatalities among crew members have significantly decreased since the 1950s in both merchant shipping and fisheries. However, this trend has halted since the 2000s. Also, a record number of seafarers were abandoned without pay by ship operators in 2022. Concerning accidents, EU-flagged vessels have not necessarily performed better than non-EU-flagged vessels: their share in “very serious casualties” is higher than that of the EU-flagged fleet share.

Maritime transport policies in Europe can be interpreted as an attempt to adapt to the emergence of open shipping registries by developing countries in the 1950s and 1960s. After a period of rapid decline of most of their domestic flags in the 1970s, various European countries decided in the 1980s to reinvigorate their national shipping sectors by creating second shipping registries and granting state aid to their maritime sector, in particular through the tonnage tax systems.

Maritime transport policies often suppose that state aid for the maritime sector supports seafarer employment. However, there are few indications for effects on employment. There are three reasons for this. First, state aid is not directly linked to employment. Second, the link between a ship operating under a national flag and employing nationals of that flag is weak. Third, ships in second registries are also eligible for state aid.

What we recommend

Ensure European maritime policies support the development of seafarers' skills

Seafarer skills are generally not addressed coherently and consistently in EU policies. Policies related to employment data, shipping registries and state aid for shipping should be reviewed and adjusted to ensure the required skills are available.

Improve employment statistics for water transport employment in Europe

National statistics agencies in Europe could start collecting data on the number of EU/EEA seafarers and the types of vessels on which they are deployed. This will help orient national and EU policies to strengthen seafarer skills in Europe.

Make sure that there is a “genuine link” between state and ship in shipping registries

To improve safety standards and labour standards in general, on board ships, governments must ensure that the “genuine link” between state and ship required by the United Nations Convention on the Law of the Seas is enforced in their shipping registries, including the open and second registries.

Link state aid for the maritime sector more directly to employment-related objectives

If sustained, subsidies such as the tonnage tax and wage-cost reductions could be used in more targeted ways to incentivise desired labour-related outcomes in the maritime transport sector. For example, EU maritime state aid could be limited to ships with a minimum share of seafarers from EU/EEA nations. It could also be made conditional on shipowners and operators actively supporting EU/EEA seafarers' education, e.g. through stipends, mentoring at nautical schools and programmes for seafarers (cadets and ratings). In addition, the link between the national flag and water transport employment could be strengthened, e.g. by more stringent manning requirements or abolishing the exemptions from nationality requirements for crews.

Limit the eligibility for state aid of ships registered in second shipping registers

Governments could restrict the eligibility of ships to receive state aid to vessels registered in a first registry. Ships in a second or international registry that are declared flags of convenience should not be eligible. The EU Maritime State Aid Guidelines could be adapted to indicate the second registries for which the registered ships would not be eligible for state aid.

Water transport: Definition and interlinkages

This report focuses on employment in the water transport sectors in Europe. It considers the following water transport sectors: shipping, port terminals, harbour towage, inland waterway transport and fisheries. This report will, as much as possible, align to the statistical classification of economic activities used in the EU, the NACE, which stands for “nomenclature statistique des activités économiques dans la Communauté européenne”. This classification, developed in the 1970s, was revised in 2007. This revised version is known as NACE Rev 2. The main categories relevant to the water transport sector are listed in Table 1. Whereas the shipping, inland water transport and fisheries sectors are identified as separate sectors, this is not the case for port terminal handling (which is part of the broader category of cargo handling) and harbour towage (which is part of the broader category of service activities incidental to water transportation). This means there are no official statistics on port terminal handling and harbour towage as separate economic sectors.

There is a tendency to frame water transport as part of a larger economic sector, as evidenced by the emergence of terms such as “blue economy” and “ocean economy”. Despite differences in definitions, there is a broad understanding that “blue economy” and “ocean economy” refer to the economic activities related to oceans, seas and coasts. Several international and supra-national organisations have developed programmes in this area. For example, the European Union has developed a strategy for a sustainable blue economy in the European Union (EC, 2021) and releases a report every year on the state of the EU blue economy (EC, 2022). The OECD has initiated an Ocean Economy programme with related publications to monitor policies for ocean economic activities.

The composition of blue economy sectors and their interrelations requires investigation. This report will start by assessing the links between the different water transport sectors. The interrelations between these different sectors will be explored by examining three kinds of interrelations: backward and forward linkages, vertical integration and spatial linkages.

Backward and forward linkages

A traditional tool in economics to assess the interrelations of economic sectors is the assessment of backward and forward linkages. Backward linkage refers to production in a certain economic sector requiring inputs from other economic sectors. Forward linkages refer to an economic sector's product being supplied as input to another economic sector. For example, a tyre manufacturer has backward linkages with rubber producers and forward linkages with car manufacturers. Similar backward and forward linkages are at play in the blue economy. So the question is: to what extent is each blue sector a supplier of another blue sector? In this report, these linkages are identified by estimating the extent to which the output of one sector (e.g. terminal handling) provides a cost to the other sector (e.g. maritime shipping), as provided in table 2. We also show the dependence of that sector on the payments coming from the other sector, provided in Table 3.

Table 1. Water transport in the European statistical classification NACE Rev 2

Sector	Definition
Sea and coastal water transport	50.1, 50.2 NACE Rev 2: <ul style="list-style-type: none"> • operation of excursion, cruise or sightseeing boats • operation of ferries, water taxis etc. • renting of pleasure boats with crew for sea and coastal water transport • transport of freight over seas and coastal waters, whether scheduled or not • transport by towing or pushing of barges, oil rigs etc. • renting of vessels with crew for sea and coastal freight water transport
Inland water transport	50.3, 50.4 NACE Rev 2: <ul style="list-style-type: none"> • transport of passengers and freight via rivers, canals, lakes and inland waterways, including inside harbours and ports • renting of pleasure boats/vessels with crew for inland water transport
Service activities incidental to water transportation	52.22 NACE Rev 2: <ul style="list-style-type: none"> • operation of terminal facilities such as harbours and piers • operation of waterway locks etc. • navigation, pilotage and berthing activities • lighterage, salvage activities • lighthouse activities
Cargo handling	52.24 NACE Rev 2: <ul style="list-style-type: none"> • loading and unloading of goods or passengers' luggage irrespective of the mode of transport • stevedoring • loading and unloading of freight railway cars
Marine fishing	03.11 NACE Rev 2: <ul style="list-style-type: none"> • fishing on a commercial basis in ocean and coastal waters • taking of marine crustaceans and molluscs • whale catching • taking of marine aquatic animals • activities of vessels engaged both in marine fishing and in processing and preserving of fish • gathering of other marine organisms and materials

As these tables show, there are strong economic linkages between shipping companies, ports and terminal operators. Terminal handling costs make up around 25% of the operational costs of shipping companies. Most of the ports' revenues come from concession fees paid by terminal operators and port dues paid by shipping companies. There is also a strong economic link between towage and shipping, as almost all revenues of towage companies come from fees from shipping companies.

Various other economic linkages are less strong but still noticeable. Towage companies often pay for berth use and electricity in ports. Fisheries often do not pay port user fees, with a few notable exceptions, e.g. Ireland, Canada, Vietnam and Costa Rica. Inland shipping companies pay port dues in the main seaports (representing a small part of the budget of seaports) and in inland ports (representing a large part of the budget of inland ports). Terminals and inland shipping companies get most of their income from shipping companies, except for hinterland transport services paid for by forwarders or shippers.

The presence of significant linkages has implications for competition policy. Most competition policies focus on assessing the effects of competitive relations between providers of goods and services and their customers, e.g. in terms of monopoly or oligopoly. They generally pay much less attention to the competitive relations of providers of goods and services and their suppliers, e.g. in terms of monopsony and oligopsony. Considering the large dependency of ports on either shipping dues or concession fees, these last competitive relations are of great importance. Suppose only a few shipping companies (in case of an oligopsony) provide almost all of the ship traffic to a port. In that case, they will have huge leverage on port fee tariffs, as they can threaten to divert traffic to other ports if tariffs are not reduced (ITF, 2018). This highlights the importance of regulations that facilitate industry concentration and collaboration and

allow or prohibit joint negotiations of shipping companies with ports and port service providers (ITF, 2019a). This report will steer clear from discussions on competition policy for the shipping sector while noting that alternative proposals have been formulated that would reserve certain privileges – such as anti-trust exemption – only for small shipping operators (German Competition Authority, 2022).

Table 2. Backward linkages of water transport sectors

Sector	Type of costs	Share of operational costs
Shipping	Port costs	5%
Shipping	Terminal handling costs	25%
Shipping	Inland shipping costs	Variable
Terminals	Concession fees	10%
Towage	Port costs	< 5%
Inland shipping	Port costs	Not available
Fisheries	Port costs	< 5%

Source: based on annual financial reports of shipping companies, ports, terminal operators, towage companies and fisheries.

Table 3. Forward linkages of water transport sectors

Sector	Sources of income	Share of operational income
Ports	Vessel charges	30-60%
Ports	Concession fees	30-60%
Ports	Inland vessel charges	0-4%
Ports	Rent from towage companies	< 5%
Towage	Fees from shipping companies	100%

Source: based on annual financial reports of shipping companies, ports, terminal operators, towage companies and fisheries.

Vertical integration

Vertical integration between different water transport sectors has become significant over the last decade. Most of the vertical integration is driven by shipping companies, especially in container shipping. Various carriers, such as Maersk, COSCO and CMA CGM, aspire to become global integrators of containerised flows. Such strategies are reflected in more control by carriers over the different parts of the maritime logistics chain. For example, Europe's share of carrier-controlled terminal operations is now around 30%. Some carriers have their own towage subsidiary or have invested in logistics, road and rail freight capacity and capabilities. Although vertical integration is not a particularly new tendency in container shipping, it has likely received new impetus in the era of dominant container shipping alliances, as alliances homogenise shipping services leaving land-based services as practically the only way to distinguish oneself from competitors (ITF, 2018).

There are considerable differences per country in the vertical integration of water transport. For example, carrier-controlled terminal operators carry out more than half of the cargo handling in Greece and Spain. In contrast, this percentage is around 15% in Germany and zero in the United Kingdom. The world's largest towage company, Svitzer, forms part of the Maersk group and is active in 120 countries worldwide. Carriers are active in offering hinterland transport services in various countries, e.g. COSCO has dry ports in Kazakhstan, Madrid and Zaragoza. Carriers like MSC, ONE and HMM own haulage companies, whereas

CMA CGM, MSC and Maersk created subsidiaries to organise inland water transport, such as from the main French ports Le Havre and Marseille (Frémont et al., 2009).

At the same time, there are also vertical integration tendencies driven by other stakeholders in the maritime logistics chain. For example, the terminal operator Hutchison Ports Holdings has invested in dry ports in some of the countries in which it has large terminal interests, such as the Netherlands and Mexico (OECD, 2017).

Vertical integration comes with mixed effects for the maritime logistics chain. On the positive side, this could allow carriers to better co-ordinate their shipping activities as part of a whole logistics chain. On the other hand, it also risks discriminatory treatment – as the carrier can, as terminal, towage or logistics operator, provide worse service to competing carriers, especially in concentrated markets. For example, carriers often use their terminals as leverage to bring down rates in independent terminals and play out ports against each other (ITF, 2018; ITF, 2019a).

Within the EU, vertical integration is advanced, particularly regarding container terminals, where container carriers have a 30% market share of container terminal operations, and harbour towage, where container carriers have an 18% market share (Table 4). Container terminal operators controlled by container shipping companies are APM Terminals (Maersk), TIL (MSC), Terminal Link (CMA CGM) and COSCO Ports (COSCO). These terminal operators run terminals in the main European ports. In harbour towage, the main vertically integrated companies are Svitzer, a Maersk subsidiary and MedTug, controlled by MSC. Their activities in Europe represent around 18% of the market share in Europe.

To a considerable extent, other shipping sectors are vertically integrated, even if it is more difficult to quantify the degree of vertical integration. Main dry bulk shipping companies like Bunge and Louis Dreyfus have a network of dedicated terminals, although more often outside Europe. Ferry companies in Europe have their own terminals and berths. Many oil terminals worldwide are integrated with the largest global oil companies, even if there are also independent tank terminal operators, such as Vopak and Oiltanking, with a large terminal presence in Europe.

Links via vertical integration are less common among the other water transport sectors. Direct participation of shipping companies in port authorities are rare, with the majority stake of COSCO in the port authority of Piraeus as the most notable exception. In addition, there are a few examples of terminal operators that carry out port authority functions, especially in private ports in the United Kingdom, e.g. Felixstowe. In the fisheries industry, there are a few examples of dedicated private wharfs in the Pacific, but there are no such dedicated wharfs in EU ports.

Table 4. Vertical integration in water transport sectors in the EU

Sector	Active in	EU market share
Container shipping	Container terminals	30%
Container shipping	Inland shipping	<5%
Shipping	Towage	18%
Shipping	Ports	< 5%
Terminal	Ports	< 5%

Source: based on annual financial reports of shipping companies, ports, terminal operators, towage companies and fisheries.

The exceptionally high profits of container shipping companies since 2020 have accelerated vertical integration. These profits provided companies with funds to acquire port terminals, forwarders, and freight airlines and to achieve their ambition of becoming vertically integrated providers of door-to-door logistics solutions. These ambitions were articulated and operationalised well before the Covid-19 pandemic, but the newly-found profitability provided a new impetus for vertical integration, including in air freight. For example, Maersk ordered five freight aeroplanes and acquired the freight forwarder Senator International, which has an air freight fleet. CMA CGM launched its airline in February 2021, acquiring four freighters to be operated by Air Belgium and ordering two additional freighters in September 2021 (ITF, 2022a).

A related policy discussion is on screening foreign investments in infrastructure, including water transport infrastructure. Some countries, such as the United States, have mechanisms for screening foreign investments, which might hinder foreign companies' acquisition of controlling stakes – either shipping companies or other companies – in domestic ports. A European foreign direct investment (FDI) screening mechanism was adopted in 2019 and came into force in 2020. It promotes co-operation, information sharing and a minimum level of transparency regarding FDI control between the European Commission and member states. Still, it does not replace or impose national FDI screening mechanisms. EU member states remain largely autonomous in dealing with foreign investment.

Spatial linkages

A third way to identify linkages between water transport sectors is to assess to what extent the activities of these sectors are spatially clustered in the same ports. To map this, one can establish rankings of ports according to their activity related to shipping, container shipping, harbour towage, inland water transport and fisheries (Table 5). The statistics these rankings are based on are publicly available for total shipping, container shipping and inland water transport activity but have to be collected for harbour towage and fisheries. The port names in bold indicate the top 15 ports for cargo shipping.

This mapping shows that harbour towage is spatially clustered with shipping activity. However, the spatial linkages cannot be convincingly shown due to a lack of comparable data on harbour towage activity in different European ports. Table 5 shows a significant overlap between container shipping and other shipping activities: most of the largest 15 ports in terms of total cargo handled are also in the top 15 ranking of container ports.

Fisheries activities are spatially unrelated to shipping activities: European ports with the highest fish landings per port completely differ from large European cargo ports. Most of the significant fisheries ports are specialised in this activity and do not handle much cargo, with a few notable exceptions, e.g. Vigo. Inland shipping activity is concentrated in a few large European seaports, such as Rotterdam, Antwerp, Amsterdam and Constanta that are connected to the Rhine and Danube inland waterway corridors. Most of the ports with inland shipping activity are inland ports.

Table 5. Top 15 ranking of European ports for the different water transport sectors

Total cargo	Containers	Towage	Inland shipping	Fisheries
Rotterdam	Rotterdam	Antwerp	Rotterdam	Skagen
Antwerp	Antwerp	Rotterdam	Antwerp	Thyboron
Hamburg	Hamburg	Contanta	Amsterdam	Killybegs
Amsterdam	Piraeus	Hamburg	Duisburg	Hanstholm
Algeciras	Valencia	Bremerhaven	Ghent	Peterhead
Marseille	Algeciras	Venice	Contanta	Vigo
Valencia	Bremerhaven		Vlissingen	Sesimbra
Trieste	Felixstowe		Moerdijk	A Coruna
Le Havre	Barcelona		Terneuzen	Castletownbere
Piraeus	Gioia Tauro		Köln	Lerwick
Barcelona	Le Havre		Hamburg	Pasaia
Immingham	Genoa		Mannheim	Fraserburgh
London	Southampton		Neuss	Bahia de Cadiz
Genoa	Gdansk		Karlsruhe	Scrapster
Bremerhaven	London		Born	IJmuiden

Note: total cargo as measured by tonnes handled. Containerised cargo in TEUs handled. Towage in terms of tugboats operating in ports. Inland shipping as tonnes in inland waterway cargo handled per port. Fishing as total fish landings per port in tonnes. The 15 largest ports in terms of total cargo volumes are indicated in bold. Source: data collection by the authors.

Interlinkages between water transport sectors

The analysis of the three ways to assess interlinkages – described above – provides indications of the overall linkages between the different water transport sectors. The strongest interlinkages appear between the shipping and terminal sectors; and between shipping and harbour towage. In both cases, there are high scores on all three types of interlinkages: backward and forward linkages, vertical integration and spatial clustering. There are also strong linkages between terminals and ports; and between shipping and ports. In these cases, strong backward and forward linkages and spatial clustering exist but only limited vertical integration.

Less strong linkages exist between inland shipping on the one hand and the shipping sector and ports on the other hand. This is logical because relatively few large seaports are connected to inland waterways.

The weakest linkages exist between the fisheries sector and the other water transport sectors identified in this report (shipping, terminals, towage and inland water transport). Fisheries activities are related to different ports than large cargo ports. They also have limited inter-sectoral and functional links with the other water transport sectors. Rather than interlinked, the fisheries sector seems complementary to the other water transport sectors.

Towards a holistic perspective on water transport?

The analysis shows significant interlinkages between most water transport sectors, except fisheries. The corporate reality of many water transport sectors consists of interrelations and interdependencies. For example, shipping companies are clients of terminals, ports and towage companies; ports grant concessions to terminal operators, and shipping companies control a substantial share of terminal and

towage operations. Moreover, shipping companies, towage companies and terminal operators concentrate their activities in a relatively select number of ports. Sometimes, these interdependencies between water transport sectors can be so strong that they create concerns of abuse of market power. For example, when a dominant position in one market (e.g. shipping) is used to force clients (e.g. shippers) to subscribe to services in other markets (e.g. terminal handling or towage service) (ITF, 2018). Growing interlinkages require strong competition policies that can detect and avoid abuses of market power.

It could be argued that the interlinkages go beyond water transport. The vertical integration of container carriers extends well into land-based logistics, freight forwarding, inland transport and aviation. For example, the market share of carrier-controlled freight forwarding activity could be around 15% of the global market share. At the same time, terminal operators have also integrated with other parts of the transport chain. For example, PSA International has developed freight forwarding services, and DP World has ambitions in freight logistics and acquired Unifeeder, a coastal shipping operator. Hutchison Port Holdings has developed a network of inland terminals connected to its main hub port terminals.

The interlinkages have become increasingly global. The largest companies in the different water transport sectors – such as shipping, terminal operations and harbour towage – have approached global reach and coverage of their networks and services. This means that corporate decisions on strategy are increasingly concentrated in a few places, often outside Europe. For example, around half of the container terminal capacity in Europe is controlled by non-European companies. This global corporate concentration raises the question of the ultimate ownership and control of such corporate entities, ranging from states, sovereign wealth funds, and institutional investors to other entities. This is particularly relevant if companies partly owned by sovereign wealth funds of non-EU states receive state aid from EU countries.

The reality of public policies is, in many cases, not well aligned with the corporate reality of interrelated parts of freight transport chains. Despite an increased focus on holistic policy frames – such as the ocean economy – there still is a pre-dominant policy practice of compartmentalisation. Many sector-specific policies – especially for maritime shipping – create competition-related tensions when shipping companies can use shipping-specific privileges, such as anti-trust exemptions and fiscal exemptions, to compete in non-shipping markets (ITF 2018; 2019a; 2019b). One of the challenges for policy makers is to provide conditions for fair competition in an increasingly vertically integrated water transport sector.

Water transport employment

This chapter provides an overview of water transport employment in Europe. It sets out why numerous governments consider water transport employment of strategic importance. Then it presents data on the quantity, cost and quality of European water transport employment.

The strategic value of water transport employment

Many countries – and supra-national organisations such as the European Union – have developed strategic policy documents that acknowledge water transport's strategic value. The elements that could constitute this strategic value are related to the value of maritime skills and competencies, spillover effects to maritime industry clusters and safety and security concerns.

Sustaining maritime skills and competencies means that countries will not depend on foreign workers for water transport activities that they consider strategic, e.g., energy, food and certain commodities. Considering that the market for seafarers has become globalised, seafarers from developing countries compete with those from developed countries. Whereas a higher level of qualifications to some extent compensated for the higher cost of seafarers from developed countries, this equation has started to change as non-OECD seafarer qualifications are increasing. At the same time, there are concerns about the qualifications of EU seafarers. For example, stakeholders in France have pointed to the decreasing quality of maritime training in France due to a lack of funding, which has intensified competition with highly qualified non-EU seafarers trained in institutes that have increased in quality (ITF, 2019b). Moreover, the level of cadet entries from European countries is low compared to forecast demand (ISF/BIMCO, 2020). As it can take more than ten years before a trainee becomes a senior officer, a low level of EU cadet entries might contribute to a rise in non-European seafarers and could further replace EU seafarers with similarly qualified seafarers from Asia.

Seafarer competencies might have some effect on the quality of the maritime cluster. An increasing number of countries aim to stimulate maritime clusters. These are essentially platforms for different maritime sub-sectors to meet and exchange. Depending on local preoccupations, policy orientations of such maritime clusters can cover labour markets, innovation, environment or other fields. Evidence from Norway suggests that seafarer competencies are in demand among employers in marine equipment manufacturing and maritime service provision. These sectors absorbed much of the abundant labour after the oil and gas price spike in 2014, resulting in massive layoffs in Norway's offshore oil and gas sector. In the United Kingdom, a certain amount of seafarer certificates of competency are used to target employers onshore rather than for a seafarer career. (ITF, 2019b). Maritime skills and competencies could also be helpful in maritime safety and security employment, for example, port state control and inspections.

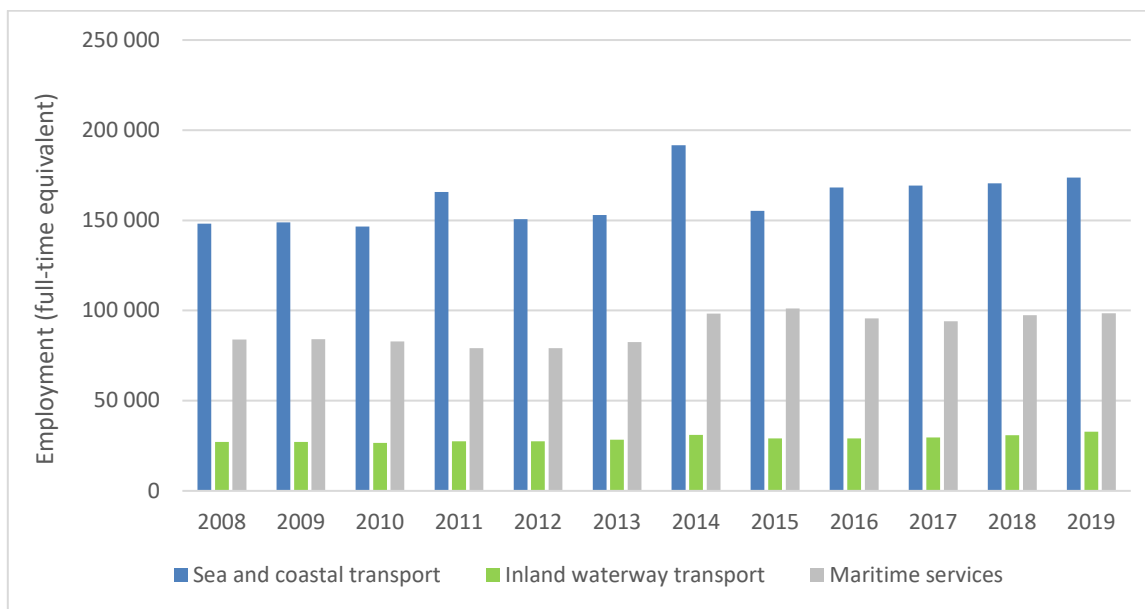
Water transport employment numbers

Eurostat, the statistical bureau of the European Union, collects employment numbers on three main water transport sectors: sea and coastal transport, inland waterway transport, and services incidental to sea and coastal transport. The definitions of these sectors, corresponding to NACE Rev 2 statistical classifications 50.1, 50.2 (sea and coastal water transport), 50.3, 50.4 (inland water transport) and 52.22 (service activities incidental to water transportation), were provided in the previous chapter. There are no separate official statistics on harbour towage, but it is included in the sector called service activities incidental to water transportation. Terminal operations are partly included in the sector cargo handling (52.24) and service activities incidental to water transportation (52.22), so it is not possible to deduct reliable employment numbers in terminal operations from the Eurostat statistics.

According to Eurostat, European companies' employment in the sea and coastal transport sector stood at around 174 000 full-time equivalent jobs in 2019, in addition to 33 000 jobs in inland waterway transport and 98 000 jobs in service activities incidental to water transportation (Figure 1). The countries with the largest employment numbers in sea and coastal transport in 2019 are Italy, Norway, Greece and Germany. The countries with the largest employment numbers in inland waterway transport in 2019 are Germany, the Netherlands and France.

The number of jobs in these water transport sectors increased between 2008 and 2019 by 17% in both the sea and coastal transport sectors and service activities incidental to water transportation and by 21% in the inland waterway transport sector. These employment numbers refer to the employment of companies based in Europe. These workers are not necessarily all EU citizens.

Figure 1. Water transport employment in EU/EEA countries (2008-19)



Source: Eurostat (n.d.).

Specific seafarer employment statistics

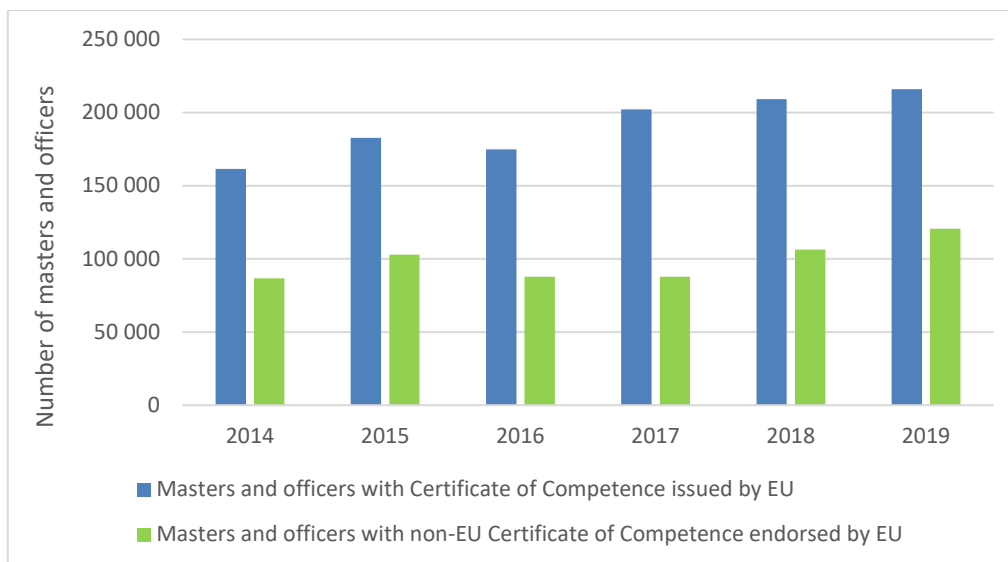
There are various ways to measure the number of seafarers, and measurement varies across countries. For example, seafarers have been counted according to membership of a professional association, holders

of certificates and endorsements and contributors to a social security system. This makes it difficult to compare seafarer data across countries. Moreover, coverage and definitions for seafarer statistics in countries frequently change over time, further complicating the task of identifying trends.

The BIMCO/ISF Manpower Reports offer the most sustained effort in providing global seafarer statistics. These five-yearly reports have provided estimates and forecasts of demand and supply for seafarers worldwide and per world region since 1990. Their definition of “national seafarers” is based on the number of certificates issued by national maritime institutions. In most cases, these certificates give the certificate-holder the right to be employed on vessels flying the national flag (or EU flags in the case of the EU countries). In most cases, certificates are issued to nationals, so this definition is a good proxy for the availability of domestic seafarers but not necessarily the employed domestic seafarers. These estimates are based on various sources: answers to questionnaires sent to national administrations and shipowner associations, expert estimates and other sources. The estimates are complemented with BIMCO/ISF’s own manning estimates by ship type. However, the BIMCO/ISF data are not fully comparable over time. Changes in country coverage and methodology since 1990 make it difficult to compare country numbers in these reports over time. The numbers provided by the countries participating in the data collection have been irregular and show a range of inexplicable and drastic variations over time for some countries.

The reports published by the European Maritime Safety Agency (EMSA) since 2016 are the most thorough attempt to gather comparable and reliable data on seafarer employment. The EMSA reports count the number of seafarers holding valid certificates¹ and endorsements for EU-flagged vessels, so they provide available data on seafarers. This does not mean these seafarers were active on EU Member State flagged vessels. The data are also exclusively focused on seafarers on international merchant ships. As numbers have been available only since 2014, no longer-term trends can be identified yet. However, an increase in certificates for masters and officers on EU-flagged vessels since 2014 can be detected (Figure 2).

Figure 2. Maritime transport employment in EU countries (2014-19)



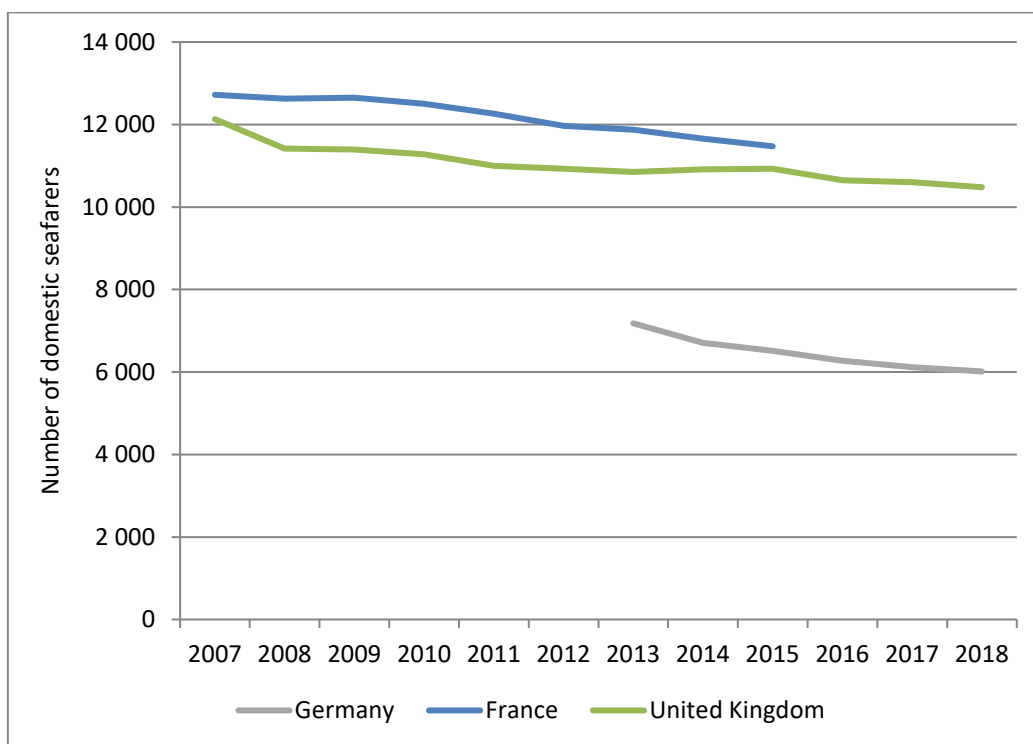
Source: EMSA (2021).

A few countries have collected data on the number of domestic seafarers. In the United Kingdom, these numbers were for certified active seafarers; in Germany and France, these numbers are based on social

security data. The trends observed in these three countries suggest a steady decrease in domestic seafarers since 2007 (Figure 3).

Some EU countries face difficulties recruiting sufficient seafarers. In Italian coastal shipping, coastal shipping companies received a derogation from the obligation to recruit seafarers with EU-approved certifications.

Figure 3. Domestic seafarer numbers in France, Germany and the United Kingdom

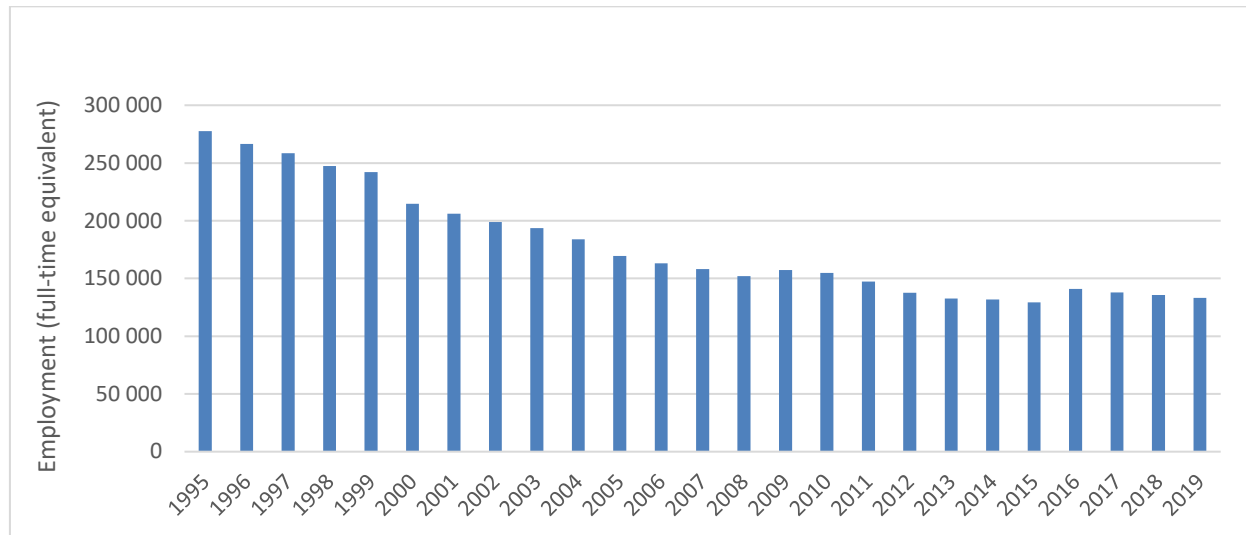


Source: ITF (2019b).

Fisheries employment

In 2019, there were 133 000 full-time equivalent jobs in fisheries in the EU. European countries with the highest employment numbers in fisheries are Italy, Spain, Greece and Portugal. Together, they account for 62% of the fisheries employment in Europe in 2019. It halved between 1995 and 2012 and has since then stabilised (Figure 4). The countries with the most significant decreases in fisheries employment are Latvia, Spain and Estonia. In all three countries, fisheries employment in 2019 was less than a third of what it was in 1995. The only countries where fisheries employment has grown slightly over this period were Finland and Greece.

Figure 4. Fisheries employment in EU countries (including the United Kingdom) (1995-2019)



Source: OECD (n.d.).

Water transport labour costs

Labour costs make up a considerable share of the operating costs of water transport sectors, ranging from around a third to more than half of the operating costs (Table 6). The data sources on operating costs are most detailed for the shipping sector. Therefore, our analysis of water transport employment costs focuses on this sector. Operating costs in shipping are related to the day-to-day running of the vessel. They do not cover fuel costs included in voyage costs, which are volatile as they depend on oil price development. Operating costs in shipping generally represent around 14% of total shipping costs (Stopford, 2009).

The importance of labour costs for shipping's operating costs depends on ship type and ship size. Labour costs comprise the largest share of operating costs – around fifty per cent – in the tanker sector but a smaller share in dry bulk shipping. In container shipping, there are considerable differences between the largest and smallest vessel types regarding the share of labour costs, ranging from 35% to 51% (Figure 5).

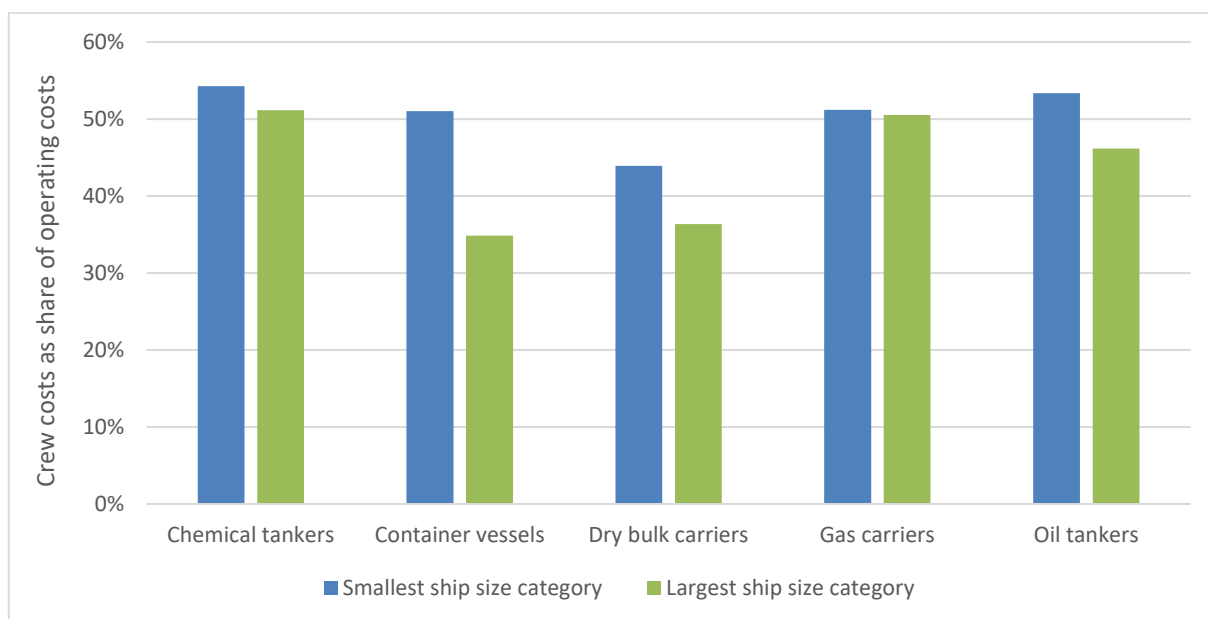
Table 6. Labour costs as a share of operational costs in water transport sectors

Water transport sector	Labour costs as a share of operational costs (%)
Shipping	35-55%
Terminals	35-50%
Towage	35-40%
Inland waterway transport	+/- 35%
Fisheries	30-50%

Source: own data collection based on annual financial reports of shipping companies, ports, terminal operators, towage companies and fisheries.

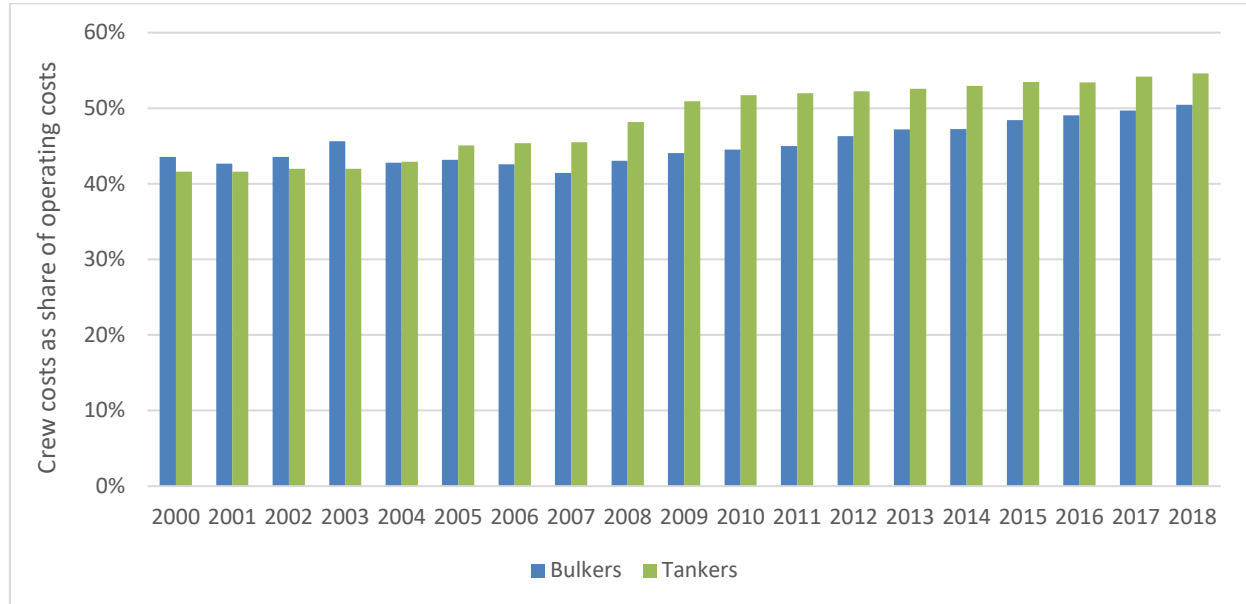
The share of crew costs in ship operating costs has increased over the last two decades. This is particularly the case for the tanker sector, where the percentage rose from 42% in 2000 to 54% in 2018 and to a lesser, but still significant, extent for the bulk shipping sector (Figure 6).

Figure 5. Crew costs as a share of global ship operating costs (2020)



Source: Drewry (2021).

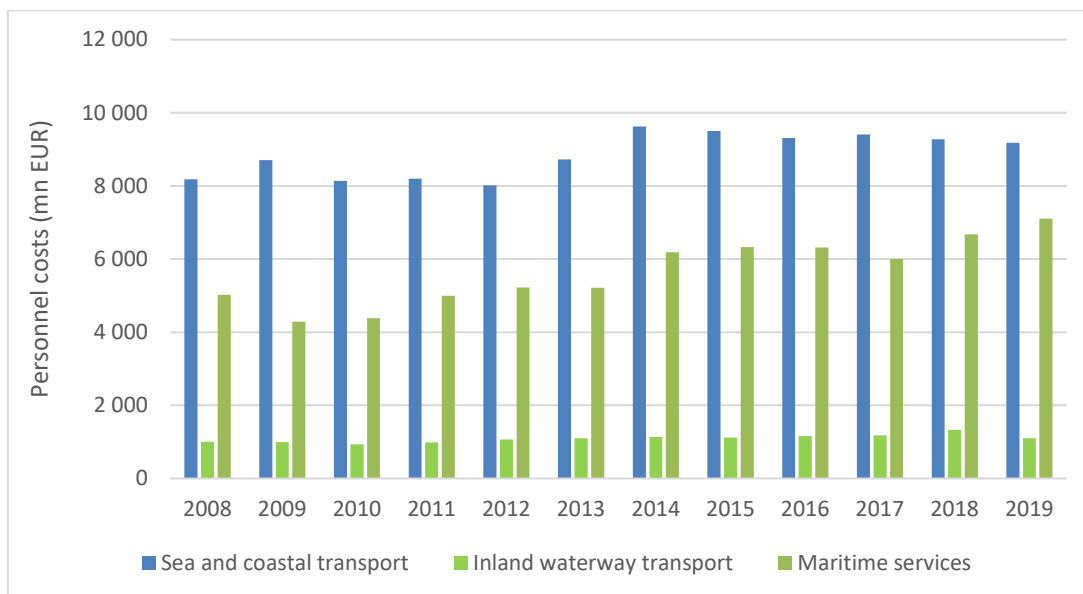
Figure 6. Crew costs as a share of global ship operating costs (2000-18)



Source: Moore, Stephens and Drewry (2020).

Total personnel costs for European companies in sea and coastal transport amounted to EUR 9.2 billion in 2019, EUR 7.1 billion for services incidental to maritime transport and EUR 1.1 billion for inland waterway transport (Figure 7). The personnel costs for the maritime services sector increased by 42% between 2008 and 2019. The increases in the other two sectors were more moderate: 10% for inland waterway transport and 12% for sea and coastal transport. The increases in personnel costs were partly caused by increased employment numbers (observed in Figure 1). Another part of the explanation is increasing costs per full-time equivalent employee. This is particularly the case for the maritime services sector, where the average personnel costs per full-time equivalent worker increased from EUR 60 000 in 2008 to EUR 72 000 in 2019, an increase of 21%. In the sea and coastal transport sector, personnel costs per full-time equivalent worker decreased by 4%, from EUR 55 000 in 2008 to EUR 53 000 in 2019, according to Eurostat data (Figure 8).

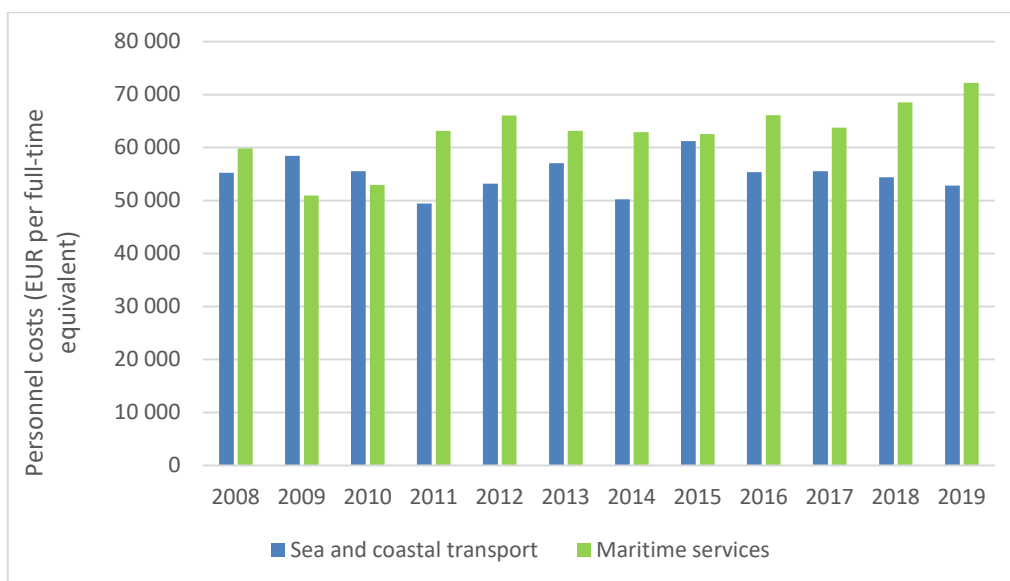
Figure 7. Total personnel costs (in million euros) for EU/EEA



Source: Eurostat (n.d.).

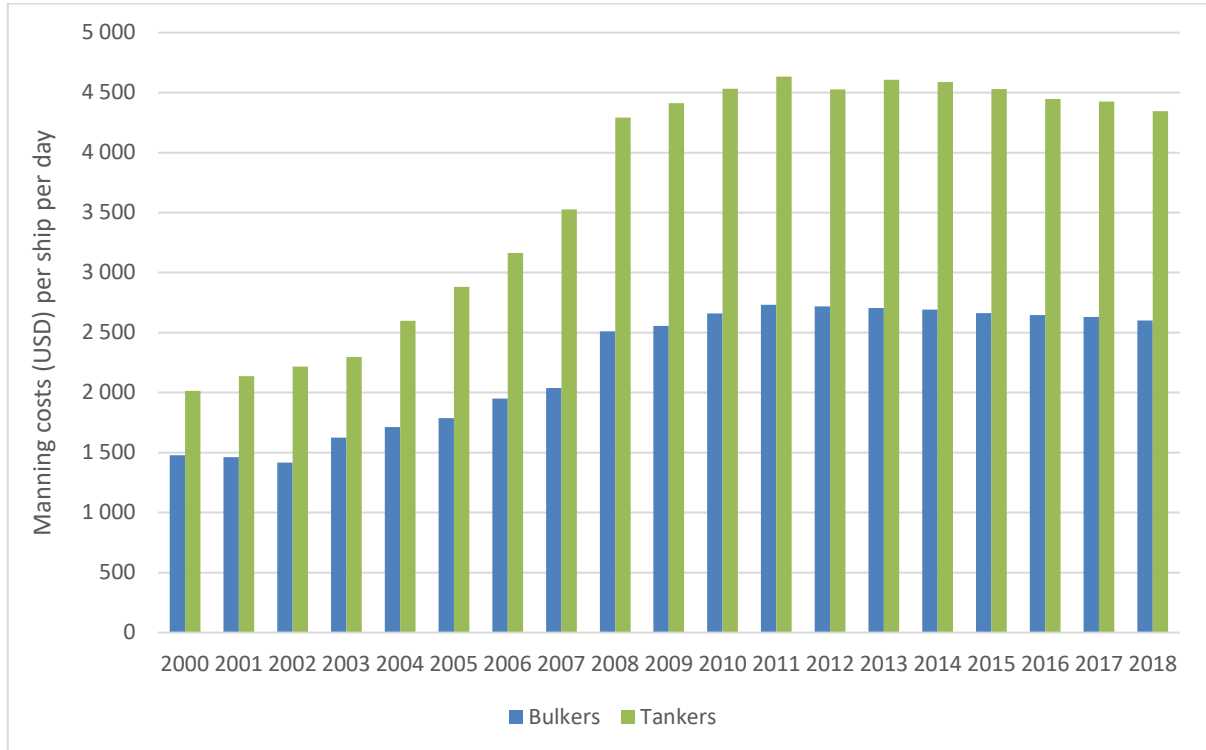
A similar decrease in crew costs is found in the databases on ship operating costs. According to these databases, the average crew costs per ship per day increased from 2000 up to 2011 by 130% for the tanker sector and 85% for the bulk sector. Since then, they decreased slightly – by 6% in the tanker sector and 5% in the bulk shipping sector between 2011 and 2018 (Figure 9). In 2018, the average daily crew cost per ship per day was USD 4 300 in the tanker sector and USD 2 600 in the bulk shipping sector.

Figure 8. Personnel costs (EUR) per full-time equivalent for EU/EEA



Source: Eurostat (n.d.).

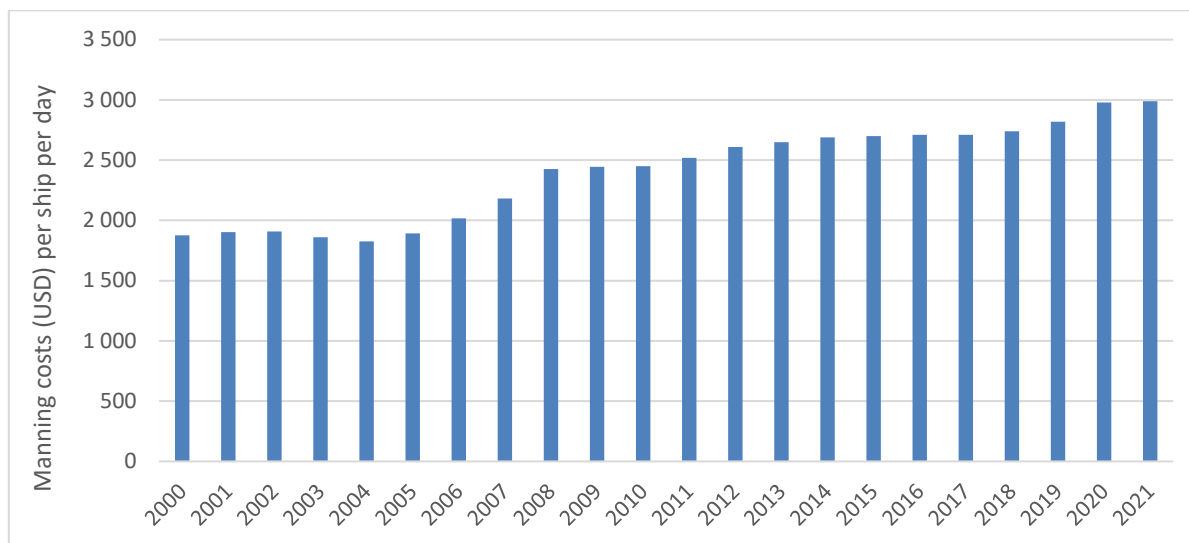
Figure 9. Average daily manning costs (USD) per ship per day for bulkers and tankers (2000-18)



Source: Moore, Stephens and Drewry (2020).

In the roll-on/roll-off (Ro-Ro) sector, the average daily manning cost was USD 3 000 per ship per day in 2021. This is 59% higher than the average daily manning costs in 2000. The largest increase in average manning costs took place between 2005 and 2008. The average daily manning costs were almost flat between 2013 and 2018 (Figure 10).

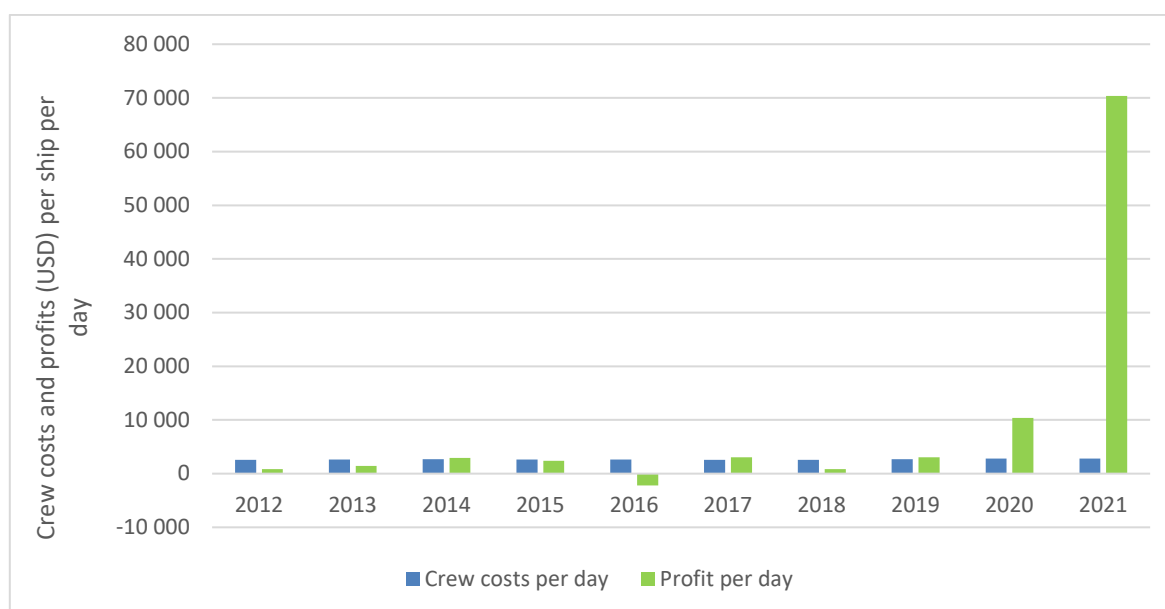
Figure 10. Average daily manning costs (USD) per ship per day in roll-on/roll-off (2000-21)



Source: Drewry’s Annual Report on Ship Operating Costs (2005-2022).

In the container shipping sector, the average daily crew costs amounted to around USD 2 800 per ship per day in 2021, around 10% higher than in 2012. For most of that period, the operational profit per container ship per day was more or less the same. This changed in 2020 when it amounted to USD 10 000 per ship per day, further increasing in 2021 to USD 70 000 per ship per day (Figure 11). This increase in container shipping profits was caused by much higher container freight rates that reflect the scarcity of container ship capacity in relation to demand (ITF, 2022a; Merk et al., 2022).

Figure 11. Average daily crew costs and operational profit (USD) per ship per day in container shipping (2012-21)



Source: Drewry’s Annual Report on Ship Operating Costs (2012-2022) and annual reports of container shipping companies.

Quality of water transport labour

The quality of water transport is assessed in this report by looking at six different indicators:

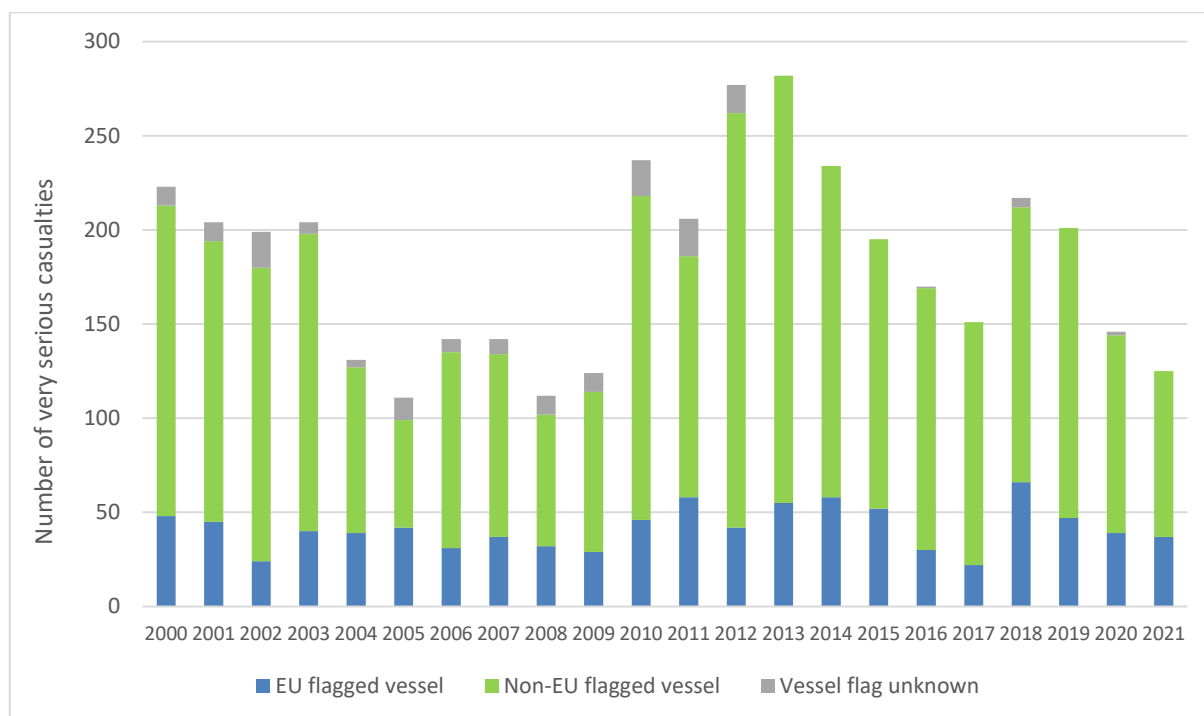
1. very serious shipping casualties
2. crew fatalities
3. port accidents
4. seafarer abandonment
5. seafarer suicides
6. working and living conditions on board ships.

Very serious shipping casualties

The International Maritime Organisation (IMO) collects data on shipping incidents in its Global Integrated Shipping Information System (GISIS). In this system, ship casualties are classified into five categories: very serious casualties, serious casualties, less serious casualties and marine incidents. In GISIS “very serious casualties” are defined as casualties to ships which involve total loss of the ship, loss of life, or severe pollution (IMO, n.d.-b). In this report, very serious shipping casualties are included as one of the indicators of the quality of water transport.

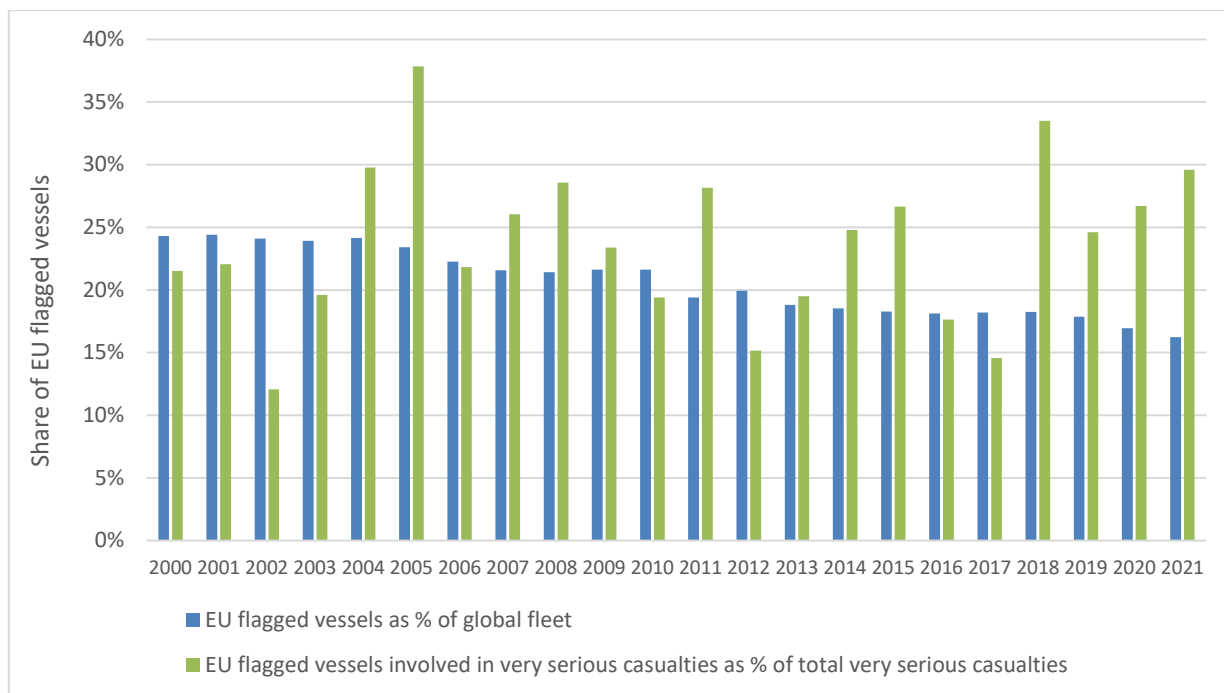
In 2021, 125 very serious shipping casualties occurred. This is below the average of 182 very serious shipping casualties between 2000 and 2021 (Figure 12). The number of very serious shipping casualties varies a lot by year, so it is difficult to discern a clear trend for the last two decades. On average, the share of EU-flagged ships involved in very serious shipping casualties was 23% between 2000 and 2021. Whereas the share of EU-flagged vessels, as part of the global fleet, has decreased from around 25% to 15% over that period, there is no similar decline in the share of very serious shipping casualties of EU-flagged vessels (Figure 13). One could argue that the position of EU-flagged vessels has worsened over time. Between 2000 and 2010, there have been five years where EU-flagged vessels have had a higher share of very serious casualties than the share in the global fleet. Between 2011 and 2021, this has risen to eight years (Figure 13).

Figure 12. Number of very serious casualties by EU and non-EU flag vessels (2000-21)



Note: "very serious casualties" are defined as casualties to ships which involve total loss of the ship, loss of life, or severe pollution (IMO, n.d.-b).
 Source: IMO GISIS (n.d.).

Figure 13. EU-flag share of global fleet and EU-flag share of very serious casualties (2000-21)



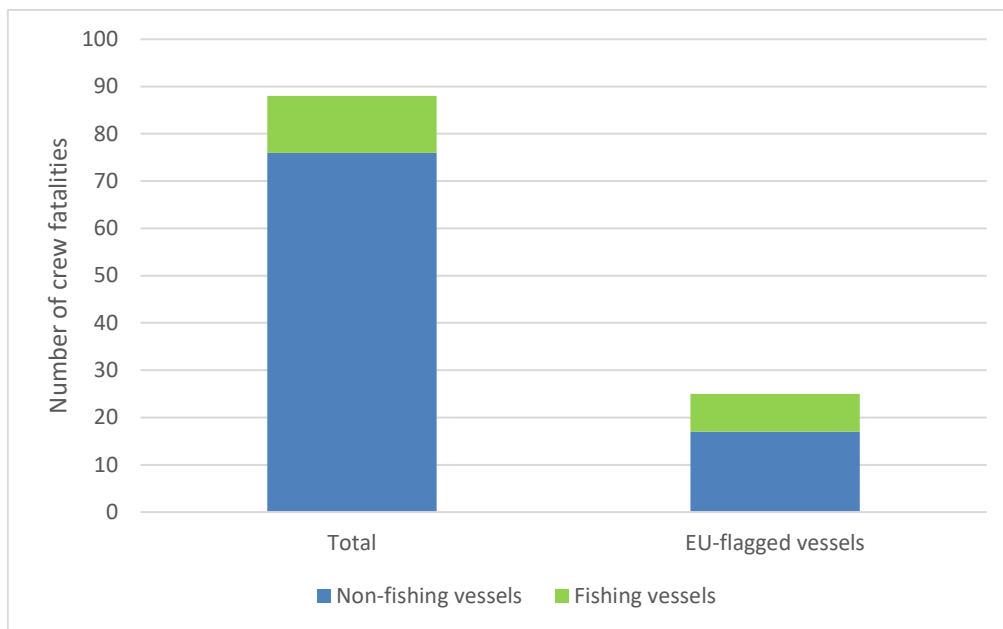
Source: IMO GISIS (n.d.).

Crew fatalities

Crew fatalities – the second indicator for employment quality used here – are related to very serious shipping accidents, as shipping accidents with losses of life are defined as very serious shipping accidents. Consequently, the IMO GISIS database provides a source of information on seafarer fatalities. Although the database does not systematically provide information on the number of deceased crew in each accident, nor on the nationality of the deceased seafarers, it provides information on which very serious accidents involved loss of life. It also provides the flag of the vessels on which the deceased seafarers worked, and the type of vessel, making it possible to distinguish between fishing vessels and other vessels.

In 2021, 88 very serious shipping accidents involving loss of life were reported. Twelve of these fatal accidents took place on fishing vessels. A significant part, 28%, of total crew fatalities occurred on EU-flagged vessels; 8 out of the 12 fatal accidents on fishing vessels were on EU-flagged vessels (Figure 14).

Figure 14. Crew fatalities in fisheries and non-fisheries (2021)



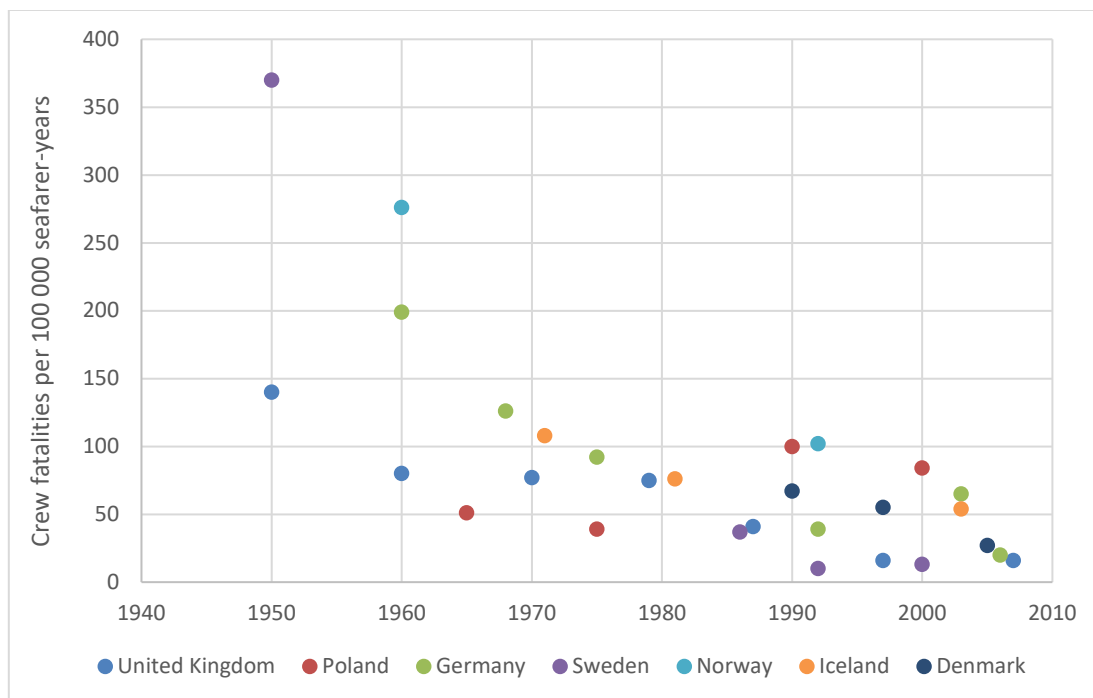
Source: IMO GISIS (n.d.).

Long-term trends in crew fatalities can be assessed by combining various sources on different national fleets. Studies have been conducted on the fatal accident rates in individual European fleets over diverse periods since 1950. These studies can be made comparable by converting the numbers in these studies into one indicator, the fatal accident rate per 100 000 seafarer-years (a seafarer-year is a measure of full-time seafarer employment during a full year). These fatal accident rates per country can be compared over time to identify trends.

Crew fatalities on several European merchant fleets have declined since the 1950s. This can be concluded from studies on crew fatalities in fleets of the United Kingdom, Germany, Sweden, Norway, Iceland and Denmark. The only exception is Poland, where fatal accident rates in the 1990s and 2000s were higher than those reported in the 1960s and 1970s (Figure 15). Differences between countries seem to become smaller over time. There appears to be some convergence of fatal accident rates for seafarers on selected European fleets. It can also be noted that the declining trend seems to have stalled in the 2000s. As there is only a limited number of European countries for which multiple studies on seafarer fatal accident rates

have been conducted, one should be cautious in inferring declining crew fatalities over time for all European fleets.

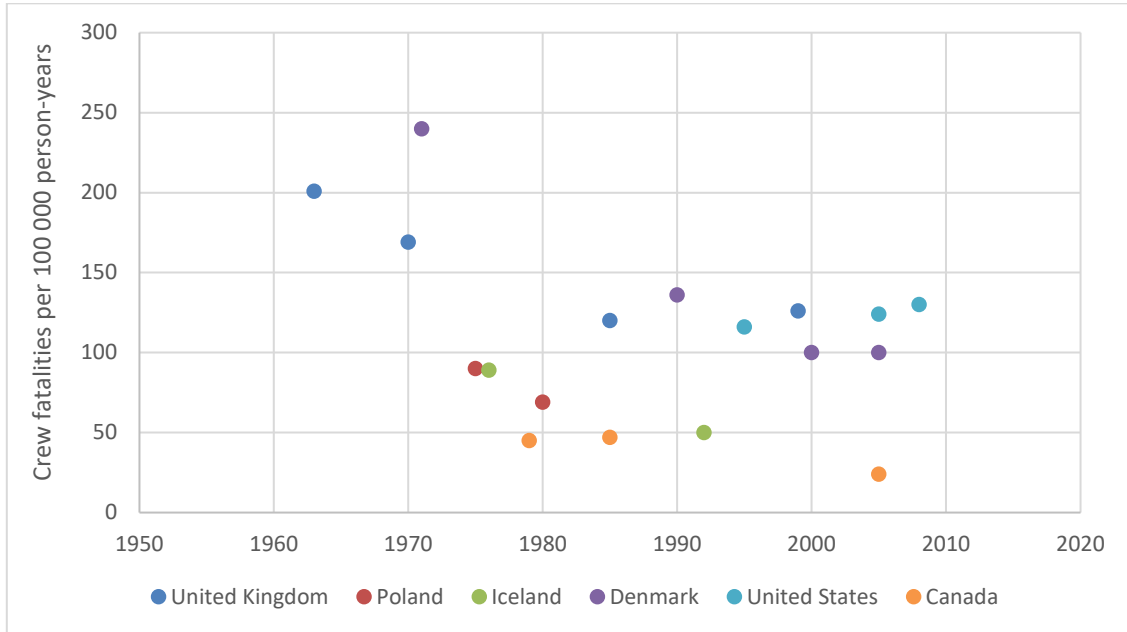
Figure 15. Average fatal accident rate for selected European merchant fleets (1945-2009)



Note: The fatal accident rate is expressed as number of fatal accidents of seafarers per 100 000 seafarer-years on a national fleet.
 Source: based on Roberts et al. (2014).

A similar decline in fatal accident rates can be observed in various fishing fleets in OECD countries. The number of countries for which studies on fatal accident rates in fisheries exist is smaller than for merchant shipping. However, a declining trend since the 1960s was found in five countries: the United Kingdom, Poland, Iceland, Denmark and Canada. For the United States, a slightly increasing trend was observed in the 1990s and 2000s (Figure 16). The values for the fatal accident rate for fisheries in the 2000s range from 0.02% to 0.13%. This is a slightly higher and larger range than found for cargo shipping (from 0.01% to 0.08%).

Figure 16. Fatal incidence rate for selected OECD fisheries fleets (1945-2009)

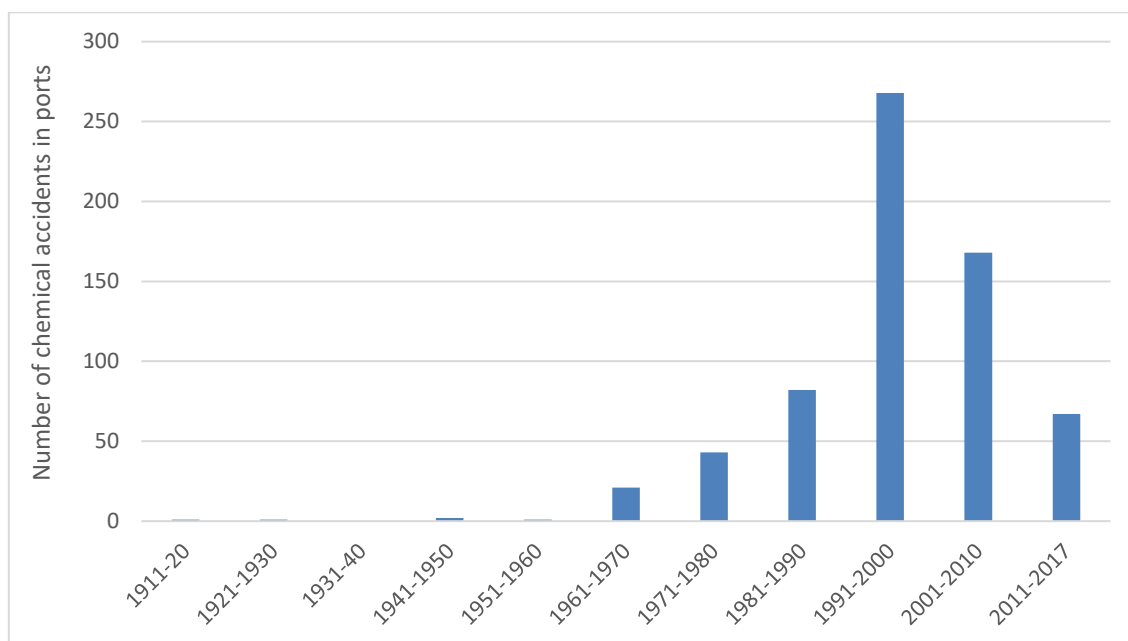


Note: This is the fatal incident rate per 100 000 person-years.
Source: based on Roberts et al. (2014); Jensen et al. (2014).

Port accidents

There are no official international statistics on accidents in ports. However, there are a few studies that assessed the occurrence of port accidents – accidents in the port area – globally and in Europe (Darbra and Casal 2004; Lecue and Darbra 2019). These studies calculated the number of port accidents based on a variety of sources, including IMO’s GISIS and the Major Hazard Incident Data Service (MHIDAS) database.

During 1911-2017, around 650 port accidents with chemical substances took place in Europe, according to Lecue and Darbra (2019). Around 80% of the documented accidents happened after 1990, with 41% registered in the 1990s alone, but a clear reduction in the 21st century (Figure 17). The sharp increase in documented accidents could be related to the increase in maritime transport volumes and the better documentation of port accidents since the 1980s. The reduction since 2000 could be due to a general increase in the awareness of the safety culture of the chemical industry, as highlighted by new EU regulations, such as the EU Seveso directives and Directive 2008/68 on inland transport of dangerous goods. Around 27% of port accidents involving chemicals are caused by human factors. Spillage of oil has been the most common accident in European ports concerning hazardous materials since the beginning of the 20th century. (Lecue and Darbra, 2019). A study on port accidents globally showed that the severity of port accidents was lowest in the European Union, slightly higher but still relatively low in North America, Australia and Japan, and highest in the “rest of the world” (Darbra and Casal, 2004).

Figure 17. Accidents in European ports with chemical substances (1911-2017)

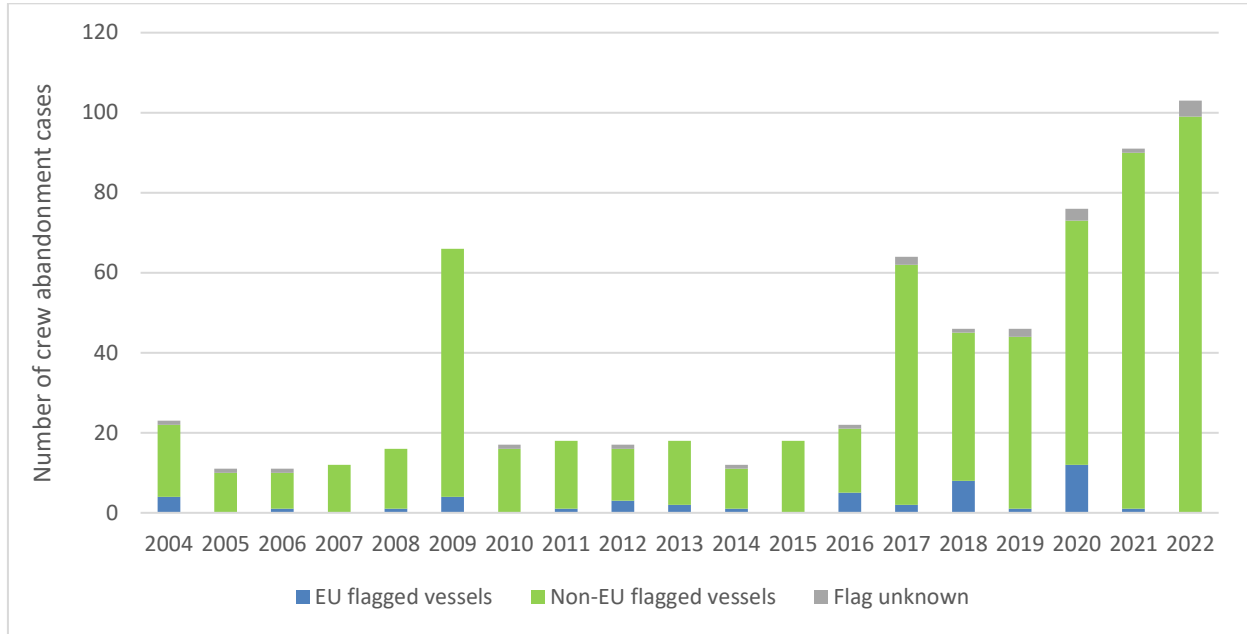
Source: Lecue and Darbra (2019).

Crew abandonment

In 2022 there were 103 cases of seafarer abandonment. Abandonment occurs when the shipowner does not fulfil his obligations regarding the timely repatriation of seafarers, payment of outstanding remuneration and provision of basic necessities, such as food, accommodation and medical care. In practice, abandonment occurs when the master of the ship has been left without any financial means with respect to the operation of the ship (IMO, n.d.-a). On the 103 abandoned vessels, at least 1 682 seafarers were affected. This makes 2022 the worst year for cases of seafarer abandonment since seafarer abandonment cases started to get reported in the joint IMO/ILO database on abandoned seafarers. Whereas seafarer abandonment cases between 2004 and 2016 have been fairly stable (with the exception of 2009), with an average of around 20 cases per year, abandonment cases have sharply increased since 2017. The Covid-crisis in 2020 made crew changes more complicated, likely contributing to a further increase in seafarer abandonment cases in 2020 and 2021. Despite the normalisation of the crew change situation, abandonment cases have continued to grow.

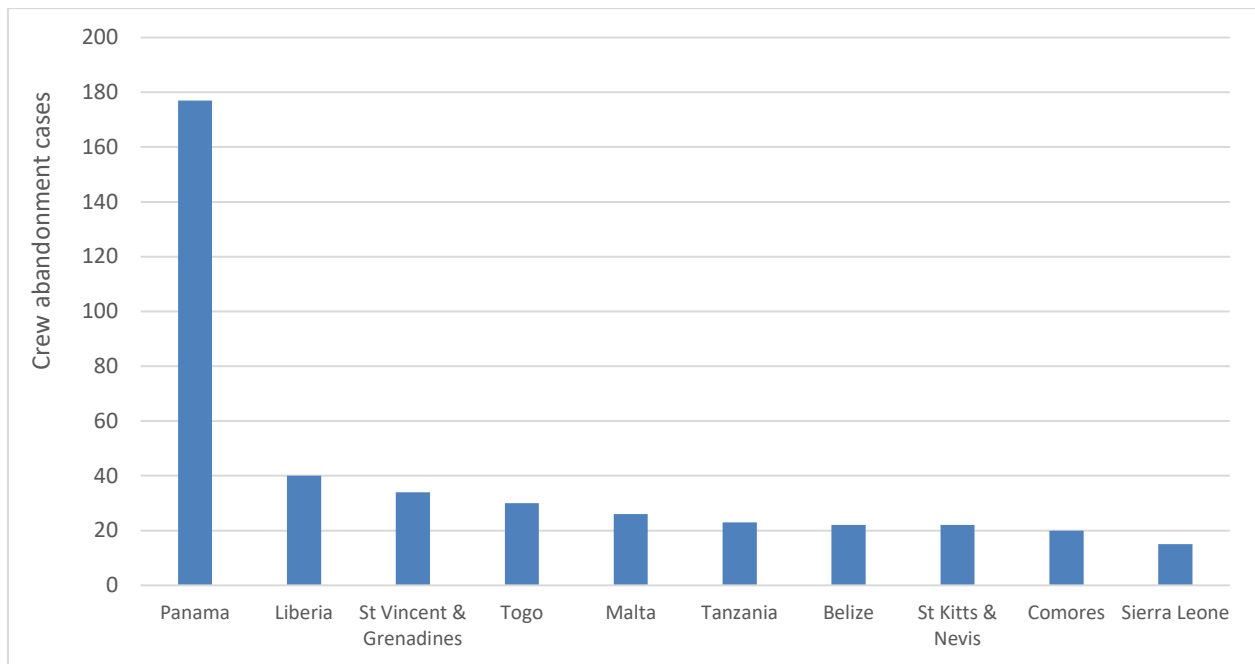
A small share of the crew abandonment cases takes place on EU-flagged vessels. Whereas EU-flagged vessels make up around 15% of the global world fleet in 2022, on average less than 7% of the crew abandonment cases take place on EU-flagged vessels (Figure 18). In 2022, none of the abandoned vessels were EU-flagged vessels. The flags with the most crew abandonment cases are Panama, Liberia and St. Vincent & Grenadines (Figure 19). The EU flag with – by far - the most crew abandonment cases is Malta: 26 cases between 2004 and 2022 (Figure 20).

Figure 18. Crew abandonment cases, EU flagged and non-EU flagged vessels (2004-22)



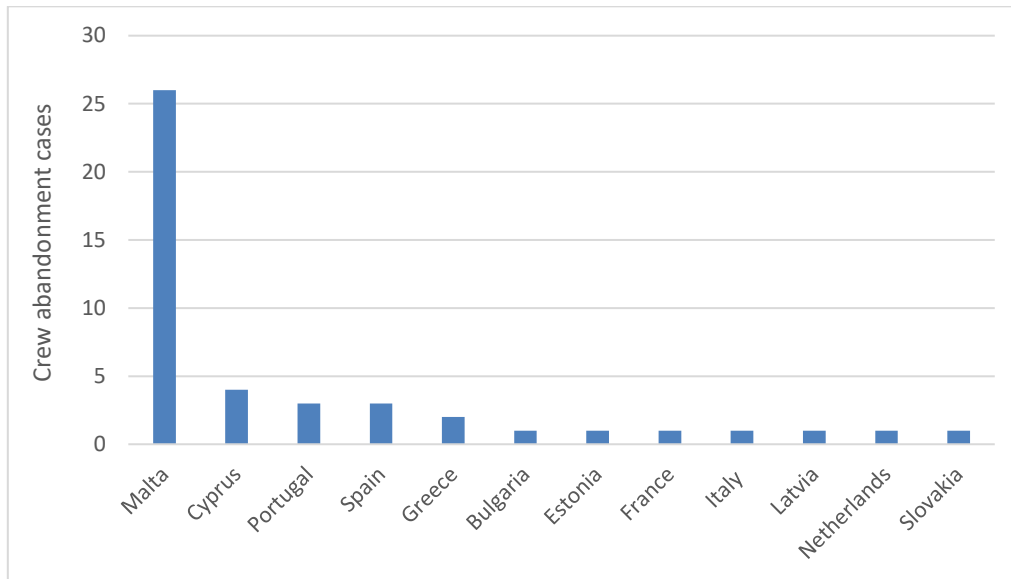
Source: IMO/ILO (n.d.).

Figure 19. Top 10 flag states for crew abandonment (2004-2022)



Source: IMO/ILO (n.d.).

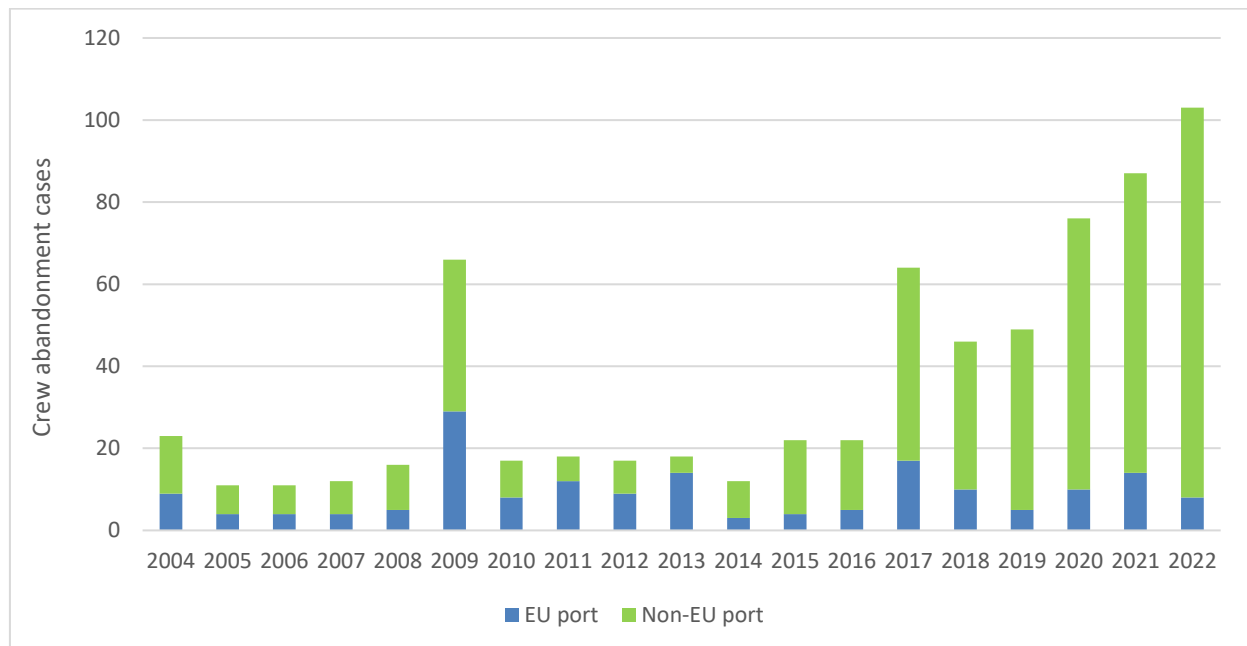
Figure 20. Crew abandonment cases by EU flag (2004-22)



Source: IMO/ILO (n.d.).

A significant part of the crew abandonment cases occurs in EU ports, but this share seems to be decreasing over time. The share of seafarer abandonment cases in EU ports was higher than 30% between 2004 and 2013, around 25% between 2014 and 2018, and approximately 10% since 2019 (Figure 21).

Figure 21. Crew abandonment cases, EU and non-EU ports (2004-2022)

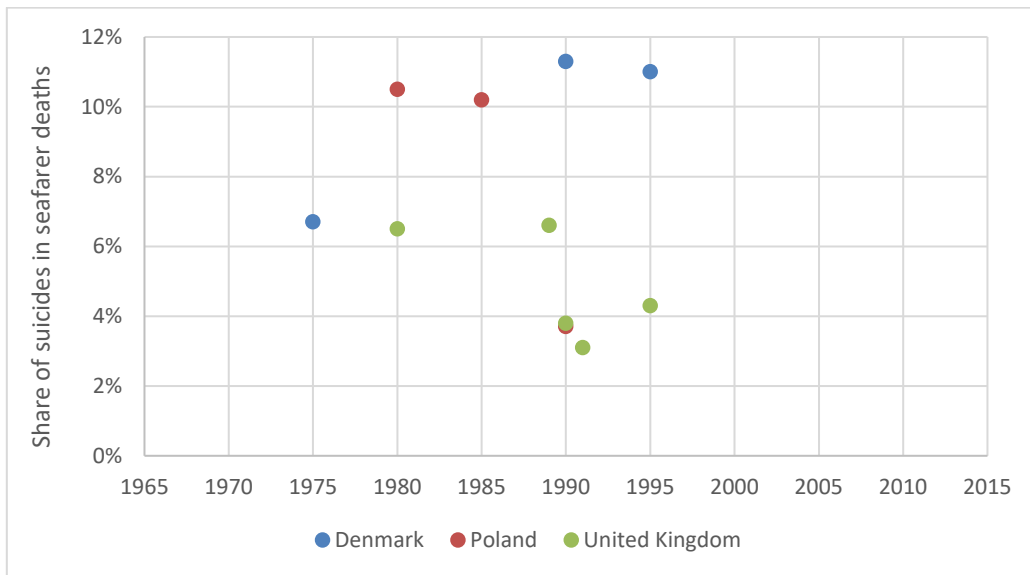


Source: IMO/ILO (n.d.).

Seafarer suicides

There is only a limited amount of studies with reliable data on seafarer deaths by suicide. The reason is that most of the time, there is no certainty on whether a seafarer's death is related to suicide, so suicides are often not reported or underreported. From the few studies that exist on country fleets over time, no clear tendency can be identified (Figure 22). There are indications that seafarer suicides in the cruise shipping sector increased during the Covid-19 pandemic, related to the complications in changing crews (Carr, 2020; Smith and Franklin, 2022).

Figure 22. Seafarer deaths by suicide in the United Kingdom, Denmark and Poland fleets



Source: Mellbye and Carter (2017).

Working and living conditions

Valuable insights on the quality of maritime labour can also be gained from data related to port state controls on compliance with the 2006 Maritime Labor Convention (MLC, 2006). This convention, adopted in 2006 and entered into force in 2013, aims to improve the health and wellbeing of seafarers. The convention covers the minimum requirements for seafarers to work on a ship, the conditions of employment, accommodation, recreational facilities, food and catering, health protection, medical care, welfare and social security protection and compliance and enforcement. Compliance with the convention rests with the flag states, but port states also have a role via the system of port state control (PSC). This system allows countries that have ratified the convention to inspect foreign-flagged ships that arrive in their ports to control compliance with international conventions. Data collected as part of the PSC can indicate whether ships comply with the prescribed working and living conditions requirements.

A study that analysed PSC data found that the average number of MLC-related deficiencies per inspection declined from 2010 to 2017. This implies an improvement in conditions overall and an increased focus on seafarers' conditions on board (Fotteler et al., 2020). The same study could not establish that this improvement in seafarers' conditions was due to implementing the MLC, 2006. Its authors remarked that several issues remain for seafarers, which the MLC, 2006 fails to adequately address (Fotteler et al. 2020) without specifying which issues remain.

Assessment of quality of water transport labour conditions

Based on the above indicators, the assessment of the quality of water transport labour conditions is mixed. There are areas where conditions have improved. Chemical accidents in ports have decreased since the 2000s, and the deficiencies related to working and living conditions in port state controls have decreased since 2010. The situation concerning very serious shipping accidents and crew fatalities is more complicated. There does not seem to be a clear tendency towards fewer fatal accidents over the last decade.

In contrast, crew fatalities have significantly decreased since the 1950s in both merchant shipping and fisheries. This decrease in fatality rates seems to have halted since the 2000s. An area where things have deteriorated is seafarer abandonment. Since reporting started in 2004, there have never been more seafarer abandonment cases than in 2022. Finally, there are areas where existing data do not allow to identify clear trends; this is the case for seafarer suicides.

One could wonder if EU-flagged vessels have performed better than non-EU-flagged vessels regarding the quality of water transport labour conditions. The evidence on this seems to be mixed. The share of EU-flagged vessels in very serious accidents is higher than the EU-flagged fleet share in 13 out of 22 years. Most of this relatively bad performance has occurred in the last decade. Regarding crew abandonment, Malta-flagged vessels are amongst the world's worst offenders.

Conversely, the share of EU-flagged crew abandonment cases is lower than the EU-flagged fleet share. Moreover, crew fatalities have decreased in selected European and OECD countries, especially before 2000. However, the question is whether this is relevant when many European and OECD shipowners have changed their flags from EU and OECD flags to non-EU and non-OECD flags (flagged out).

Governance of water transport

Regulation of shipping has become increasingly globalised in recent decades. Within the framework of the International Maritime Organisation (IMO) and the International Labour Organisation (ILO), countries have adopted a gradually increasing number of international conventions that regulate safety, security and pollution from ships, as well as labour standards in maritime transport.

This globalisation of regulation has reduced the scope of national shipping policies. On the one hand, policymaking has moved to the international level. Hence, in many areas, national shipping policies have been moved into international diplomacy to achieve outcomes in line with national priorities. On the other hand, the levers of national policy makers have been reduced.

In Europe, EU regulations have often further constrained the remaining policy space for national governments, but not in all respects. For example, shipping is exempt from the EU Posting of Workers Directive. Some EU regulations, such as the EU maritime state aid guidelines, provide the framework for what is allowed, but it still leaves room for member states to shape specific policies for water transport. This chapter will focus on three elements within the governance of water transport that greatly impact water transport employment: flags of convenience, second shipping registries and maritime state aid.

Flags of convenience

Ships have an obligation to be registered. They fly the flag of the country where they are registered. For most of history, ships have been registered in the country of residence of the shipowner. There are examples of ships flying flags of different countries than the nationality of their owners, but these were exceptions rather than the rule (Carlisle, 2017). This situation had changed since the Second World War, when the US and its representatives started actively promoting open shipping registries, such as Panama, Liberia and the Marshall Islands (Carlisle, 1981). Such registries are open to all ships, so there is often no link with the shipowner's nationality, origin, or destination of the cargo transported on the ship. The open shipping registries attracted many ships in the 1950s and 1960s at the cost of the flags of traditional maritime nations, mostly developed Western economies. The growth of open registries – and the parallel decline of traditional maritime flags – continued in recent decades. Ships flying the flag of an OECD country have decreased from 54% of the global fleet in 1980 to 16% in 2019 (ITF, 2019b).

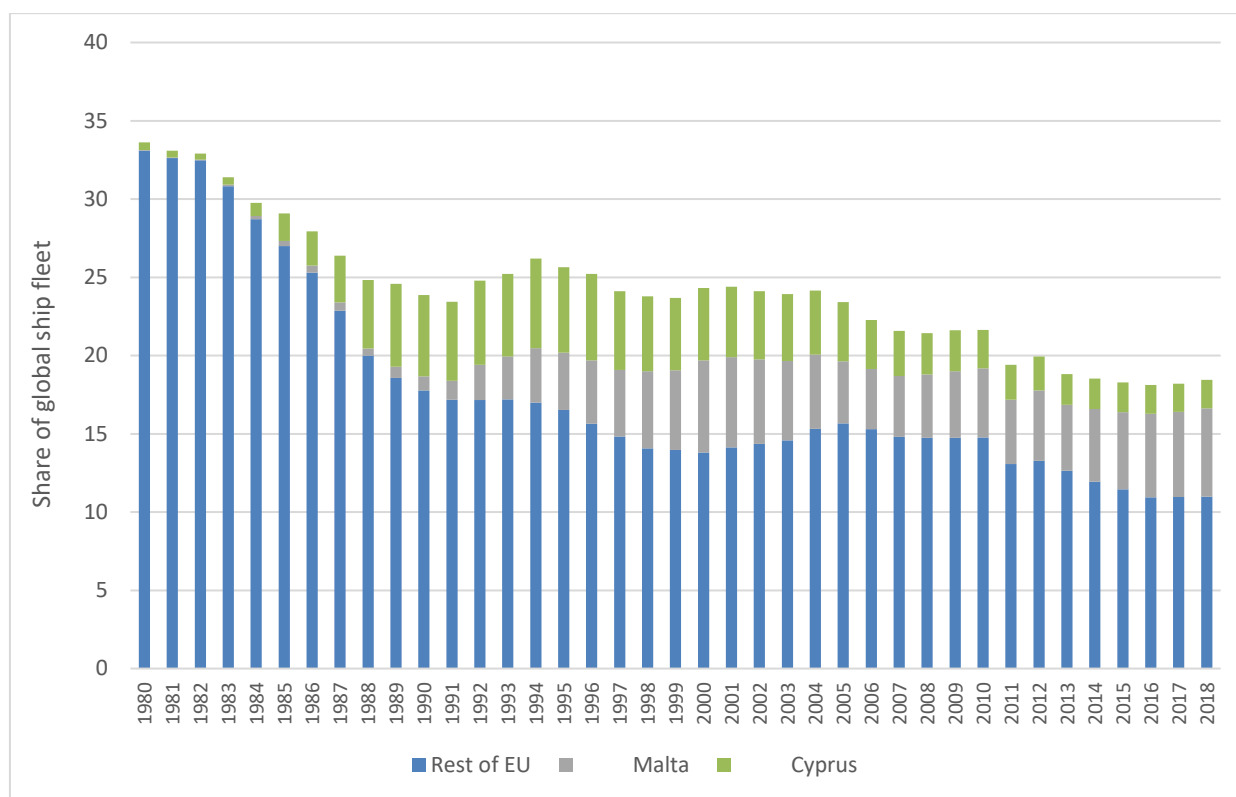
The attractiveness of open registries for shipowners consists of near-zero taxation and looser regulation. Countries with open shipping registries generally exempt shipping activity from taxation, and ships registered in open registries can benefit from this tax exemption. These countries have also ratified fewer international conventions on safety, security and environment, put less effort into enforcing them and issue no additional national regulations. For example, open registries do not have nationality requirements for ship crews, unlike traditional shipping registries that often require a particular share of domestic seafarers or officers. As domestic seafarers in developed countries are more expensive than in developing countries, open registries can reduce crew costs for shipping companies (Luo, Fan and Li, 2013; Mitroussi and Arghyrou, 2016).

Open registries are also known as flags of convenience. The International Transport Workers Federation maintains a list of registries it declares to be flags of convenience. Criteria used to develop the list include the ability and willingness of the flag state to enforce international minimum social standards on its vessels, the degree of ratification and enforcement of ILO conventions and recommendations and the safety and environmental records of ships (ITF Seafarers, 2019). At the beginning of 2023, the list included 42 shipping registries.

The traditional maritime nations of Europe initially tried to stop the development of flags of convenience but did not manage to achieve this. Two of the EU flags that have grown since the 1980s were Malta and Cyprus² (Figure 23), both declared flags of convenience by the International Transport Workers Federation. Both flags managed to attract EU-owned vessels, sometimes at the cost of other EU flags. For example, a growing share of Greek-owned vessels fly the Cyprus flag since the mid-1980s and the Malta flag since the mid-1990s. At the same time, this reduces the share of Greek-owned vessels flying the Liberia and Panama flag and also the share of Greek-owned vessels flying the Greek flag (Goulielmos, 1998).

After a period of rapid decline of most domestic flags, various European countries decided since the 1980s to reinvigorate their flags by creating second shipping registries and tonnage tax systems. The share of the global fleet that flies a European flag is 18%, whereas the share of EU-owned vessels is 36% of the global fleet. This suggests that around half of the EU-owned vessels are flagged in open registries.

Figure 23. Share of global ship capacity with flags from Cyprus, Malta and other EU countries, 1980-2018



Source: ITF (2019b).

The emergence of Cyprus and Malta as flags of convenience creates a special dynamic in European inland waterway transport. The EU has regulated aspects of inland waterway transport, such as working time and professional qualifications, in Council Directive 2014/112/EU and Directive (EU) 2017/2397. Both Cyprus

and Malta have opted out of this legislation, considering that there are no navigable rivers in both countries, so there is no inland waterway transport. At the same time, the shipping registers of Malta and Cyprus are open to inland waterway companies, and an increasing number of river vessels in the EU are now flying the flag of Malta. In addition, many labour contracts with staff in European river vessels are now with crewing agencies from Cyprus. These set-ups likely undermine EU efforts to create minimum standards in inland waterway transport in Europe. (ETF, n.d.)

Second registries

Many countries have created second registries or international registries that offer advantages that are comparable to those of open shipping registries. At least nine European countries currently have at least one second shipping registry (Table 7). Some second registries take the form of an offshore dependency of European countries, such as in the case of the Netherlands' Antilles, the Kerguelen Islands, the Canary Islands and Madeira. Most of these second shipping registries were created in the mid-1980s and 1990s. Efforts in the 1980s to 1990s to create a single European shipping register (EUROS) with a single agreement on minimum conditions to be respected have not succeeded due to political divergences.

Table 7. Second shipping registers in European countries

Second registry	Country	Year of establishment
Isle of Man	United Kingdom	1984
Netherlands Antilles	Netherlands	1987
Kerguelen	France	1987
Norway International Ship Registry (NIS)	Norway	1987
Danish International Ship Registry (DIS)	Denmark	1988
German International Ship Registry (GIS)	Germany	1989
Madeira Ship Registry (MAR)	Portugal	1990
Canary Island Registry	Spain	1991
Italy International Registry	Italy	1998
French International Registry (RFI)	France	2005

Second registries aim to provide favourable conditions to domestic shipping companies to ensure they fly the national flag. Still, they are also open to foreign shipping companies to a more or lesser extent. Some second registries, such as the Madeira registry, explicitly aim to attract foreign shipping companies. In contrast, other second registries, such as the Danish International Ship Registry, only grant access to foreign companies upon request and on an exceptional basis.

Some but not all of the second registries are declared Flags of Convenience by the International Transport Workers Federation. This is the case for the German and French International Registry and the Madeira Ship Registry.

Nationality requirements for crews

Considerable differences exist between second registries concerning nationality requirements for crews. For example, the Canary Islands registry requires “at least one skipper and first officer of EU Member State or European Economic Area nationality; the rest of the crew must be at least 50% EU citizens”, whereas the Dutch and Danish International Ship Register only requires the shipmaster to have EU/EEA nationality (Table 8). In the case of the Dutch register, these requirements can be circumvented: “if shipowners can demonstrate that despite their best efforts to do so, it is not possible to employ a master from one of these nationalities, they may ask for approval to employ non-European masters” (NL Flag, n.d.). A similar possibility to be exempted from the nationality requirement exists in the Norwegian International Ship Register but not in the Norwegian Ordinary Ship Registry.

Table 8: Nationality requirements for crews in selected shipping registries

Shipping registry	Shipmaster	Other crew
Canary Islands	EU/EEA	50% from EU/EEA
Denmark (DIS)	EU/EEA	No requirements
France (RFI)	EU/EEA	25%-35% from EU/EEA
Germany (GIS)	EU/EEA	One additional officer from EU/EEA
Italy (IIS)	EU/EEA	Two other members from EU/EEA
Madeira	30% from EU or Portuguese speaking country	
Netherlands Antilles	EU/EEA (exemption possible)	No requirements
Norway (NIS)	EU/EEA (exemption possible)	No requirements

Source: DMA (2014); Federal Ministry of Justice (2016); NL Flag (n.d.); NMA (2021); RF (2019).

Labour costs of foreign seafarers

One of the key advantages of second registers for shipping companies is that they reduce crew costs by allowing foreign seafarers not to be covered by national collective labour agreements. For example, in Germany, based on the German Flag Act section 21, paragraph 4, national contract conditions and the applicability of foreign labour and tariff contract law can be agreed upon for non-EU seafarers. Ships registered in the Norwegian International Ship Registry may employ foreign seafarers based on their national collective agreements.

Regulatory requirements

Second registries are generally associated with fewer regulatory requirements than first shipping registries. For example, the Danish ordinary shipping registry requires that ship masters, navigating and engineering officers, radio operators and cooks hold a Danish certificate of competence. Danish certificates are not required for ships registered in the Danish International Register of Shipping (DIS). They only need a valid certificate of competency and a Danish certificate of recognition issued by the Danish Maritime Authority (DMA, 2014). It is also likely that shipping companies prefer second shipping registries that have less stringent oversight and inspections.

Access of foreign companies to domestic shipping markets

Second registries also allow foreign shipping companies to access domestic shipping markets. The Madeira ship registry promises “immediate access to European cabotage through the Portuguese flag” (MAR, n.d.). There seems to be a tendency to expand the markets that ships in second registries can access. For example, the Norwegian International Ship Registry (NIS) was originally established for ships on international voyages, excluding Norwegian domestic and passenger shipping. However, this approach was amended with a reform in 2021 (NMA, 2021). Ships registered in the NIS can now also offer domestic maritime transport services, including passenger transport.

State aid

The water transport sector benefits from a considerable amount of state aid. Although there are estimations of subsidies to the fisheries sector globally, no reliable data exist on subsidies and state aid to the other water transport sectors considered in this report. A recent overview of maritime transport subsidies identifies various subsidies but does not quantify maritime subsidies (ITF, 2019b). One of the main subsidies for the shipping industry is the favourable tax treatment via tonnage tax schemes, which can be considered a tax subsidy scheme that has become widely implemented in response to the emergence of flags of convenience. Tonnage taxation represented at least EUR 1.1 billion in foregone revenues in 2015 in OECD countries (ITF, 2019b). However, the foregone tax revenues related to corporate tax exemptions have been estimated at between USD 2.5 billion and USD 4.6 billion per year (Merk, 2020).

A range of European countries provide state aid to coastal shipping to reduce congestion and greenhouse gas emissions from land and air-based transport. Such schemes aim to encourage a modal shift of freight from road to coastal shipping transport. These exist in Italy, Norway, the United Kingdom and Sweden. EU programmes such as Motorways of the Seas provide start-up aid to new or improved short-sea shipping services and financial contributions for establishing and operating a maritime transport service. Subsidies for inland water transport are granted in the Netherlands, Belgium, Austria, Sweden and the Czech Republic, and the European Union has a subsidy programme (NAIADES) to stimulate inland water transport (ITF, 2022b).

Ports also frequently receive state aid. These are granted for investments and projects to maintain and expand their general infrastructure, often for port adjustments related to increased ship size, such as dredging, raising bridges and deepening and widening canals. EU member states can make public investments of up to EUR 150 million in sea ports and up to EUR 50 million in inland ports without prior checks by the Commission. Some port infrastructure projects in Europe may be co-funded by the European Regional Development Fund (ERDF). The public funding of port infrastructure projects often consists of a 50% contribution from ERDF and 50% from national bodies. Co-funding of Trans-European Transport Network projects in EU Member States is possible under the so-called Connecting Europe Facility. Port infrastructure in some Member States may also benefit from the EU Cohesion Fund (ITF, 2019b).

Part of the maritime state aid is directly related to maritime employment. The employment-related state aid is likely only a fraction of total maritime state aid, considering the substantial amounts of state aid related to other categories, such as exemptions from fuel taxes and corporate taxes (ITF, 2019b; Merk, 2020). Below are the main categories of maritime employment-related state aid:

- **Direct labour subsidies**, which are often linked to training provisions. In the United Kingdom, the Support for Maritime Training (SMarT) scheme has been in place since 1998. It covers up to 50% of training costs and is directly paid to the shipping companies who sponsor the trainees. The

spending on this programme amounted to GBP 13.5 million in 2017/18. In Ireland, a shipboard training subsidy is paid by the Department of Transport, Tourism and Sport through the Irish Maritime Development Office to companies providing training for cadets studying in Ireland.

- **Assistance with seafarer travel costs**, which are provided by some countries. In the United Kingdom, the Crew Relief Costs Scheme (CRCS) subsidises 20% of the cost of flying British seafarers to and from ports outside Europe. The spending on this programme amounted to 1.5 million UK pounds in 2010. Denmark covers 50% of returning costs for seafarers who have worked for at least six months on a ship that has not called on home ports for the last three months.
- **Wage-cost deductions**, which are established by several countries. They are the amount of payroll tax to be paid by shipping companies. Such mechanisms are in place in many European countries, but also in Australia, India, Japan and South Korea. In these countries, a differential tax rate applies to eligible seafarers under certain conditions. This should make it more attractive for shipping companies to hire domestic seafarers. The wage cost deduction is supposed to correct for the cheaper wage costs of foreign seafarers. For example, these deductions could go up to 100% of the payroll tax in Germany and Denmark. In Greece, seafarers' income tax is reduced to 15%, and officers and lower crew pay a rate of 10%. In general, such deductions are only provided for domestic seafarers on vessels flying the national flag, but there are exceptions. In the EU, these deductions must apply to all EU/EEA residents.
- **Deduction schemes for non-wage costs of seafarers**, such as exemptions from social security contributions and other ancillary labour costs. This includes employers' contributions to social security (including pension, family allowances and public health insurance) that shipping companies can keep. Seafarers continue to be covered by the social security arrangements of their countries, even if their employers do not pay their contributions. These schemes are being justified regarding the high non-wage labour costs of seafarers in developed countries that would make them less attractive to hire. For example, Germany provides grants to shipping companies that cover the costs of the employer's contributions to the social security for their seafarers on German-flagged ships. Since the amendment of the scheme on the reduction of non-wage labour costs in shipping in 2016, EU and EEA seafarers on flagged-out ships can be included into this scheme under specific conditions. Other countries such as Estonia, Finland, France and Ireland also refund social security contributions of seafarers. For example, in Estonia, reimbursed social tax comprises pension and health insurance contributions. Family allowance and employment insurance scheme contributions are eligible for a refund in France. (ITF, 2019b). Fiscal exemptions for seafarers' payroll taxes and social contributions represented around EUR 0.8 billion in 2016 (ITF 2019b).

Maritime transport policies often suppose that maritime state aid also indirectly supports seafarer employment. For example, the justification of many tonnage tax schemes is often based on the idea that more favourable tax regimes for ships can attract shore-based and seafarer jobs for the country that introduces such schemes. However, there are few indications that these employment effects have been realised (ITF, 2019b). There are three main reasons why such employment effects have not been realised: 1) state aid is not directly linked to employment, 2) the link between national flag and national employment is weak, 3) ships in second registries are eligible for state aid.

State aid is not directly linked to employment

Maritime state aid is often not directly linked or conditional on national maritime employment. This is, for example, the case for tonnage tax schemes. These are favourable tax schemes for the shipping industry that are supposed to sustain – and ideally, grow – national flags, shore-side and seafarer employment. While the EU Maritime State Aid guidelines require member states to design tonnage tax schemes with an EU flag requirement, there is no such requirement related to the use of EU seafarers. So, in practice, there have been very few links between tonnage taxes and EU seafarer employment.

The UK’s tonnage tax scheme contained a training requirement, which required each company entering tonnage tax to recruit and train one officer trainee each year for every 15 officer posts in its fleet. If that was not possible, it required the tonnage tax firm to make payments to the Maritime Training Trust in respect of each training place it cannot offer. Despite cadet uptake at the programme's outset, it proved ineffective in the long term as increased training activity did not translate into more national seafarer employment. Moreover, Leggate and McConville (2005) observed that many companies in the regime have opted out of the training obligation and paid compensation instead.

Another example of a link between the tonnage tax and EU seafarer employment exists in France. The nationality requirement for ship crews registered in the French International Shipping Register is stricter for ships that receive fiscal subsidies.

The link between national flag and national employment is weak

In most shipping registries, the nationality requirements for the crew are fairly loose, often requiring that the shipmaster and a few officers are nationals of the flag country (or EU/EEA nationals in the case of the flags of EU/EEA countries). This implies that stimulating the use of a certain national flag does not necessarily translate into more use of seafarers from that country. Existing impact studies show little evidence of the wider domestic employment effects of subsidies to support re-flagging, such as tonnage taxes (ITF, 2019b). An evaluation by Leggate and McConville (2005) of the UK tonnage tax concludes that although the UK tonnage tax has increased the total tonnage, it has not substantially increased the number of vessels, and the jobs created have mainly benefitted non-EU nationals. This finding was confirmed by Gekara (2010), who noted that while the UK fleet grew from 5.6 million gross tonnage in 2000 to 12.2 million gross tonnage in 2006, the cadet intake only increased from 500 in 1999 to 630 in 2006.

Moreover, the flag link requirement in the EU Maritime State Aid Guidelines (2004) is fairly weak. They state: “... as a matter of principle, tax relief schemes require a link with the flag of one of the Member States”. So, shipping firms can only benefit from a tonnage tax if there is a link with an EU flag; this “flag link” is the general rule. Derogation from this general rule is possible if the shipping company that flies a non-EU flag commits itself to at least maintain the share of tonnage that it operated under the flag of EU Member States on 17 January 2004. This is called the “share requirement”. This share requirement does not apply to undertakings that operate at least 60% of their tonnage under the EU flag. Derogation of the flag link is only “exceptionally granted” and comes with requirements for information to be provided every year that all the conditions for the derogation from the flag link have been fulfilled. In practice, derogations have become the rule rather than the exception (ITF, 2019b). This implies that strong uptake of a maritime state aid programme, like a tonnage tax scheme, does not necessarily translate into strong uptake of the national flag.

Ships in second registries are eligible for state aid

An increasing number of countries provide subsidies to shipowners that use these international registries. For example, ships registered at the Danish International Registry can apply for tonnage tax in Denmark but reportedly have no Danish/EU seafarers employed on their ships. The link of maritime subsidies, such as tonnage taxes, with national seafarers risks weakening when maritime subsidies are extended to international registries. An additional concern is that trade union representation on these ships is often not allowed.

Despite deduction schemes for seafarers' wage and non-wage costs, ships with EU/EEA seafarers are arguably still more expensive than those with non-EU/EEA seafarers. One of the reasons for this could be that the schemes are not necessarily limited to EU/EEA seafarers. In 2004, the EU Maritime State aid Guidelines were extended to include non-EU/EEA seafarers in labour-related maritime subsidies. The justification of this expansion was that preventing Member States from granting tax relief to all seafarers active in international freight transport would have "very negative effects on the competitiveness of European shipowners, which would be encouraged to flag out" (EC, 2004). As a result, some of the labour cost reduction schemes also apply to non-EU seafarers. For example, the Dutch wage reduction also applies to non-Dutch (and non-EU/EEA) residents liable for wage tax in the Netherlands. However, the deduction is smaller (10% instead of 40% for Dutch, EU or EEA residents).

Minimum labour standards in territorial waters

An alternative approach is to define minimum standards for seafarers that operate in territorial waters. This is the idea behind the "European maritime space" concept launched by the European Transport Workers Federation in 2019 (ETF, 2019). The objective of such a maritime space would be that seafarers working in European waters should be treated like shore-based workers. In other words, shipping companies operating within EU waters should abide by EU social *acquis* regarding employment conditions for their workers. The concept was also linked to improving the framework for the maritime industry relating to quality training and job creation and better enforcement and monitoring of the guidelines.

Similarly, Norway is considering introducing new pay and working conditions requirements for seafarers operating in Norwegian waters, regardless of the vessel's flag state. Such a reform would encourage hiring locally, as Norwegian shipping companies would no longer be incentivised to choose cheaper foreign labour (Lunestad, 2021).

Coherence of governance frameworks

Although open registries have become an integral part of the institutional framework in which the shipping industry operates, they are embedded in a set of international regulations. Article 91(1) of the United Nations Convention of the Law of the Sea (UNCLOS) acknowledges the right of every State to "fix the conditions for the grant of nationality and for the right to fly its flag." The same article provides that there "must exist a genuine link between the State and the ship." The "genuine link" requirement in UNCLOS is to secure more effective implementation of the duties of the flag state. There is currently no binding international framework to regulate the registration process itself. The 1986 UN Convention on Conditions for Registration of Ships establishes international standards for registering vessels in a national registry, including references to the genuine link, ownership, management, registration, accountability and the role of the flag state. However, the Convention has not entered into force (IMO, n.d.-c.). To improve the safety

and labour standards on board ships, governments will have to ensure that the “genuine link” requirement is applied in their shipping registries, including the open and second registries.

The justification for second registries and maritime state aid – such as tonnage tax regimes – is that this would support a European maritime transport sector and, with this, maritime skills and competencies, considered strategic capabilities. Yet, European countries' second registries and maritime state aid are designed in such a way that they do not stimulate European maritime skills and competencies. Although statistics on EU/EEA seafarers do not exist, there are indications that their number has decreased, despite European companies' growing demand for seafarers. If European countries are serious about supporting maritime skills and competencies, they should consider reforms in three areas.

First, maritime state aid could be directly linked to maritime transport employment. There could be a stricter link between maritime subsidies and using EU/EEA seafarers, particularly when the ship operates mainly in European waters, such as ferries, cruise ships and short-sea shipping. For example, the flag link requirement in the tonnage tax – largely circumvented in practice – could be substituted or complemented by an EU/EEA employment requirement. Therefore, providing maritime subsidies – such as the tonnage tax and wage cost reductions – exclusively for ships with a certain share of EU/EEA seafarers. Another option would be to link it to the active involvement of shipowners and operators to support EU/EEA seafarers. For example, this could be via participation in seafarers' education, assistance with stipends, provision for mentoring at nautical schools, programmes for cadets and ratings.

Second, the link between national flag and national (or EU/EEA) employment could be strengthened. This could take the form of more stringent manning requirements or abolishing the exemptions of the manning requirements.

Third, the eligibility for state aid of ships registered in second registers could be reduced. The justification of state aid is the assumed positive effects concerning maritime cluster development, seafarer employment and supposed safety benefits. Second registries have copied open registries regarding light regulatory approaches on manning; some of them have been declared flags of convenience by the International Transport Workers Federation. Because of their nature, they will not be able to provide the assumed public benefits of first registries, so it is questionable to use maritime state aid to stimulate the use of second registries. Governments could restrict the eligibility of maritime state aid to ships registered in a first registry, but decide not to extend it to those in a second or international registry, especially those declared flags of convenience. The EU Maritime State Aid guidelines could be adapted to indicate the second registries for which the registered ships would not be eligible for state aid.

Notes

1 These refer to Certificates of Competency (CoCs) consistent with the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) adopted by the International Maritime Organisation (IMO). A CoC is usually valid for five years unless stated otherwise.

2 Note by Türkiye: The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the “Cyprus issue”.

Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

References

Bergantino, A. and Marlow, P. (1998), “Factors influencing the choice of flag: empirical evidence”, *Maritime Policy and Management*, Vol. 25/2, pp. 157-174, <https://doi.org/10.1080/03088839800000026>.

BIMCO/ISF (1996), “Manpower Report 1995”, BIMCO, ISF, Warwick Institute for Employment Research.

BIMCO/ISF (2001), “Manpower Report 2000”, BIMCO, ISF, Warwick Institute for Employment Research.

BIMCO/ISF (2006), “Manpower Report 2005”, BIMCO, ISF, Warwick Institute for Employment Research.

BIMCO/ISF (2011), “Manpower Report 2010”, BIMCO, ISF, Dalian Maritime University, Warwick Institute for Employment Research.

BIMCO/ICS (2016), “Manpower Report 2015”, BIMCO, ICS, Dearsley Maritime Consulting, Dalian Maritime University, www.ics-shipping.org/free-resources/manpower-report-2015 (accessed 02 September 2019).

Carlisle, R. (1981), *Sovereignty for sale: The Origins and Evolution of the Panamanian and Liberian Flags of Convenience*, Naval Institute Press.

Carlisle, R. (2017), *Rough Waters; Sovereignty and the American Merchant Flag*, Naval Institute Press.

Carr, A. (2020), “The Cruise Ship Suicides”, Bloomberg, 30 December, www.bloomberg.com/features/2020-cruise-ship-suicides/.

Darbra, R. and Casal, J. (2004), “Historical analysis of accidents occurred in seaports”, *Safety Science*, Vol. 42, pp. 85-98, [https://doi.org/10.1016/S0925-7535\(03\)00002-X](https://doi.org/10.1016/S0925-7535(03)00002-X).

DMA (2014), “Consolidated act no. 74 on the manning of ships”, Danish Maritime Authority, <https://dma.dk/Media/637715331352006479/Consolidated%20act%20on%20the%20manning%20of%20ships.pdf>.

EC (1997), “Community guidelines on State aid to maritime transport”, *Official Journal of the European Union*, 1997/C 205/5, European Commission, Brussels, <https://op.europa.eu/en/publication-detail/-/publication/34c051a9-c3df-4a11-a719-d628961f8d07/language-it>.

EC (2004), “Community guidelines on State aid to maritime transport”, *Official Journal of the European Union*, 2004/C 13/03, European Commission, Brussels, [https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52004XC0117\(01\)](https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52004XC0117(01)).

EC (2021), “Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a new approach for a sustainable blue economy in the EU; Transforming the EU’s Blue Economy for a Sustainable Future”, European Commission, COM(2021) 240 final, Brussels, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0240&from=EN>.

EC (2022), “The EU blue economy report 2022”, European Commission, Directorate-General for Maritime Affairs and Fisheries, Joint Research Centre, <https://data.europa.eu/doi/10.2771/793264>.

EMSA (2021), “Seafarers’ Statistics in the EU: Statistical review (2019 data STCW-IS)”, European Maritime Safety Agency.

ETF (2019), “A European Maritime Space for Socially Sustainable Shipping; Concept Note”, European Transport Workers Federation, Brussels, www.etf-europe.org/wp-content/uploads/2019/11/FairShippingConceptNoteFinal_All.pdf.

ETF (n.d.), “ELA Briefing Inland Waterways Transport”, European Transport Workers Federation, Brussels, Belgium.

Eurostat (n.d.), <https://ec.europa.eu/eurostat/web/main/data/database>

Federal Ministry of Justice (2016), “Safe Manning Ordinance”, German Federal Ministry of Justice, www.gesetze-im-internet.de/englisch_schbesv/englisch_schbesv.html.

Fotteler, M., Andrioti Bygvraa, D. and Jensen, O. (2020), “The impact of the Maritime Labor Convention on seafarers' working and living conditions: an analysis of port state control statistics”, *BMC Public Health*, Vol. 20/1, 1586, <https://doi.org/10.1186/s12889-020-09682-6>.

Frémont, A., Franc, P. and Slack, B. (2009), “Inland barge services and container transport: the case of the ports of Le Havre and Marseille in the European context”, *Cybergeo, Espace, Société, Territoire*, article 437, <https://doi.org/10.4000/cybergeo.21743>.

Gekara, V. (2010), “The stamp of neoliberalism on the UK tonnage tax and the implications for British seafaring”, *Marine Policy*, Vol. 34, pp. 487-494, <https://doi.org/10.1016/j.marpol.2009.10.003>.

German Competition Authority (2022), “2022 Evaluation of the Consortia Block Exemption Regulation (CBER) - Contribution by the Bundeskartellamt”, www.bundeskartellamt.de/SharedDocs/Publikation/DE/Stellungnahmen/Stellungnahme_GVO_Seeschiffahrt_konsortien.pdf?__blob=publicationFile&v=8.

Goulielmos, A. (1998), “Flagging out and the need for a new Greek maritime policy”, *Transport Policy*, Vol. 5/2, pp. 115-125, [https://doi.org/10.1016/S0967-070X\(98\)00005-5](https://doi.org/10.1016/S0967-070X(98)00005-5).

IMO (n.d.-a), “Seafarer abandonment”, International Maritime Organisation, London, www.imo.org/en/ourwork/legal/pages/seafarer-abandonment.aspx.

IMO (n.d.-b), “Marine Casualties and Incidents”, International Maritime Organisation, London, <https://gisis.imo.org/Members/MCI/Default.aspx>.

IMO (n.d.-c), “Registration of ships and fraudulent registration matters”, International Maritime Organisation, London, <https://www.imo.org/en/OurWork/Legal/Pages/Registration-of-ships-and-fraudulent-registration-matters.aspx>.

IMO GISIS (n.d.), “Global Integrated Shipping Information System”, International Maritime Organisation, London, <https://gisis.imo.org/>.

IMO/ILO (n.d.), “Database on reported incidents of abandonment of seafarers”, International Labour Organisation, Geneva, <https://www.ilo.org/dyn/seafarers/seafarersbrowse.home>.

ITF (2018), “The Impact of Alliances in Container Shipping”, *International Transport Forum Policy Papers*, No. 62, OECD Publishing, Paris, <https://doi.org/10.1787/61e65d38-en>.

ITF (2019a), “Container Shipping in Europe: Data for the Evaluation of the EU Consortia Block Exemption Regulation”, International Transport Forum, Working Document, OECD, Paris, https://www.itf-oecd.org/sites/default/files/docs/container-shipping-europe-eu-consortia_3.pdf.

- ITF (2019b), “Maritime Subsidies: Do They Provide Value for Money?”, *International Transport Forum Policy Papers*, No. 70, OECD Publishing, Paris, <https://doi.org/10.1787/919d4222-en>.ITF 2019
- ITF (2022a), “Performance of Maritime Logistics”, *International Transport Forum Policy Papers*, No. 106, OECD Publishing, Paris, <https://doi.org/10.1787/8e06fcd1-en>.
- ITF (2022b), *Mode Choice in Freight Transport*, ITF Research Reports, OECD Publishing, Paris, <https://doi.org/10.1787/3e69ebc4-en>.
- ITF Seafarers (2019), “What are FOCs?”, webpage, International Transport Workers’ Federation, https://www.itfseafarers.org/what_are_focs.cfm. (assessed 2 February 2023)
- Iversen, R. (2012), “The mental health of seafarers”, *International Maritime Health*, Vol. 63/2, pp. 78-89, <https://pubmed.ncbi.nlm.nih.gov/22972547/>.
- Jaremin, B. and Kotulak, E. (2004), “Mortality in the Polish small-scale fishing industry”, *Occupational Medicine*, Vol. 54/4, pp. 258-260, <https://doi.org/10.1093/occmed/kqh054>.
- Jensen, O. et al. (2014), “A review of fatal accident incidence rate trends in fishing”, *International Maritime Health*, Vol. 65/2, pp. 47-52, <https://doi.org/10.5603/IMH.2014.0011>.
- Kavussanos, M. and A. Tsekrekos (2011), “The option to change the flag of a vessel”, in: Cullinane, K. (Ed.), *International Handbook of Maritime Economics*, Edgar Elgar Publishing, Cheltenham, pp. 47-62, https://www.researchgate.net/publication/286050951_The_option_to_change_the_flag_of_a_vessel.
- Laursen, L., Hansen, H., Jensen, O., (2008), “Fatal occupational accidents in Danish fishing vessels 1989–2005”, *International Journal of Injury Control and Safety Promotion*, Vol. 15/2, pp. 109-117, <https://doi.org/10.1080/17457300802240503>.
- Lecue, M., Darbra, R. (2019), “Accidents in European ports involving chemical substances: Characteristics and trends”, *Safety Science*, Vol. 115, pp. 278-284, <https://doi.org/10.1016/j.ssci.2019.02.015>.
- Leggate, H. and J. McConville (2005), “Tonnage tax: is it working?”, *Maritime Policy & Management*, Vol. 32/2, pp. 177-186, <https://doi.org/10.1080/03088830500083547>.
- Lunestad, G. (2021), “New requirements for shipping companies – Norwegian pay and working conditions will most likely become mandatory for seafarers in Norwegian waters”, PWC blog, <https://blogg.pwc.no/skattebloggen-en/new-requirements-for-shipping-companies-norwegian-pay-and-working-conditions-will-most-likely-become-mandatory-for-seafarers-in-norwegian-waters>.
- Luo, N., Fan, L. and Li, K. X. (2013), “Flag choice behaviour in the world merchant fleet”, *Transportmetrica A: Transport Science*, Vol. 9/5, pp. 429-450, <https://doi.org/10.1080/18128602.2011.594969>.
- Mellbye, A, Carter, T. (2017), “Seafarers’ depression and suicide”, *International Maritime Health*, 68/2, pp. 108-114, <https://doi.org/10.5603/IMH.2017.0020>.
- Merk, O. (2020), “Quantifying tax subsidies to shipping”, *Maritime Economics & Logistics*, Vol. 22, pp. 517-535, <https://doi.org/10.1057/s41278-020-00177-0>.
- Merk, O., Hoffmann, J. and Haralambides, H. (2022), “Post-COVID-19 scenarios for the governance of maritime transport and ports”, *Maritime Economics & Logistics*, Vol. 24, pp. 673-685, <https://doi.org/10.1057/s41278-022-00228-8>.
- Mitroussi, K. and Arghyrou, M. (2016), “Institutional performance and ship registration”, *Transportation Research Part E*, Vol. 85, pp. 90-106, <https://doi.org/10.1016/j.tre.2015.10.004>.
- NL Flag (n.d.), “Nationality requirements”, webpage, <https://nlflag.nl/manning/nationality-requirements>.

- NMA (2021), "Regulations on passenger ships in the Norwegian International Ship Register (NIS)", Norwegian Maritime Authority, www.sdir.no/contentassets/17b79fe8b7514867aa7d7bf104688a88/eng-rsr-9-2021-forskrift-om-passasjerskip-i-nis.pdf?t=1672850297047.
- OECD (n.d.), *OECD Fisheries Database*, <https://data.oecd.org/agriculture.htm#profile-Fisheries>
- OECD (2017), *Review of the Regulation of Freight Transport in Mexico*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264268364-en>.
- RF (2019), "Code des Transports, Article L5612-3", République Française, www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000039785837.
- Roberts, S. (2004), "Occupational mortality in British commercial fishing, 1976–95", *Occupational and Environmental Medicine*, Vol. 61, pp. 16-23, <https://oem.bmj.com/content/61/1/16>.
- Roberts, S. and Carter, T. (2015), "Mortality from accidents, disease, suicide and homicide in the British fishing industry from 1900 to 2010", *International Maritime Health*, Vol. 66/4, pp. 211-219, <https://doi.org/10.5603/imh.2015.0042>.
- Roberts, S., Jaremin, B. and Marlow, P. (2010), "Human and fishing vessel losses in sea accidents in the UK fishing industry from 1948 to 2008", *International Maritime Health*, Vol. 62/3, pp. 143-53, https://journals.viamedica.pl/international_maritime_health/article/view/26222/0.
- Roberts, S. et al. (2014), "Fatal accidents and injuries among merchant seafarers worldwide", *Occupational Medicine*, Vol. 64/4, pp. 259-66, <https://doi.org/10.1093/occmed/kqu017>.
- Smith, M. and Franklin, J. (2022), *Cabin Fever; Trapped on board a cruise ship when the pandemic hit*, Endeavour.
- Stopford, M. (2009), *Maritime Economics*, 3rd Edition, Routledge.

Water Transport Employment in Europe

The Role of Governance

This report assesses the current state of water transport employment in Europe and links it to water transport governance. Authorities generally consider the skillset required by employees in water transport strategically important. However, evolving governance frameworks might have undermined the possibility of maintaining these skills in Europe. This report assesses incoherence in government policies and provides recommendations for reform to ensure the relevant skills needed in water transport can be maintained.