European Maritime Safety Agency

COVID-19 – impact on shipping

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EMSA

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1. Introduction

The on-going global outbreak of the Coronavirus (COVID-19) is having an impact on global shipping, affecting all shipping sectors from passenger ships to container ships and oil tankers. The coronavirus crisis escalated to unprecedented levels in Europe in March 2020, with a severe impact on health, people and economy. Many countries have responded to the pandemic by imposing lockdowns or restricting movement in the last months. The European Union is responding to the outbreak of COVID-19 and its consequences by adopting a wide range of measures in many areas (health, economy, research, border, mobility, etc.). Since the start of the COVID19 crisis, the Commission, the Member States and the shipping industry have been taking measures to ensure the continuity of operations and thus the security of supply.

Coronavirus is an ongoing situation that is evolving day by day and the effects could be deep and long-term. What shipping will look like post COVID-19 is unclear; however, EMSA has the necessary data and tools to analyse the impact of the pandemic on certain shipping activities by analysing vessel traffic data and providing reliable figures to assist in the definition of the recovery policies and specific measures. These figures should assist all parties involved (EU, maritime administrations and shipping industry) in determining a recovery strategy to overcome the economic crisis that Europe is facing.

The objective of this report is to provide figures on the impact of COVID-19 on shipping traffic; it is based on solid vessel movements statistics showing the port call trends without interpreting the statistical data. The report could not serve the purpose of an economic impact analysis since the trade volumes are not available in the EMSA systems. The report focuses mainly on EU ports and EU flagged ships, but there are also statistics about the shipping routes from Europe to China and from Europe to the US have been affected.

For the purpose of this report, the term Member States refer to EU Member States, EFTA countries (Iceland and Norway). The United Kingdom is not anymore included in the statistics.

The report is divided into sections presenting the impact in the following areas:

a. **Ship calls at EU ports**: Analyses information provided to the SSN system and focuses on traffic to EU ports. This section provides general statistics comparing ship calls in 2019, 2020 and 2021 as well as detailed statistics per ship type, per Member State and even per port (the 20 ports with top EU freight in 2018 were analysed).

b. **Ships flying the flags of EU Member States**: This section is based on information available in SSN and the LRIT DC crosschecked with MARINFO data (EMSA database fed by information bought from commercial providers). It analyses the impact of the COVID-19 outbreak on the activities of the fleets flying the flags of EU Member States.

c. **EU – China and EU – US Traffic**: This section analyses data on traffic intensity between the EU and China and between the EU and the US (irrespective of the flag of the ship) and identifies trends in 2020 and 2021 in comparison with 2019. It is prepared based on MARINFO information.

d. **Impact on cruise ships and other passenger ships**: This section deals with the evolution in the number of cruise ships moored/at anchor and sailing in and around EU ports since April 2020 and analyses the differences in PoB on passenger ships (2019 vs 2020 vs 2021). The analysis is done based on information provided by Member States to SSN (port call information, T-AIS).

e. **Impact on vessel movement patterns:** This section visually presents the impact to the traffic patterns per ship type and EU region based on the methodology adopted by the SSN High Level Steering Group and the Traffic Density Maps (TDM) produced by EMSA.

f. **Congestion at anchorages in EU waters**: Based on AIS navigational status data, this section shows how the number of ships at anchor has increased during the COVID-19 crisis.

2. Executive summary

With international transport at the forefront of trade and dependent on travel and human interaction, the shipping industry has been impacted both directly and indirectly from the outbreak of COVID-19. Using data mainly from the Union Maritime Information and Exchange System (SafeSeaNet[1]), and in certain cases combined with LRIT and MARINFO data, EMSA issues a report providing figures on the impact of COVID-19 on shipping traffic. The report is based on solid vessel movements statistics[2] showing the port call trends without interpreting the statistical data.

By analysing ship calls at EU ports it was found that the number of ships calls at EU ports declined by 10.2% in the 2020 compared to 2019. The number of ships calls in February 2021 increased by 1% compared to the same month in 2019. The most significantly affected sectors have been the Cruise ships, Passenger ships, Refrigerated cargo ships and Vehicle carriers. Meanwhile, the number of Ro-Ro Passenger vessels had an increase of 11%.

The most affected countries are Cyprus, Latvia, and Portugal. The detailed statistics on impact on ship calls to EU ports per Member State, per ship type and even per port can be found in section 3.

By processing data from MARINFO for 2019, 2020 and 2021, the EMSA report analyses also the impact of the COVID outbreak on the activities of ships flying the flags of EU Member States in terms of calls at any port in the world. The total number of calls (at all ports in the world) by vessels flying the flags of EU Member States (UK excluded) in 2020 decreased by 3.5% in comparison to 2019; similarly, the related total gross tonnage decreased by 11.1%. In particular, a significant decrease started in mid-March 2020, as an impact of the COVID-19 outbreak escalation across Europe that obliged many EU Member States to put in place lockdown measures. From August 2020, however, this trend appeared more stable, alternating small positive and negative monthly variations. The detailed figures are available in section 4.

EMSA also analyses how the shipping routes from Europe to China and from Europe to the US have been affected. In 2020, the ship traffic from Europe to China and the US has declined when compared to same periods in 2019. This negative trend continues in January 2021. For more details please refer to section 5 of the report.

The EMSA analysis put focus on ships carrying passengers (Cruises, Passenger ships and RoRo/Passenger) which were mostly affected by COVID-19. EMSA started already in March 2020 with the analysis of cruise vessels related data producing daily a status report with the list of the cruise ships located at EU ports (moored or at anchor) and the list of sailing cruises destinated to EU ports in the coming days. This analysis showed the growing number of cruise ships bound to EU ports and staying at ports or anchorages. The report showed that the number of Persons on Board (PoB) on cruise ships began to decrease gradually from the beginning of March 2020 (around week 10) and remained at a very low level corresponding mainly to crew members on board these ships. Every major cruise line in the world suspended departures in mid-March as the coronavirus outbreak grew, with some returning to operations in limited number of vessels and areas.

As the COVID-19 pandemic continued to roll, ports have faced an unprecedented number of vessels at anchor and vessels queue up waiting for a spot to unload cargo. Since the beginning of 2020 and especially since week 13 (23-29 March 2020) there is an increase number of ships “at anchor” in comparison with 2019.

The EMSA report demonstrated that the cruises sector and in general the transport of passengers are the sectors most heavily impacted by the COVID-19. Other sectors were also impacted, but in general the trade didn’t stop. Despite of the difficulties, commercial ship operations, ports and other maritime transport sectors continued to operate ensuring the movement of goods and proving the strategic importance of maritime for our livelihoods.

[1] Directive 2002/59/EC on Vessel Traffic Monitoring
[2] The data in the system overall has a 99.6% accuracy.

3. Impact on ship calls to EU ports

This section analyses the impact of COVID-19 on ship calls at EU ports. These statistics have been prepared based on ship call information provided by Member States to SafeSeaNet in 2019, 2020 and 2021. Only confirmed ship calls (i.e. ship calls for which MSs reported Actual Time of Arrival) have been extracted from SSN and grouped per month. The ship types have been retrieved from the MARINFO database based on IMO numbers reported to SSN.

3.1 General statistics

In February 2019, there were 50,823 ship calls at EU ports, and in February 2021 there were 51,157 ship calls. The number of calls increased by 1% in comparison with 2019.

The table below shows the number of ship calls per month in 2019, 2020 and 2021 and the trends between 2020 and 2019 and between 2021 and 2019. It has been decided to use year 2019 as a reference since it was the last year without COVID-19 in Europe.

Total Year to Date row presents only comparison of data from February and will be updated over the year with months that are completed in 2021.

Month	2019	2020	2021	Trend 2019 to 2020	Trend 2019 to 2021
January	53035	57654	50192	9%	-5%
February	50823	50969	51157	0%	1%
March	57952	51806	-	-11%	-
April	62041	43331	-	-30%	-
May	70013	49535	-	-29%	-
June	73395	58043	-	-21%	-
July	79456	70142	-	-12%	-
August	78524	72558	-	-8%	-
September	71457	65841	-	-8%	-
October	67203	62708	-	-7%	-
November	59626	57562	-	-3%	-
December	52898	57523	-	9%	-
Total Year to Date	**103858**	**108623**	**101349**	**5%**	**-2%**

Table 1: Number of ship calls reported to SSN in 2019, 2020 and 2021 per month

The significant decrease in the number of ship calls began in week 12 (16-22 March 2020). This was the week after the WHO declared the COVID-19 outbreak a pandemic (12 March 2020).

The graph below shows the comparison of the number of ship calls per month in 2019, 2020 and 2021:

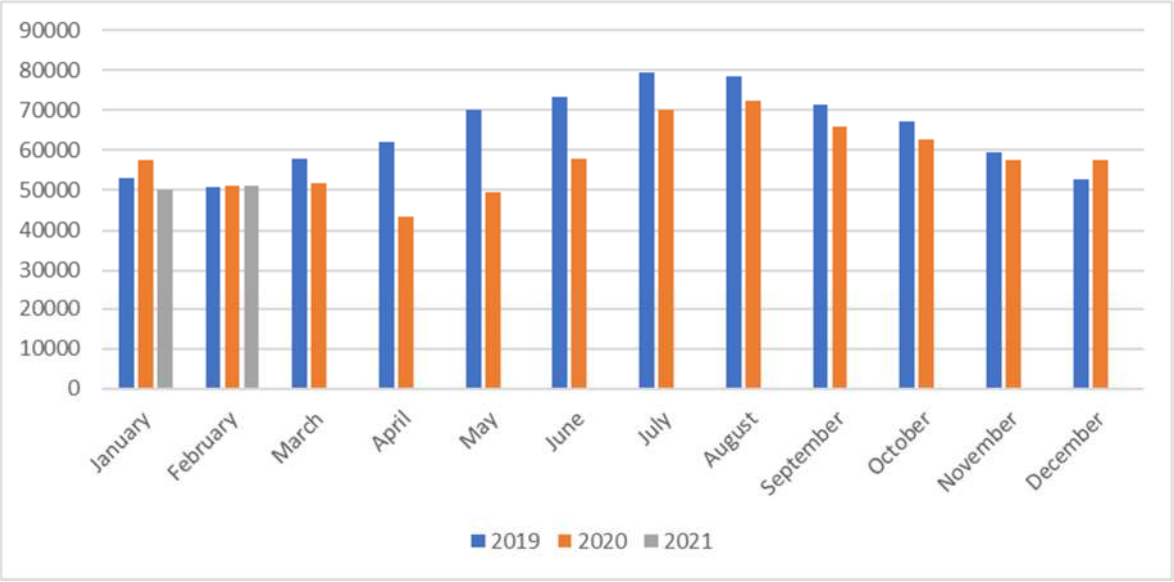

Figure 1: Ship calls reported to SSN in 2019, 2020 and 2021 per month

3.2 Statistics per ship type

The COVID-19 outbreak impacted ship traffic due to:

- the limitations in movements of passengers and crew members (heavily affecting passenger ships), and;
- the lockdown measures in various Member States, reducing international trade.

This section presents the impact of COVID-19 on different ship types. Ship calls have been extracted from SSN and ship types retrieved from the MARINFO database using the IMO numbers reported to SSN for cross reference purposes. The table below shows the comparison in the number of ships calls per month in 2019, 2020 and 2021 for the selected ship types:

Ship type	Year / Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total year to date
Bulk carrier	**2020 vs 2019**	9%	7%	-2%	-9%	-6%	-1%	-2%	-1%	-3%	-4%	-3%	-6%	**8%**
	2021 vs 2019	-9%	4%											**-3%**
Chemical tanker	**2020 vs 2019**	19%	4%	43%	7%	19%	20%	0%	-18%	-24%	-34%	-27%	-14%	**12%**
	2021 vs 2019	-13%	-7%											**-10%**
Containership	**2020 vs 2019**	6%	-1%	-5%	-10%	-10%	-8%	-7%	-4%	-3%	-8%	-5%	1%	**3%**
	2021 vs 2019	-12%	-5%											**-9%**
Cruise	**2020 vs 2019**	-1%	-3%	-58%	-94%	-97%	-96%	-93%	-89%	-85%	-86%	-83%	-57%	**-2%**
	2021 vs 2019	-56%	-56%											**-56%**
General cargo	**2020 vs 2019**	4%	-7%	-4%	-8%	-9%	-6%	-6%	-3%	-1%	-1%	3%	10%	**-1%**
	2021 vs 2019	-7%	-2%											**-5%**
Liquified gas tanker	**2020 vs 2019**	12%	3%	1%	-7%	0%	-2%	-1%	1%	-1%	-8%	-4%	5%	**7%**
	2021 vs 2019	-7%	-1%											**-4%**
Oil tanker	**2020 vs 2019**	12%	3%	1%	-7%	0%	-2%	-1%	1%	-1%	-8%	-4%	5%	**8%**
	2021 vs 2019	-8%	3%											**-3%**
Passenger	**2020 vs 2019**	11%	10%	-55%	-92%	-94%	-70%	-28%	-24%	-31%	-20%	-10%	-5%	**10%**
	2021 vs 2019	-30%	-38%											**-34%**
Refrigerated cargo	**2020 vs 2019**	-3%	-13%	-18%	-25%	-19%	-11%	-30%	-19%	-33%	-33%	-11%	-15%	**-8%**
	2021 vs 2019	-29%	-28%											**-28%**
Ropax	**2020 vs 2019**	14%	4%	-18%	-46%	-32%	-12%	1%	4%	4%	5%	0%	19%	**9%**
	2021 vs 2019	6%	11%											**9%**
Ro-Ro cargo	**2020 vs 2019**	3%	-1%	-4%	-19%	-14%	-11%	-3%	1%	1%	-2%	1%	19%	**1%**
	2021 vs 2019	-5%	6%											**0%**
Vehicle carrier	**2020 vs 2019**	4%	-6%	-17%	-58%	-58%	-35%	-24%	-21%	-15%	-15%	-7%	-2%	**-1%**
	2021 vs 2019	-21%	-15%											**-18%**

Table 2: Evolution in number of ship calls per month for different ship types by comparing data from 2019, 2020 and 2021

The last column compares the number of ship calls reported in the first 2 months of 2019 with those reported in the same periods of 2020 and 2021 respectively.

By comparing the number of ship calls between 2019 and in 2021 (last column), it was found that cruise ships, passenger ships, refrigerated cargo ships and vehicle carriers are the ship types for which the highest decrease in ship traffic has been detected.

The detailed monthly fluctuation in number of port calls per the above ship types is shown in Appendix A.

3.3 Statistics per Member State

This chapter presents the impact of COVID-19 on Member States. The table below shows a comparison of the numbers of ship calls per month in 2019, 2020 and 2021. The statistics focus only on the number of ship calls at Member States ports and does not refer to cargo transported (information not available to EMSA).

Ship type	Year / Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total year to date
Belgium	2020 vs 2019	9%	-4%	-6%	-15%	-21%	-12%	-8%	-5%	-6%	-10%	-10%	3%	3%
	2021 vs 2019	-12%	-3%											-8%
Bulgaria	2020 vs 2019	0%	-3%	-10%	-15%	-12%	-17%	-16%	-12%	-11%	-1%	3%	-5%	-2%
	2021 vs 2019	-18%	-15%											-17%
Croatia	2020 vs 2019	14%	0%	-35%	-68%	-87%	-84%	-70%	-59%	-79%	-74%	-4%	5%	7%
	2021 vs 2019	3%	18%											12%
Cyprus	2020 vs 2019	4%	-8%	-26%	-26%	-22%	1%	-13%	4%	-5%	6%	-1%	-1%	2%
	2021 vs 2019	-22%	-15%											-19%
Denmark	2020 vs 2019	2%	-2%	0%	-1%	1%	3%	-2%	13%	23%	14%	9%	20%	0%
	2021 vs 2019	3%	12%											8%
Estonia	2020 vs 2019	14%	-5%	-9%	-15%	-21%	-13%	-12%	-7%	-13%	-9%	-11%	2%	4%
	2021 vs 2019	-3%	-9%											-6%
Finland	2020 vs 2019	13%	-5%	-14%	-25%	-30%	-26%	-21%	-19%	-19%	-19%	-17%	-10%	4%
	2021 vs 2019	-16%	-18%											-17%
France	2020 vs 2019	-5%	-7%	-11%	-39%	-41%	-31%	-22%	-19%	-21%	-17%	-14%	3%	-6%
	2021 vs 2019	-19%	-14%											-17%
Germany	2020 vs 2019	4%	-4%	-4%	-19%	-22%	-19%	-15%	-11%	-6%	-5%	-7%	-10%	0%
	2021 vs 2019	-17%	-11%											-14%
Greece	2020 vs 2019	-7%	-27%	-41%	-45%	17%	50%	73%	84%	76%	103%	64%	162%	-17%
	2021 vs 2019	122%	134%											128%
Iceland	2020 vs 2019	-7%	-7%	8%	-17%	-42%	-59%	-60%	-48%	-45%	-7%	2%	24%	-7%
	2021 vs 2019	-9%	-25%											-17%
Ireland	2020 vs 2019	6%	-13%	-3%	-14%	-21%	-18%	-8%	-12%	-7%	-4%	5%	19%	-4%
	2021 vs 2019	5%	2%											3%
Italy	2020 vs 2019	5%	-2%	-15%	-33%	-34%	-26%	-18%	-15%	-17%	-19%	-3%	6%	2%
	2021 vs 2019	-16%	-6%											-11%
Latvia	2020 vs 2019	2%	-15%	-10%	-14%	-14%	-8%	-8%	-10%	-7%	-10%	-8%	5%	-6%
	2021 vs 2019	-19%	-18%											-18%
Lithuania	2020 vs 2019	6%	-13%	-1%	-7%	-12%	-4%	-4%	-5%	6%	-4%	-3%	2%	-3%
	2021 vs 2019	-21%	-8%											-15%
Malta	2020 vs 2019	32%	30%	-7%	-18%	-15%	-21%	-19%	-18%	-	-	-	-	31%
	2021 vs 2019	-	9%											9%
Netherlands	2020 vs 2019	4%	-7%	-2%	-13%	-14%	-13%	-7%	-5%	0%	-3%	0%	6%	-1%
	2021 vs 2019	-14%	-9%											-11%
Norway	2020 vs 2019	5%	-1%	0%	-12%	-27%	-29%	-27%	-19%	-11%	-6%	-11%	-5%	2%
	2021 vs 2019	-16%	-15%											-15%
Poland	2020 vs 2019	-4%	-4%	-2%	-12%	-15%	-23%	-12%	-13%	-2%	-10%	-2%	14%	-4%
	2021 vs 2019	-9%	-2%											-5%
Portugal	2020 vs 2019	4%	1%	-11%	-21%	-27%	-33%	-26%	-13%	-13%	-14%	-4%	-1%	3%
	2021 vs 2019	-17%	-19%											-18%
Romania	2020 vs 2019	19%	15%	1%	-3%	-10%	-7%	-9%	-7%	-7%	-4%	-6%	12%	17%
	2021 vs 2019	-11%	1%											-5%
Spain	2020 vs 2019	29%	26%	-12%	-53%	-56%	-46%	-33%	-33%	-30%	-28%	-21%	-9%	28%
	2021 vs 2019	-14%	-7%											-11%
Sweden	2020 vs 2019	6%	-5%	-9%	-18%	-18%	-14%	-16%	-19%	-4%	-8%	-7%	-3%	1%
	2021 vs 2019	-17%	-11%											-14%

Table 3: Evolution in number of ship calls per month for Member States by comparing data from 2019, 2020 and 2021

The last column compares the number of ship calls reported in the first 2 months of 2019 with those reported in the same periods of 2020 and 2021 respectively.

For Malta, data for the period between September 2020 and January 2021 could not be analysed because the ship calls to Maltese ports are not available in SSN due to IT technical problem in the National Maltese SSN system.

By comparing the number of ship calls between 2019 and in 2021 (last column), the most affected countries are Cyprus, Latvia, and Portugal (decrease of more than 18%). An increase in the number of ship calls has been noted for Croatia, Denmark, Greece, Ireland, and Malta.

3.4 Statistics per port

This chapter shows the impact of COVID-19 on 20 EU ports which, according to Eurostat, were the top 20 EU freight ports in 2018. The following table shows the comparison of the numbers of ship calls per month in 2019, 2020 and 2021.

Ship type	Year / Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total year to date
Algeciras	2020 vs 2019	-	-	-	-44%	-42%	-40%	-42%	-44%	-35%	-29%	-30%	-12%	-
	2021 vs 2019	-	-											-
Amsterdam	2020 vs 2019	0%	-15%	-4%	-13%	-14%	-21%	-20%	-13%	-13%	-14%	-3%	1%	-8%
	2021 vs 2019	-13%	-10%											-12%
Antwerpen	2020 vs 2019	12%	-3%	-5%	-9%	-13%	-9%	-7%	-1%	-5%	-5%	-7%	9%	5%
	2021 vs 2019	-10%	0%											-5%
Barcelona	2020 vs 2019	1%	-4%	-15%	-43%	-43%	-39%	-27%	-27%	-29%	-31%	-20%	-4%	-2%
	2021 vs 2019	-30%	-23%											-26%
Bremerhaven	2020 vs 2019	0%	-10%	-7%	-10%	-24%	-16%	-14%	-11%	-8%	-7%	0%	-71%	-4%
	2021 vs 2019	-30%	-13%											-21%
Constanta	2020 vs 2019	22%	29%	9%	3%	-7%	-5%	-8%	-6%	1%	-2%	-8%	21%	26%
	2021 vs 2019	-9%	12%											0%
Dunkerque	2020 vs 2019	22%	-16%	-13%	-18%	-23%	-15%	-14%	-9%	-6%	-3%	-5%	6%	3%
	2021 vs 2019	2%	-16%											-7%
Genova	2020 vs 2019	2%	1%	-21%	-32%	-34%	-29%	-23%	-12%	-21%	-17%	-11%	5%	1%
	2021 vs 2019	-24%	-9%											-17%
Goteborg	2020 vs 2019	4%	-6%	1%	-15%	-17%	-14%	-26%	-26%	-10%	-15%	-16%	-10%	-1%
	2021 vs 2019	-25%	-19%											-22%
Hamburg	2020 vs 2019	1%	-7%	-9%	-13%	-13%	-14%	-11%	-6%	-4%	-2%	-4%	4%	-3%
	2021 vs 2019	-19%	-16%											-17%
Le Havre	2020 vs 2019	-17%	-11%	-5%	-34%	-41%	-26%	-21%	-23%	-25%	-20%	-9%	8%	-14%
	2021 vs 2019	-13%	-17%											-15%
Marseille	2020 vs 2019	-31%	0%	-25%	-53%	-50%	-23%	-30%	-24%	-33%	-27%	-27%	3%	-16%
	2021 vs 2019	-16%	-17%											-17%
Piraeus	2020 vs 2019	40%	14%	2%	1%	61%	108%	151%	124%	97%	85%	80%	88%	27%
	2021 vs 2019	63%	79%											70%
Riga	2020 vs 2019	2%	-10%	-9%	-24%	-19%	-10%	-10%	-3%	-9%	-11%	-8%	0%	-4%
	2021 vs 2019	-21%	-20%											-21%
Rotterdam	2020 vs 2019	4%	-6%	-1%	-10%	-8%	-10%	-3%	0%	1%	-5%	1%	6%	-1%
	2021 vs 2019	-12%	-7%											-9%
Sines	2020 vs 2019	2%	-4%	1%	7%	-17%	-24%	-2%	3%	-11%	-5%	-18%	-9%	-1%
	2021 vs 2019	-18%	-14%											-16%
Taranto	2020 vs 2019	32%	31%	-17%	-37%	-28%	-30%	4%	12%	3%	1%	36%	3%	32%
	2021 vs 2019	9%	21%											15%
Trieste	2020 vs 2019	0%	-8%	-10%	-26%	-21%	-21%	-27%	-13%	-20%	-15%	30%	-5%	-4%
	2021 vs 2019	-22%	-23%											-23%
Valencia	2020 vs 2019	2%	9%	-7%	-23%	-26%	-15%	-13%	-9%	-5%	-5%	-11%	5%	6%
	2021 vs 2019	-15%	-6%											-10%
Wilhelmshaven	2020 vs 2019	1%	-3%	-4%	-21%	-3%	1%	-14%	8%	4%	-18%	-4%	-6%	-1%
	2021 vs 2019	-25%	-7%											-16%

Table 4: Evolution in the number of ship calls per month by comparing data from 2019, 2020 and 2021

For the port of Algeciras, only data between April and December was analysed because the figures reported in the first quarter of 2019 are inconclusive (due to technical problems in Algeciras port system).

The last column compares the number of ship calls reported in the first 2 months of 2019 with those reported in the same periods of 2020 and 2021 respectively.

By comparing the number of ship calls between 2019 and in 2021 (last column), it was found that Barcelona, Bremerhaven, Goteborg, Riga, and Trieste are the ports with the highest decrease in ship traffic (over 20%). An increase in the number of ship calls has been noted for Piraeus and Taranto.

4. Impact on ships flying the flags of EU Member States

This section analyses the impact of the COVID-19 outbreak on the activities of ships flying the flags of EU Member States (UK excluded). The port calls of those ships, at any port in the world, have been counted month-by-month and compared with equivalent periods in 2019 (for both years 2020 and 2021).

These statistics have been built processing data from MARINFO for 2019, 2020 and 2021. Specific ship types that appear to be more relevant for international trade for this analysis were considered. The specific ship types have been aggregated under major ship categories.

4.1 General statistics

The total number of calls (at all ports in the world) by vessels flying the flags of EU Member States (UK excluded) in 2020 decreased by 3.5% in comparison to 2019; similarly, the related total gross tonnage decreased by 11.1%. In particular, a significant decrease started in mid-March 2020, as an impact of the COVID-19 outbreak escalation across Europe that obliged many EU Member States to put in place lockdown measures. From August 2020, however, this trend appeared more stable, alternating small positive and negative monthly variations.

Month	Port calls					(Related) Total Gross Tonnage (in million tonnes)				
	2019	2020	2021	Trend 2019 to 2020	Trend 2019 to 2021	2019	2020	2021	Trend 2019 to 2020	Trend 2019 to 2021
January	139608	153239	141027	9.8%	1.0%	2721	3133	2306	15.2%	-15.2%
February	132192	143111	132803	8.3%	0.5%	2550	2837	2128	11.2%	-16.5%
March	146038	145821	-	-0.1%	-	2826	2985	-	5.6%	-
April	152681	123975	-	-18.8%	-	2820	2332	-	-17.3%	-
May	165282	135048	-	-18.3%	-	3020	2305	-	-23.7%	-
June	170602	144061	-	-15.6%	-	2910	2253	-	-22.6%	-
July	182698	174774	-	-4.3%	-	3049	2571	-	-15.7%	-
August	183285	186358	-	1.7%	-	3023	2545	-	-15.8%	-
September	161989	161349	-	-0.4%	-	2848	2367	-	-16.9%	-
October	157872	158928	-	0.7%	-	2848	2471	-	-13.2%	-
November	142273	145267	-	2.1%	-	2695	2268	-	-15.8%	-
December	147912	144765	-	-2.1%	-	2914	2358	-	-19.1%	-
Total	**1882432**	**1816696**	**-**	**-3.5%**	**-**	**34223**	**30426**	**-**	**-11.1%**	**-**

Table 5: Number of port calls worldwide (at EU and non-EU ports) by MS flagged vessels (UK excluded) in 2019, 2020 and 2021 (by month), and related total gross tonnage (in red, months for which a decrease was detected)

The analysis per flag is shown in Table 6. A reduction in the number of port calls (worldwide) is observed for most of the EU-MS flagged fleets; the highest decreases in traffic (in percentage terms, comparing 2020 with 2019) are observed for ships flying the flags of Poland, Iceland, Spain and Croatia.

Ship type	Year / Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total year to date
Belgium	2020 vs 2019	15%	-1%	-5%	-16%	-13%	-34%	-30%	-20%	-20%	-33%	-26%	-36%	**-18%**
	2021 vs 2019	-29%	-36%											
Bulgaria	2020 vs 2019	29%	-3%	3%	-8%	-3%	-40%	-40%	-38%	-21%	-3%	8%	-30%	**-16%**
	2021 vs 2019	-9%	-8%											
Croatia	2020 vs 2019	-11%	-16%	-26%	-64%	-71%	-74%	-62%	-52%	-51%	-50%	-25%	-29%	**-51%**
	2021 vs 2019	-30%	-28%											
Cyprus	2020 vs 2019	17%	12%	14%	-15%	-21%	-22%	-18%	-17%	-13%	-8%	-11%	-17%	**-9%**
	2021 vs 2019	-13%	-17%											
Denmark	2020 vs 2019	16%	12%	4%	-2%	8%	12%	23%	32%	36%	25%	19%	17%	**17%**
	2021 vs 2019	18%	9%											
Estonia	2020 vs 2019	27%	6%	4%	-34%	-29%	-19%	-4%	3%	2%	-2%	-13%	-13%	**-7%**
	2021 vs 2019	13%	-2%											
Finland	2020 vs 2019	13%	-3%	-11%	7%	-2%	-18%	-5%	-1%	-3%	-8%	2%	5%	**-3%**
	2021 vs 2019	3%	0%											
France	2020 vs 2019	-1%	5%	-8%	-47%	-50%	-42%	-27%	-24%	-24%	-20%	-19%	-18%	**-24%**
	2021 vs 2019	-23%	-22%											
Germany	2020 vs 2019	-3%	-7%	-6%	-33%	-24%	-9%	6%	10%	8%	3%	-10%	-12%	**-6%**
	2021 vs 2019	-13%	-6%											
Greece	2020 vs 2019	16%	14%	-2%	-41%	-40%	-32%	-13%	-4%	-13%	0%	-10%	-2%	**-12%**
	2021 vs 2019	11%	5%											
Iceland	2020 vs 2019	241%	142%	139%	7%	-8%	-30%	-29%	-34%	-59%	-61%	-49%	-72%	**-10%**
	2021 vs 2019	0.5%	-38%											
Ireland	2020 vs 2019	22%	16%	51%	5%	9%	6%	7%	12%	17%	5%	-4%	3%	**12%**
	2021 vs 2019	16%	26%											
Italy	2020 vs 2019	-6%	2%	-22%	-55%	-47%	-34%	-12%	-1%	-9%	-8%	-6%	-16%	**-18%**
	2021 vs 2019	-24%	-13%											
Latvia	2020 vs 2019	-7%	-11%	25%	-7%	-35%	-19%	-31%	-35%	-31%	-22%	-29%	-24%	**-20%**
	2021 vs 2019	-15%	-22%											
Lithuania	2020 vs 2019	23%	13%	15%	-15%	-24%	-10%	-17%	-2%	-15%	-19%	-17%	-14%	**-8%**
	2021 vs 2019	-10%	-14%											
Luxembourg	2020 vs 2019	58%	18%	1%	-8%	-7%	-9%	-23%	-31%	-25%	-13%	25%	-19%	**-4%**
	2021 vs 2019	-6%	10%											
Malta	2020 vs 2019	13%	11%	11%	-15%	-19%	-22%	-13%	-12%	-15%	-21%	-17%	-17%	**-10%**
	2021 vs 2019	-19%	-14%											
Netherlands	2020 vs 2019	13%	8%	9%	-7%	-12%	1%	-1%	4%	-5%	-2%	-1%	-9%	**-0.2%**
	2021 vs 2019	-6%	-8%											
Norway	2020 vs 2019	5%	8%	0%	18%	25%	22%	30%	42%	40%	40%	50%	47%	**28%**
	2021 vs 2019	58%	55%											
Poland	2020 vs 2019	-47%	-54%	-27%	-52%	-64%	-34%	-46%	-45%	1%	69%	146%	122%	**-23%**
	2021 vs 2019	67%	-55%											
Portugal	2020 vs 2019	15%	18%	4%	-3%	0%	-7%	8%	14%	11%	9%	13%	-7%	**6%**
	2021 vs 2019	-3%	0%											
Romania	2020 vs 2019	38%	2%	57%	37%	69%	19%	4%	-73%	-62%	-51%	-31%	-20%	**-1%**
	2021 vs 2019	-42%	-20%											
Spain	2020 vs 2019	7%	6%	-32%	-62%	-63%	-51%	-28%	-25%	-28%	-26%	-30%	-28%	**-31%**
	2021 vs 2019	-25%	-35%											
Sweden	2020 vs 2019	12%	7%	1%	-1%	-5%	0%	11%	15%	19%	23%	25%	22%	**11%**
	2021 vs 2019	40%	30%											
Total	**2020 vs 2019**	**10%**	**8%**	**-0.1%**	**-19%**	**-18%**	**-16%**	**-4%**	**2%**	**-0.4%**	**1%**	**2%**	**-2%**	**-3.5%**
	2021 vs 2019	**1%**	**0%**											

Table 6: Variation between 2019, 2020 and 2021 in the number of port calls (worldwide) by flag

Appendix B presents the number of vessels flying the flag of each Member States per ship type in an aggregated way as presented in paragraph 4.2.

4.2 Statistics per ship type

EMSA analysed the variation between 2019, 2020 and 2021 in the total number of port calls (worldwide) by EU-MS flagged vessels (UK excluded) by ship type and month. The vessels have been grouped following the same ship type aggregation used in the previous sections.

Ship type	Year / Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Bulk carrier	**2020 vs 2019**	21%	17%	23%	-1%	13%	-3%	11%	5%	4%	1%	15%	-9%	**8%**
	2021 vs 2019	-5%	0%											
Chemical tanker	**2020 vs 2019**	12%	14%	14%	-9%	-14%	-17%	-16%	-8%	-18%	-21%	-22%	-16%	**-9%**
	2021 vs 2019	-12%	-16%											
Containership	**2020 vs 2019**	17%	15%	14%	-11%	-22%	-20%	-19%	-21%	-21%	-19%	-18%	-26%	**-11%**
	2021 vs 2019	-17%	-21%											
Cruise	**2020 vs 2019**	18%	17%	-39%	-81%	-85%	-85%	-79%	-78%	-77%	-77%	-77%	-76%	**-66%**
	2021 vs 2019	-77%	-76%											
General cargo	**2020 vs 2019**	21%	13%	13%	-2%	-11%	-9%	-11%	-10%	-11%	-10%	-8%	-12%	**-3%**
	2021 vs 2019	-8%	-8%											
Liquified gas tanker	**2020 vs 2019**	4%	9%	12%	-19%	-22%	-24%	-23%	-13%	-25%	-5%	-19%	-21%	**-12%**
	2021 vs 2019	-19%	-16%											
Oil tanker	**2020 vs 2019**	-5%	-13%	-8%	-26%	-34%	-32%	-15%	-28%	-28%	-32%	-31%	-32%	**-24%**
	2021 vs 2019	-28%	-27%											
Passenger	**2020 vs 2019**	8%	5%	-23%	-40%	-33%	-27%	-1%	13%	13%	25%	45%	25%	**-1%**
	2021 vs 2019	29%	24%											
Refrigerated cargo	**2020 vs 2019**	-11%	9%	-3%	5%	12%	15%	-9%	-24%	-1%	6%	14%	-5%	**-0.1%**
	2021 vs 2019	-19%	21%											
Ropax	**2020 vs 2019**	4%	7%	-9%	-20%	-11%	-3%	10%	20%	23%	24%	26%	28%	**8%**
	2021 vs 2019	25%	27%											
Ro-Ro cargo	**2020 vs 2019**	15%	9%	2%	-18%	-18%	-18%	-8%	1%	-1%	0.4%	-13%	-11%	**-5%**
	2021 vs 2019	-14%	-12%											
Vehicle carrier	**2020 vs 2019**	0.5%	-3%	-16%	-44%	-50%	-44%	-46%	-45%	-29%	-31%	-42%	-40%	**-33%**
	2021 vs 2019	-28%	-38%											
Total	**2020 vs 2019**	**10%**	**8%**	**-0.1%**	**-19%**	**-18%**	**-16%**	**-4%**	**2%**	**-0.4%**	**1%**	**2%**	**-2%**	**-3.5%**
	2021 vs 2019	**1%**	**0%**											

Table 7: Variation between 2019, 2020 and 2021 of ship calls (worldwide) of EU-MSs flagged vessels (UK excluded), by ship type

The COVID-19 outbreak and the lockdown restrictions have had an impact on EU-MS flagged fleets from the end of March 2020 for all ship types. While all EU flagged ship types experienced reductions in calls worldwide since the 2nd half of March, major variations compared with equivalent periods in 2019 can be observed for cruise and vehicle carriers (see Table 7). Since August 2020 the number of port calls (worldwide) from EU flagged Passenger ships has shown an increase in comparison to 2019; similarly, starting from July 2020, it was observed a positive trend for the EU flagged Ropax traffic, in terms of number of port calls (worldwide) compared with the same period in 2019.

Appendix C shows the detailed weekly fluctuation in number of port calls worldwide for EU-MSs flagged ships per ship type.

5. EU – China and EU – US traffic

5.1 Introduction and methodology

Statistics on the traffic between EU and China (irrespective of ship flags) were analysed in order to identify trends in 2020 and now in 2021 in comparison with 2019 (last pre-pandemic year) but also with 2020 as previous year of the current 2021. The analysis is based on ship calls in Europe by ships which had previously called at any Chinese port approximately one month before (a reasonable travel time for a ship journey from China to Europe). The same was calculated for the opposite direction (i.e. from European ports to Chinese ports).

To assess the type of trade that was most affected, these calls were segmented by ship type. Container ships are by far the most frequent ship type sailing between China and Europe, making them the most interesting to assess during the outbreak. For a cargo ship, the voyage duration between China and Europe depends on the route, ship type and speed of the ship. The average time is between 30 and 33 days but for this analysis a voyage duration of 33 days was used.

EMSA applied the same methodology to assess port calls by ships engaged in trade between Europe and the United States of America. In this case the expected voyage duration was set to 10 days.

EMSA recognises that the calculation of the number of ship calls (incoming and outgoing traffic in Europe) provides an indication of import/export volumes, but that it does not provide a safe indication of the real direction of the traded goods. The data available in MARINFO do not indicate whether a ship is loading or unloading, or both, or the volumes and values of the traded cargo.

Nevertheless, this methodology can show the traffic trends in 2019, 2020 and 2021, since any inaccuracies affect the calculations of all years in the same way.

5.2 General picture between Europe and China/US

Before taking any conclusions, especially for 2021 when comparing with 2020 and 2019 (as a reference for the last non-pandemic year) two important considerations must be taken into account. First, that the port call activity worldwide has been growing. Every year port calls have been increasing since 2008 in Europe and in the world, reason why beginning of 2020 is still higher in number of port calls compared with 2019. 2021 will be the first year since 2008 where this tendency is not verified.

Secondly, especially for the comparisons in the first months (between January and March) we must realize the fact that the pandemic hit Europe around March 2020 meaning it was not affecting European trade in early 2020. In fact, for some ship types, the ports calls increased in the first months of 2020 when compared to 2019 (this is either because of the natural growing trend in port call activity, either because of other effects of the pandemic that may have placed higher demand on some goods and in some ship types, especially from China early in the year 2020).

These considerations come to explain that, to observe the after and before the pandemic behavior of the maritime shipping trade between Europa and USA/China and its hoped recovery to a normal standard of shipping activity, one must start looking at the variations from 2019 to 2021 from March onwards, only.

The imports from China to EU are slightly lower in March and April 2020 but the real impact of Covid-19 for these imports is only realized from month 5, that is from May onwards with only 36% of the usual volume of port calls coming into the EU from China. Until May 2020 the values are very much in line with the values of the previous year, 2019.

As for the exports from Europe to China a first major decline happens in March with the number of port calls originated in the EU destined to China representing only 58% of the volume of these port calls in the homologous month in 2019. However, the most significant drop is also realized in month 5 (May) where the number of port calls from China to Europe drops to the very lowest of 28% of the number of these port calls in the homologous month in 2019. This is the lower peak observed in the year 2020.

A similar exercise was made for port calls with the United States of America, since the US represents the most important destination of goods exported by the EU[3]. The number of port calls by ships trading between the EU and the US are much lower compared to the equivalent calls for the EU and China, but not necessarily the traded volumes and especially the value of the goods.

[3] http://www.europarl.europa.eu/factsheets/en/sheet/160/a-uniao-europeia-e-os-seus-parceiros-comerciais

The impact of Covid-19 in the imports from USA to EU, even though 2020 starts with a higher number of port calls in that direction compared with 2019 as earlier explained, happens in month 4 (April 2020) with a first decline of 48% of these port calls when compared with the homologous month of 2019. Again, a more severe drop occurs in month 5 (May) with only 22% of the port calls from the USA to the EU when compared with the homologous month in 2019. The lowest level observed throughout the year and only seen again in December 2020.

As for the exports from Europe to USA the situation is very similar with a first significant decline of the number of port calls from Europe to USA in month 4 (April) of 66% compared with April 2019 and a more accentuated decline of 34% in May 2020 compared with May 2019.

Clearly May was the month where it is observed the first and more significant impact in terms of the frequency of the visits to/from China and USA from/to Europe. It is notable that the trends between China and Europe are clearly dictated by the trends in the Containership segment being by far the most frequent ship type sailing between China and Europe. At the same time for the USA the global trend is much more influenced by Vehicle carriers than it was for China and therefore the changes there are a combination of the trend behavior of Containerships and Vehicle carriers.

It is also clear that in the summer months between June and September there was some recovery of the traffic in term of number of port calls for some ship types in particular for Bulk carriers and Vehicle carriers (for the trade with China) and Containerships and Vehicle carriers (for the trade with the USA).

Find below the monthly fluctuations in port calls between China and Europe, and US and Europe.

	CHINA TO EU			EU TO CHINA		
Month	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**
January	4320	6024	1818	2268	2490	964
February	4548	4482	1220	1812	1407	532
March	4084	3465		2141	1243	
April	4906	4602		1877	986	
May	4728	1692		2011	439	
June	4299	1981		2092	453	
July	4591	1742		1901	578	
August	4029	1323		2053	626	
September	3950	1412		1821	583	
October	4570	1352		1402	836	
November	3475	1029		1623	581	
December	4257	1169		1606	579	
Total (until February)	**8,868**	**10,506**	**3,038**	**4,080**	**3,897**	**1,496**
Variation until February (with previous year)		***18.5%***	***-71.1%***		***-4.5%***	***-61.6%***
Variation until February (with year 2019, pre-pandemic)			***-65.7%***			***-63.3%***

Year	**2019**	**2020**	**2021***	***var (19-20)***	***var (20-21)***	***var (19-21)***
Total (Imp and Exp) *so far	74,364	41,074	*3,038*	***-44.8%***	-	-

Table 8: Number of port calls per month between EU and China in 2019, 2020 and 2021 (up to February 2021)

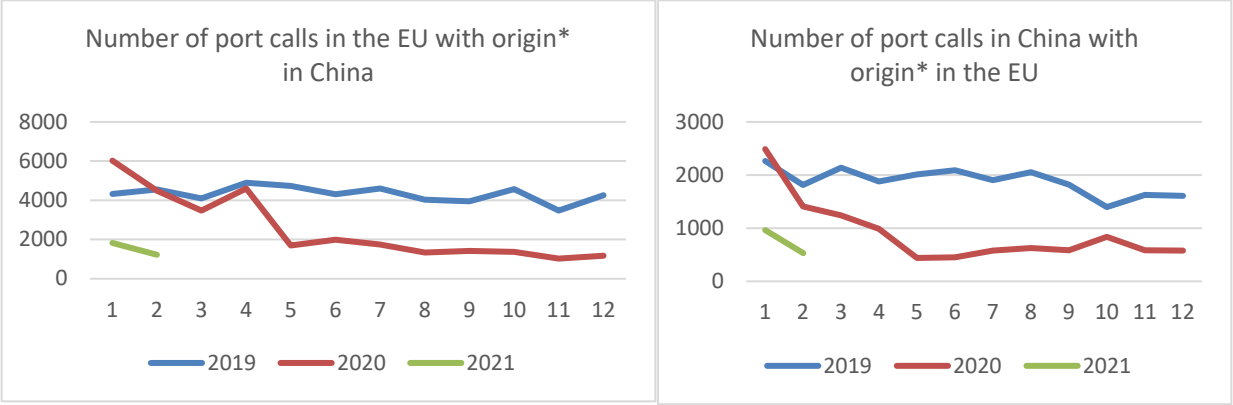

Figure 2: Graphical display of the number of port calls between Europe and China per month in the years 2019, 2020 and 2021

As anticipated, the number of port calls from China to EU in this first month were higher in 2020 than in 2019 (despite the pandemic already installed in China at that time). Due to this initial activity increase in 2020 we observe in 2021 higher decreases of port call activity when comparing with 2020 than the decreases observed when compared to 2019 (before pandemic).

As initially said the shipping activity increased in the beginning of 2020 for almost all ship types and directions in the trade between Europe and China/US. Once the effect of the COVID-19 pandemic becomes more evident in 2020 (which is taking effect more widely and more significantly in Q2 2020) the differences between the current year and the previous two years (pandemic and non-pandemic years) will be showing how much was the traffic up-take (we hope) in 2021 from 2020 and if that uptake was already recovering to a normal standard, based on the port call values of 2019 as indicative pre-pandemic year.

The variation of the port call activity from China to EU until February 2020 was positive and of +18.5% compared with 2019 and in 2021 the same variation (also from 2019) is negative and equal to -65.7%. In the opposite direction, that is from EU to China these values are respectively -4.5% and -63.3%

	USA TO EU			EU TO USA		
Month	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**
January	192	223	64	122	112	118
February	151	166	109	120	118	86
March	247	221		167	226	
April	217	102		243	162	
May	298	66		253	85	
June	250	126		271	229	
July	288	158		300	213	
August	341	204		328	147	
September	380	198		247	152	
October	260	156		259	176	
November	163	142		235	119	
December	204	67		152	70	
Total (until February)	**343**	**389**	**173**	**242**	**230**	**204**
Variation until February (with previous year)		***13.4%***	***-55.5%***		***-5.0%***	***-11.3%***
Variation until February (with year 2019, pre-pandemic)			***-49.6%***			***-15.7%***

Year	**2019**	**2020**	**2021***	***var (19-20)***	***var (20-21)***	***var (19-21)***
Total (Imp and Exp) * so far	5,688	3,638	173	***-36.0%***	-	-

Table 9: Number of port calls per month between EU and US in 2019, 2020 and 2021 (up to February 2021)

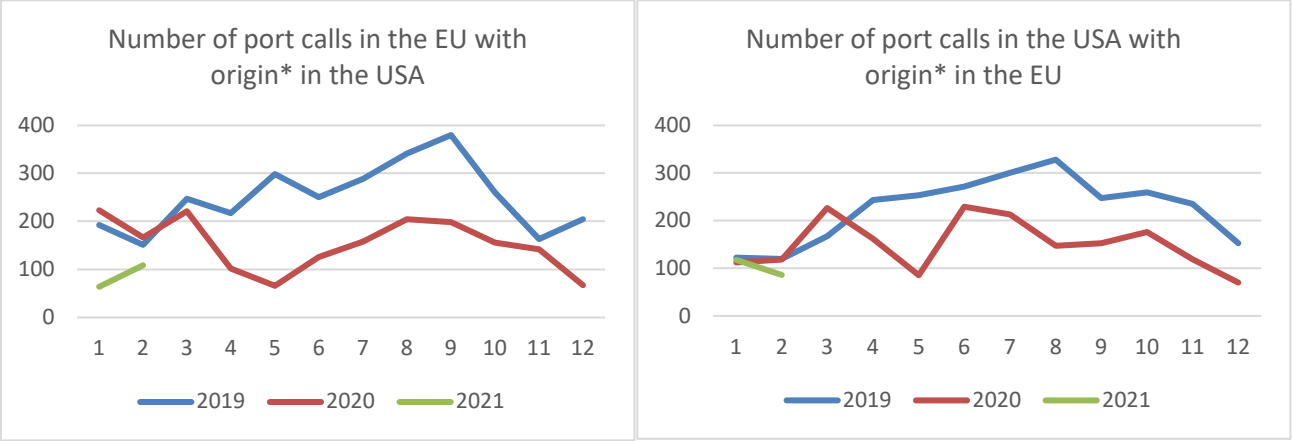

Figure 3: Graphical display of the number of port calls between Europe and the US per month in the years 2019, 2020 and 2021

The same growing pattern was observed in February 2020 in the trade from the US to Europe and a positive variation of 13.4% was observed when compared with February 2019. This value is now of a negative variation of -49.6% in 2021 when compared to 2019, so very far from recovery.
In the opposite direction, however, 2020 was already showing a reduction in the activity of ships arriving in Europe from the US of -5.0% and today, in January 2021, this reduction is of -15.7% meaning that there was an uptake of the activity but not enough to full recovery. Nevertheless, given the low difference of the number of port calls (120 in 2019 and 86 in 2021 for February) and recalling that these numbers are estimates of the trade based on a number of assumptions, it is acceptable to conclude that the shipping activity in January 2021 is at the normal standard (based on 2019) from Europe to US.

5.3 Trade between China and Europe by ship type

The main ship types engaged in trade between Europe and China are by far containerships. Vehicle carriers also appear with some relevance but with a much smaller number of port calls. Data was also retrieved for general cargo, gas carriers and bulk carriers.

Table 10 shows the total number of port calls per ship type from China to Europe and vice versa for 2019, 2020 and 2021 (up to January 2021) and their variations from the previous year and year of 2019 (last year before pandemic)

Ship type	CHINA TO EUROPE			Var 19-20 (%)	Var 20-21 (%)	Var 19-21 (%)
	2019	2020	2021			
Containerships	8,539	9,986	2,673	16.9%	-73.2%	-68.7%
Vehicle carriers	190	288	193	51.6%	-33.0%	1.6%
General cargo	31	106	47	241.9%	-55.7%	51.6%
Gas carriers	17	36	33	111.8%	-8.3%	94.1%
Bulk Carriers	48	34	39	-29.2%	14.7%	-18.8%

Ship type	EUROPE TO CHINA			Var 19-20 (%)	Var 20-21 (%)	Var 19-21 (%)
	2019	2020	2021			
Containerships	3,506	3,008	1,151	-14.2%	-61.7%	-67.2%
Vehicle carriers	404	347	138	-14.1%	-60.2%	-65.8%
General cargo	50	158	24	216.0%	-84.8%	-52.0%
Gas carriers	52	221	45	325.0%	-79.6%	-13.5%
Bulk Carriers	43	121	47	181.4%	-61.2%	9.3%

Table 10: Port calls per ship type between EU and China in 2019, 2020 and 2021 (up to February 2021).

General cargo ships, gas carriers and vehicle carriers have increased their port call activity in January 2021 from China to EU when compared to their activity in January 2019. Contrary to expectations these ship types increased

significantly their port call activity in January 2020 (compared to 2019) and have now decreased in 2021 to the approximate numbers of port calls from 2019 (except for gas carriers that raised from 2 to 19 port calls). Possibly also an effect of the pandemic that increased the demand on some types of cargo, or a market fluctuation driven by other variables.

Containerships is the most affected ship type showing today a negative variation of -68.7% compared with 2019 from China to EU. Vehicle carriers have recovered in February to a positive variation of +1.6%. In the opposite direction, that is from EU to China, the conclusions are similar for containerships with a variation of -67.2%, however for Vehicle carriers there is still a negative variation and -65.8%.

From EU to China only bulk carriers have a positive variation (+9.3%) but this is not the case from China to EU with a negative variation of -18.8%. The impact is still in any case much concentrated in containerships and vehicle carriers.

To note that, if the analysis were to be done on a quarterly basis, some of this variability would be absorbed and the differences seen in the monthly perspective be, in some quarters, under a normal fluctuation of the market (one month more, one month less).

The monthly fluctuation in port calls between China and Europe and vice versa by type of ship is shown in Appendix D.

5.4 Trade between US and Europe by ship type

The most relevant ship types engaged in trade between Europe and the US are containerships and vehicle carriers.

For containerships and for the outgoing voyages to the US, Europe shows up to February 2021 a decrease of the volume of port call activity from 2019 of -26.7% (137 port calls in 2021 vs 187 port calls in 2019). In the opposite direction, that is, from the US to Europe there is a more significant decrease of -64.6% of the containerships activity in 2021 compared with 2019 (87 port calls in 2021 vs 246 port calls in 2019).

Vehicle carriers are very far behind in 2021 from the values observed both in 2019 and in 2020, in any of the directions. The decrease is of -95.0% of the 2019 port call activity from Europe to the US (with 1 call only until February) and of -84.5% of the 2019 port call activity from the US to Europe (with 9 calls only until February)

To retain the positive outcome of the containership segment from Europe to the US with a recovery (and increase) of the number of port calls.

Ship type	US TO EUROPE			Var 19-20 (%)	Var 20-21 (%)	Var 19-21 (%)
	2019	**2020**	**2021**			
Containerships	246	214	87	-13.0%	-59.3%	-64.6%
Vehicle carriers	58	67	9	15.5%	-86.6%	-84.5%

Ship type	EUROPE TO US			Var 19-20 (%)	Var 20-21 (%)	Var 19-21 (%)
	2019	**2020**	**2021**			
Containerships	187	165	137	-11.8%	-17.0%	-26.7%
Vehicle carriers	20	19	1	-5.0%	-94.7%	-95.0%

Table 11: Port calls per ship type between EU and the US in 2019, 2020 and 2021 (up to February 2021)

The monthly fluctuation in port calls between the US and Europe and vice versa by type of ship is shown in Appendix E.

6. Impact on cruise ships and other passenger ships

The COVID-19 outbreak created a high degree of public concern about the approach to health and safety on board cruise ships. Large numbers of people in confined spaces on cruise ships can make both passengers and crew prone to infectious diseases, and in this case, the coronavirus.

Cruise ships and passenger ships are the 2 ship types mostly affected by COVID-19. Every major cruise line in the world suspended departures in March as the coronavirus outbreak grew.

Some cruise operators decided in August to gradually return to service at reduced capacity. In most cases, these are single-nationality cruises calling in at a limited number of ports, usually in the country of origin. Nearly all are in Europe or Asia. The U.S. Centers for Disease Control and Prevention (CDC) lifted its No Sail Order on 01 November 2020 for all cruise ships over 250 passengers and crew that operate in U.S. waters. However, the CDC put in place a strict set of health protocols which raise more questions than answers and has led to lines further suspending operations, with the earliest likely restart in April 2021.

This section presents more detailed statistics on cruise and other passenger ships.

6.1 Cruise ship calls

In March 2020, EMSA started its analysis of cruise ship related data that is available via the information systems hosted by the Agency, and also from other sources. EMSA produced a status report with: a list of cruise ships located at EU ports (moored or at anchor); a list of sailing cruises having declared an EU port as the destination in the coming days, and; associated maps showing the positions of the vessels (moored and sailing).

The information on cruise ship positions was taken from AIS data available in the EMSA systems. To identify the cruise ships moored at ports, the criterion used was the speed recorded in the AIS (i.e. when the speed is over 1 knot, the vessels is considered to be moving). When a cruise ship arrives at a port or anchorage, the speed goes below 1 knot. AIS information was also used to identify the destination port.

EMSA produced a report with the list of “cruises sailing to EU ports” and an associated map showing the current positions and destination ports/areas. The locations of the cruise ships correspond to the time of drafting the report. The reports are produced daily and shared with the Commission, EU Member States and EFTA countries.

Figure 3 shows the evolution in the number of cruise ships moored/at anchor and sailing in and around EU ports since 1 April 2020:

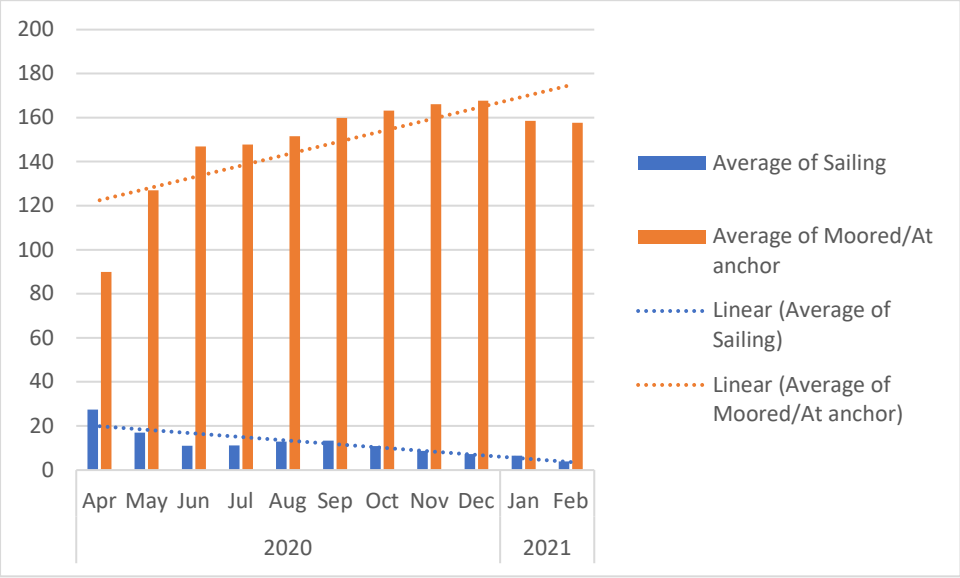

Figure 4: Average number of cruise ships moored/at anchor and sailing in and around EU waters per day (1 April 2020 – 28 February 2021)

6.2 Total number of Persons on Board (PoB) for cruise ships and other passenger ships

Using Persons on Board (PoB) information reported to SSN[4], EMSA analysed the changes in the PoB numbers for different ship types.

For cruise ships and other passenger ships, there is a significant decrease in the number of Persons on Board (as shown in Figures 3, 4 and 5). The figures show the PoB per month during 2019 (in blue), 2020 (in orange) and 2021 (in grey).

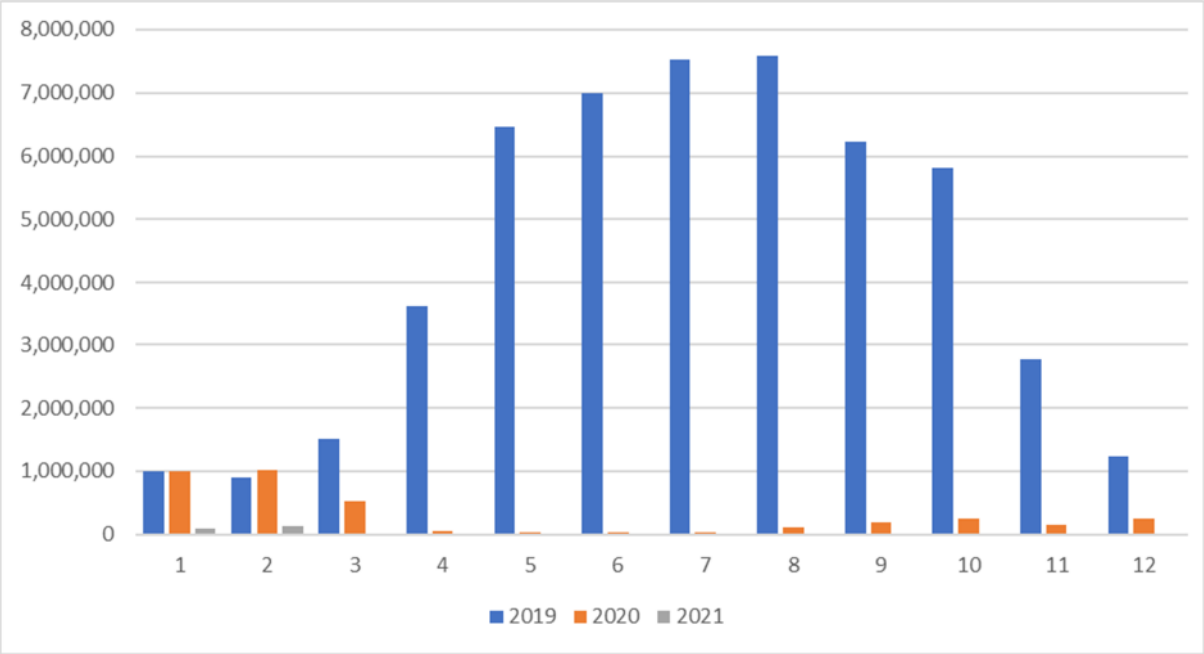

Figure 5: Persons on Board cruise ships

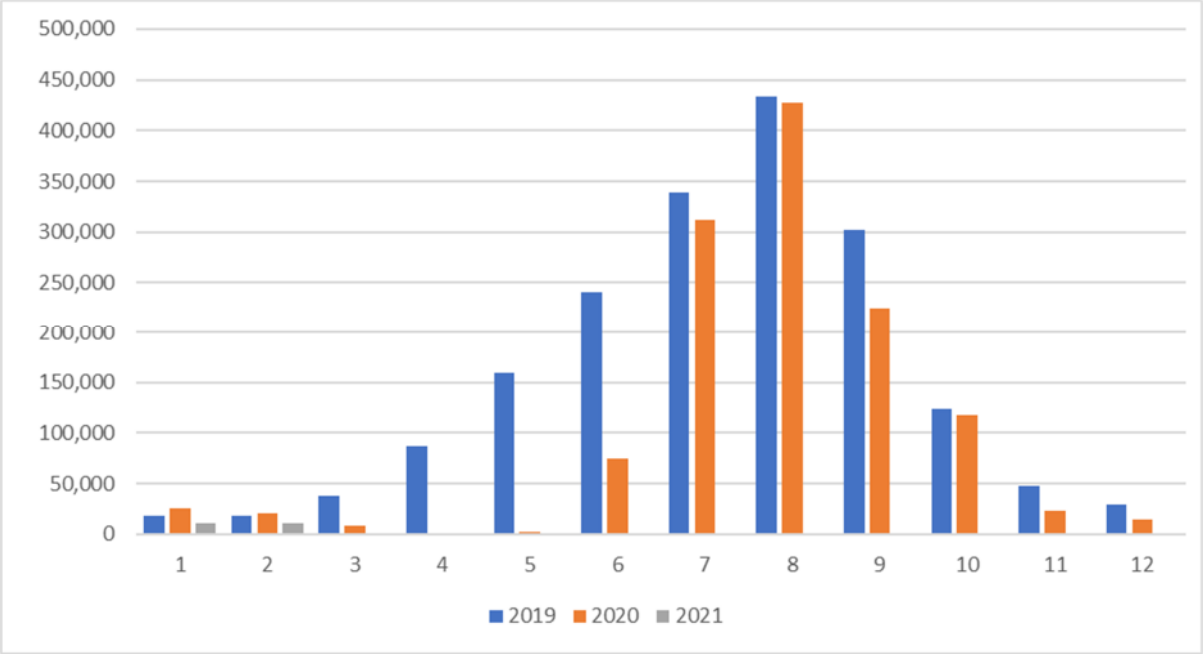

Figure 6: Persons on Board passenger ships

[4] The PoB is used in SSN to report the total number of passengers and crew.

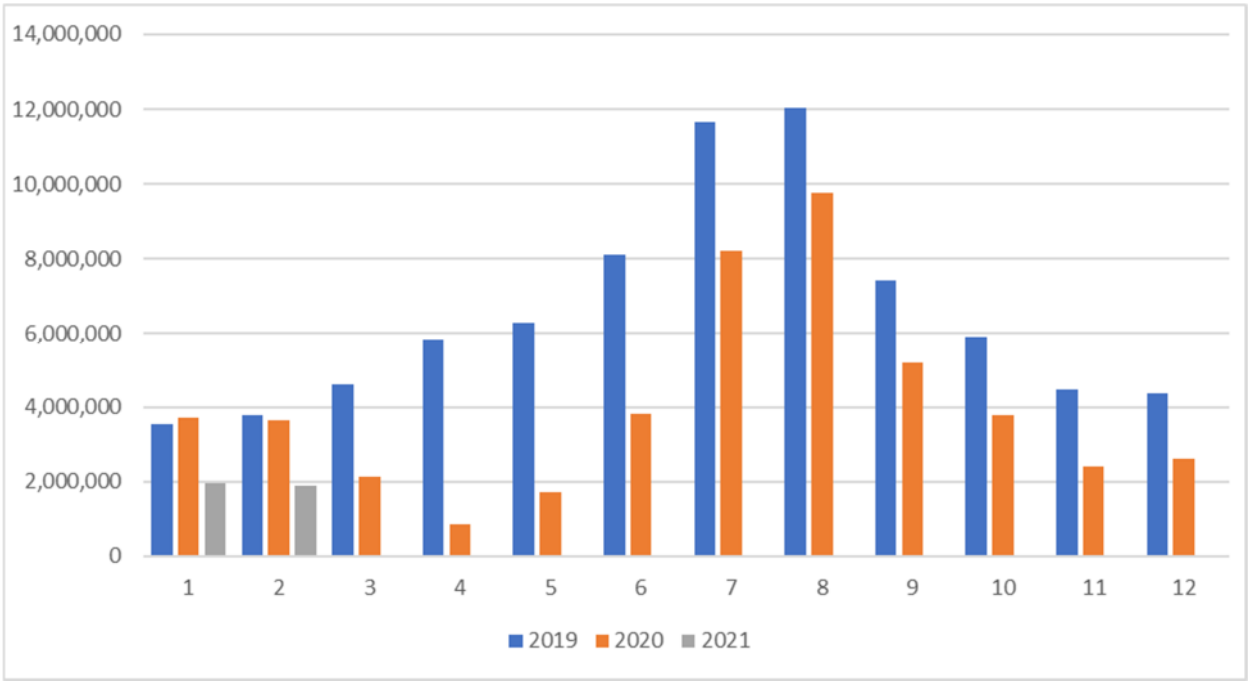

Figure 7: Person on Board Ro-Ro/Passenger ships

Cruise ship operators almost lost their businesses during the Covid-19 pandemic. The Figure 4 clearly demonstrates that the number of PoB began to decrease gradually from March 2020. Currently, the numbers remain at a very low level and correspond to crew members on board these ships.

An increase in the number of PoB on board of Passenger ships and Ro-Ro/ Passenger ships can be observed but still the values are lower in the previous years.

There are no changes to the number of Persons on Board for cargo ships (bulk carriers, oil tankers, container ships, etc.), as safe manning needs to be ensured.

7. Impact on vessel movement patterns

The use of Traffic Density Maps (TDM) is a simple and effective way to show vessel movement patterns. The TDMs are produced by compiling ship's positioning data and can highlight congested areas.

The TDM service show traffic density map for all ships or based on the specific ship type such as tankers, cargo vessels, passenger ships and fishing vessels in European waters. As indicated in the section 3.2 (Statistics per ship type) the traffic in and around EU waters was not heavily affected apart from passengers' ships. Consequently, it is very difficult to see difference on the vessel movement patterns for the ship types such as tankers or cargo vessels.

The graphs below show TDM for all ship types in February 2019, 2020 and 2021:

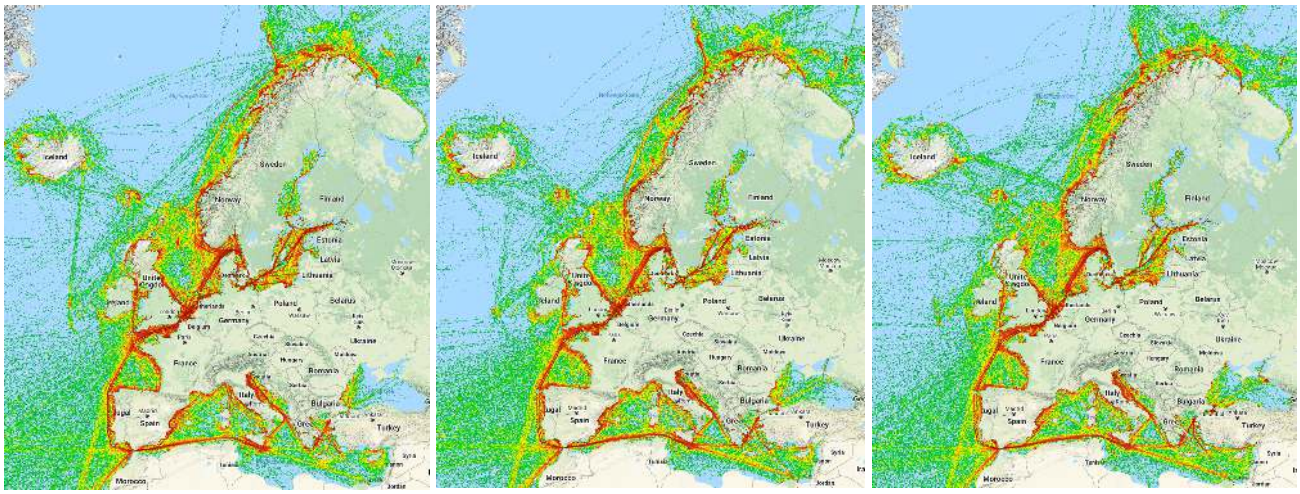

Figure 8: All ship types: ship traffic density in February 2019 (left), in February 2020 (centre) and in February 2021 (right)

The only maps where some changes to the vessel movement patterns can be observer are the ones related to passenger ships:

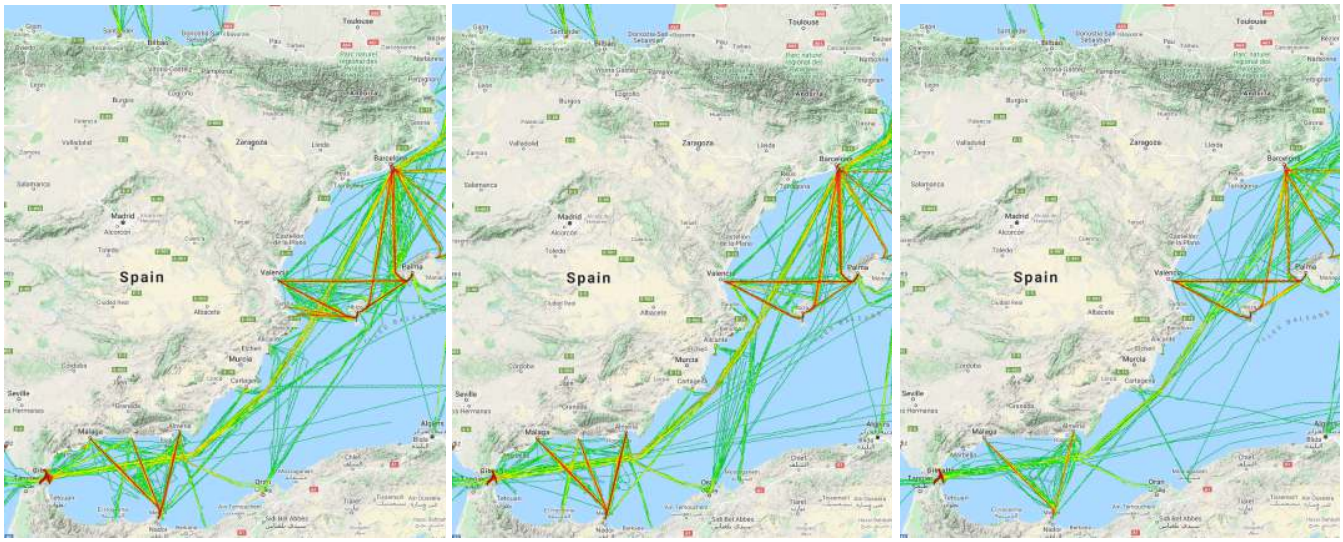

Figure 9: Passenger ship traffic density in February 2019 (left), in February 2020 (centre) and in February 2021 (right)

8. Congestion at anchorages in EU waters

The maritime sector faces the prospect of an unprecedented number of vessels at anchor. Figure 11 shows the number of AIS reports (T-AIS is reported every 6 minutes for each vessel under the coverage of AIS coastal station) with navigational status “at anchor” in 2019 (blue color), 2020 (orange color) and 2021 (grey color):

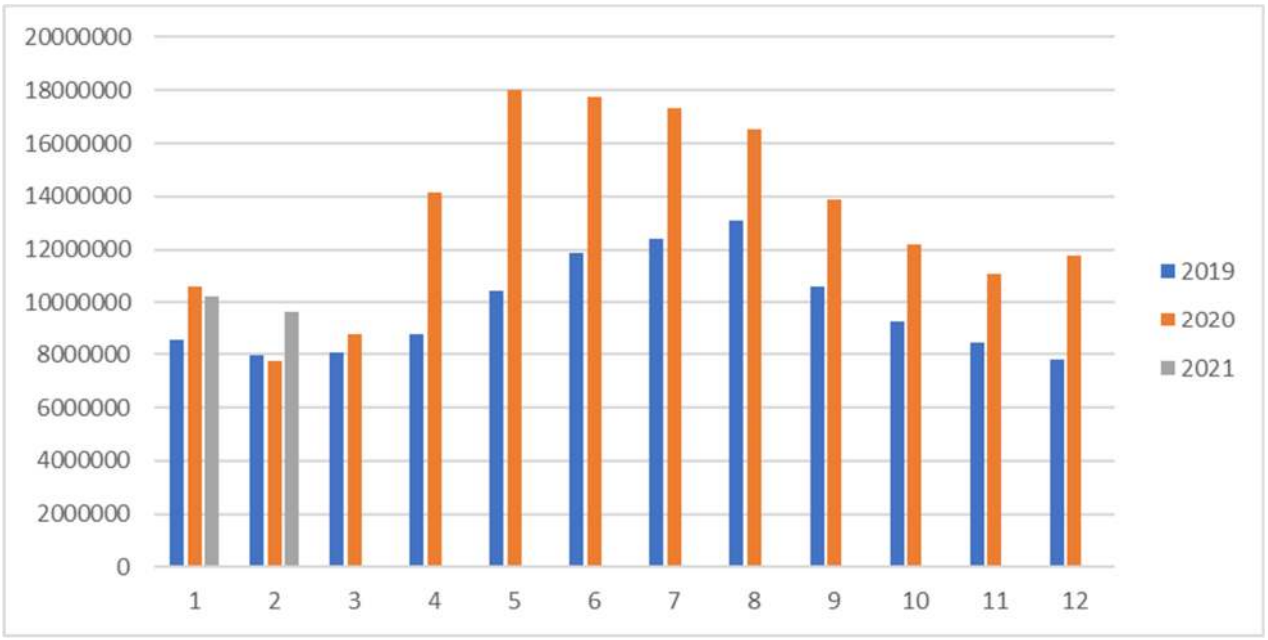

Figure 10: AIS data reports reporting navigational status “at anchor” in and around EU waters in 2019, 2020 and 2021

The graph shows that, from April 2020, there is an increase of number of AIS reports indicating navigational status “at anchor” in comparison with 2019.

Appendix A The weekly fluctuation in number of ship calls at EU ports per ship type

Bulk carriers[5]

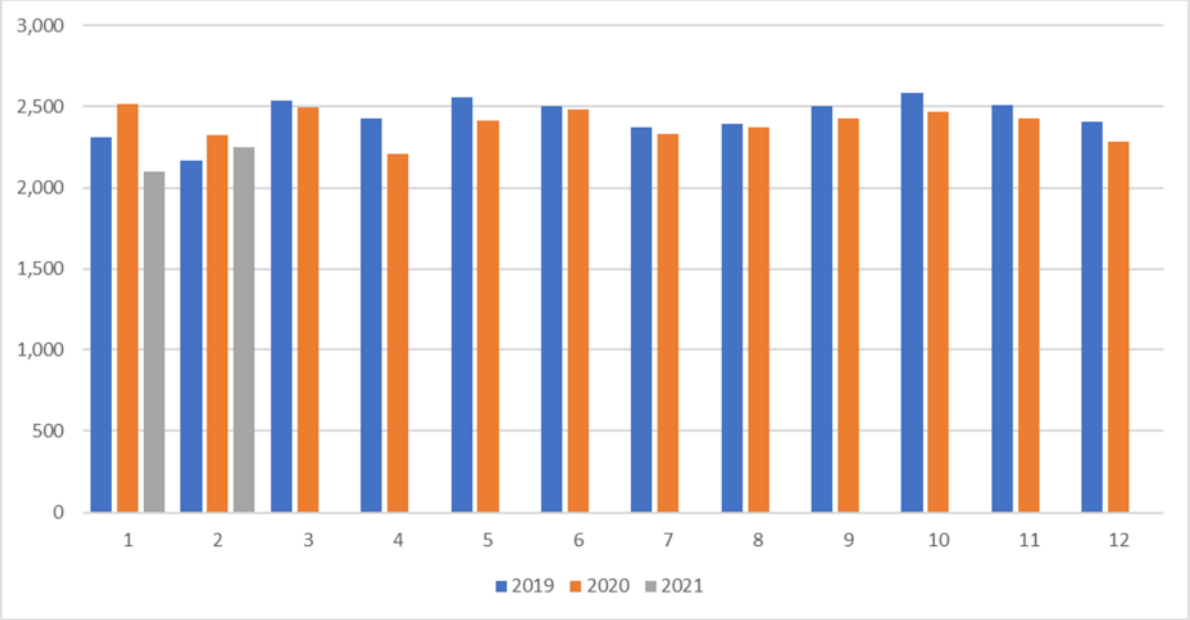

Figure 11: Ship calls of bulk carriers reported to SSN in 2019, 2020 and 2021 per month.

Chemical tankers[6]

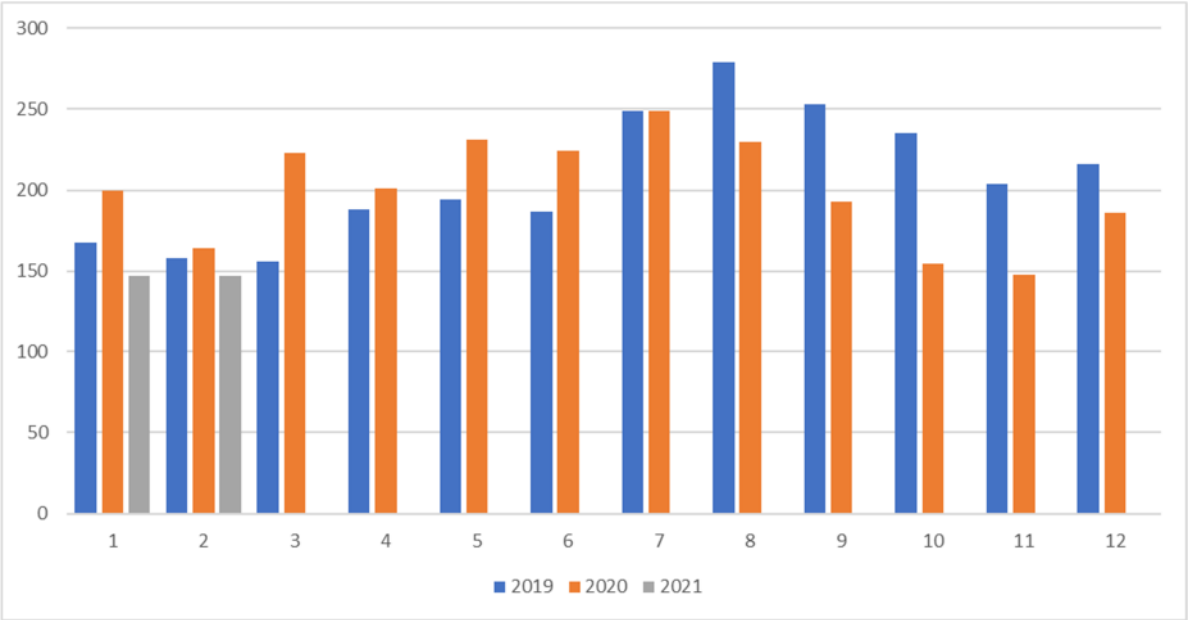

Figure 12: Ship calls of chemical tankers reported to SSN in 2019, 2020 and 2021 per month.

Container ships[7]

[5] Bulk carriers includes the following ship types: Bulk Carrier, Laker, Powder Carrier, Bulk/Oil Carrier (OBO), Urea Carrier, Ore Carrier, Limestone Carrier, Refined Sugar Carrier, Bulk Carrier Laker Only, Ore/Oil Carrier, Bulk Carrier Self-discharging, Aggregates Carrier, Cement Carrier, Wood Chips Carrier , Bulk Carrier (with Vehicle Decks), Bulk/Caustic Soda Carrier (CABU), Bulk/Sulphuric Acid Carrier.
[6] Chemical tanker includes the following ship types: Chemical Tanker, Wine Tanker, Latex Tanker, Edible Oil Tanker, Vegetable Oil Tanker, Molten Sulphur Tanker.
[7] Container ship includes the following ship types: Container Ship (Fully Cellular/Ro-Ro Facility), Container Ship (Fully Cellular), Passenger/Container Ship.

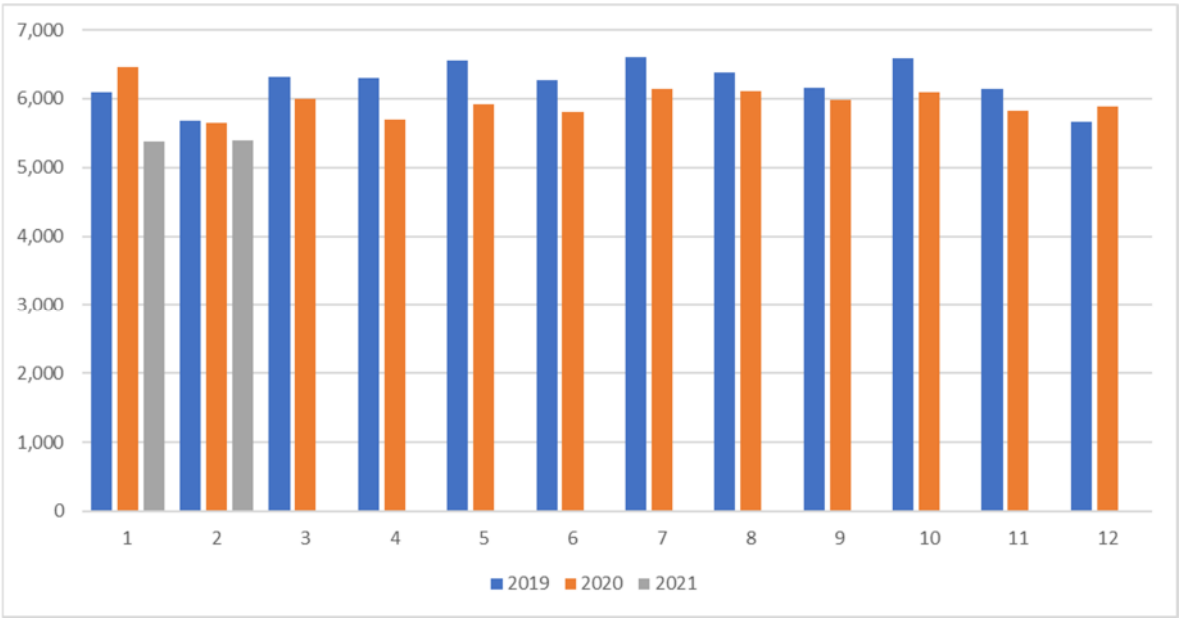

Figure 13: Ship calls by container ships reported to SSN in 2019, 2020 and 2021 per month.

Cruise ships[8]

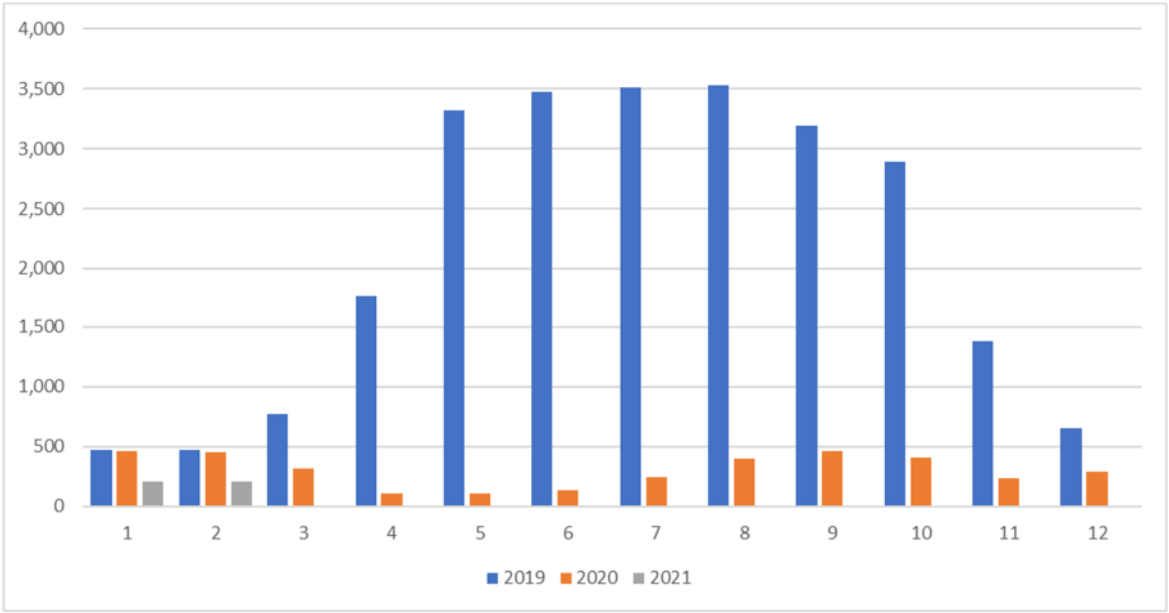

Figure 14: Ship calls by cruise ships reported to SSN in 2019, 2020 and 2021 per month.

[8] Cruise ships include the following ship types: Passenger/Cruise.

General cargo[9]

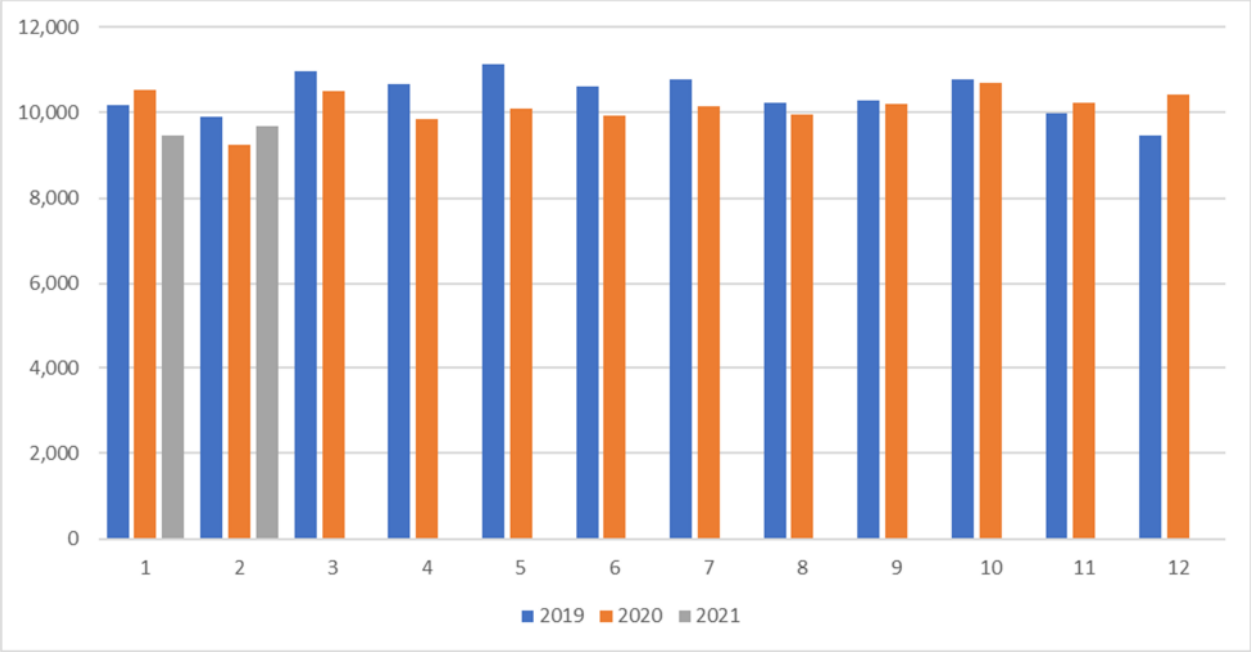

Figure 15: Ship calls of general cargo ships reported to SSN in 2019, 2020 and 2021 per month.

Liquified gas tanker[10]

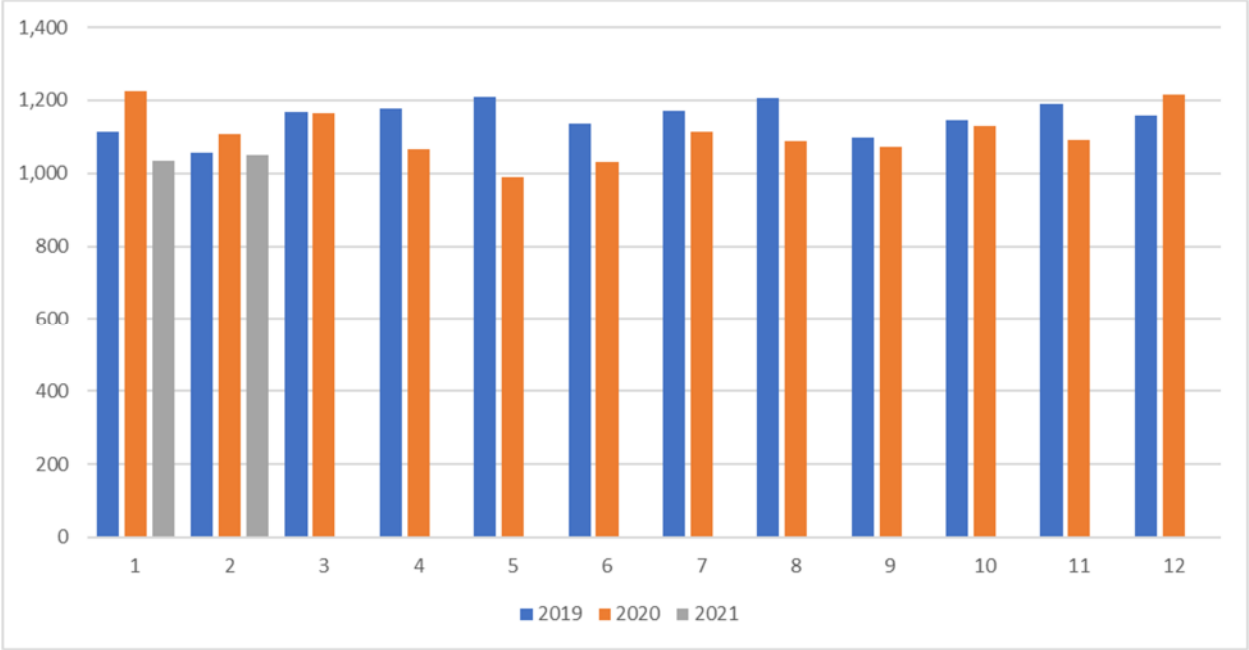

Figure 16: Ship calls by liquefied gas tankers reported to SSN in 2019, 2020 and 2021 per month.

[9] General cargo ship includes the following ship types: General Cargo/Passenger Ship, Palletised Cargo Ship, General Cargo Ship (with Ro-Ro facility), General Cargo/Tanker, Deck Cargo Ship, Heavy Load Carrier, Nuclear Fuel Carrier Yacht Carrier semi-submersible, Livestock Carrier, Nuclear Fuel Carrier (with Ro-Ro facility), General Cargo Ship, General Cargo Ship Self-discharging, Heavy Load Carrier semi-submersible, Open Hatch Cargo Ship.

[10] Liquefied gas tanker includes the following ship types: Gas Processing Vessel, LPG Tanker, CO2 Tanker, LNG Tanker, LPG/Chemical Tanker, Combination Gas Tanker (LNG/LPG).

Oil tanker[11]

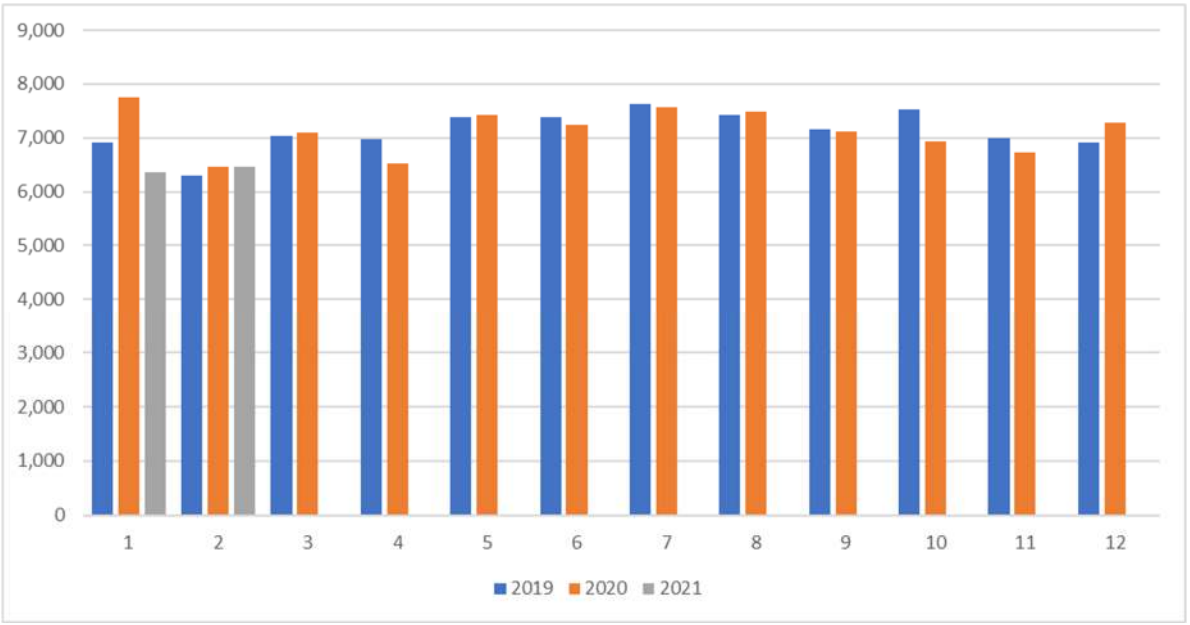

Figure 17: Ship calls by oil tankers reported to SSN in 2019, 2020 and 2021 per month.

Passenger

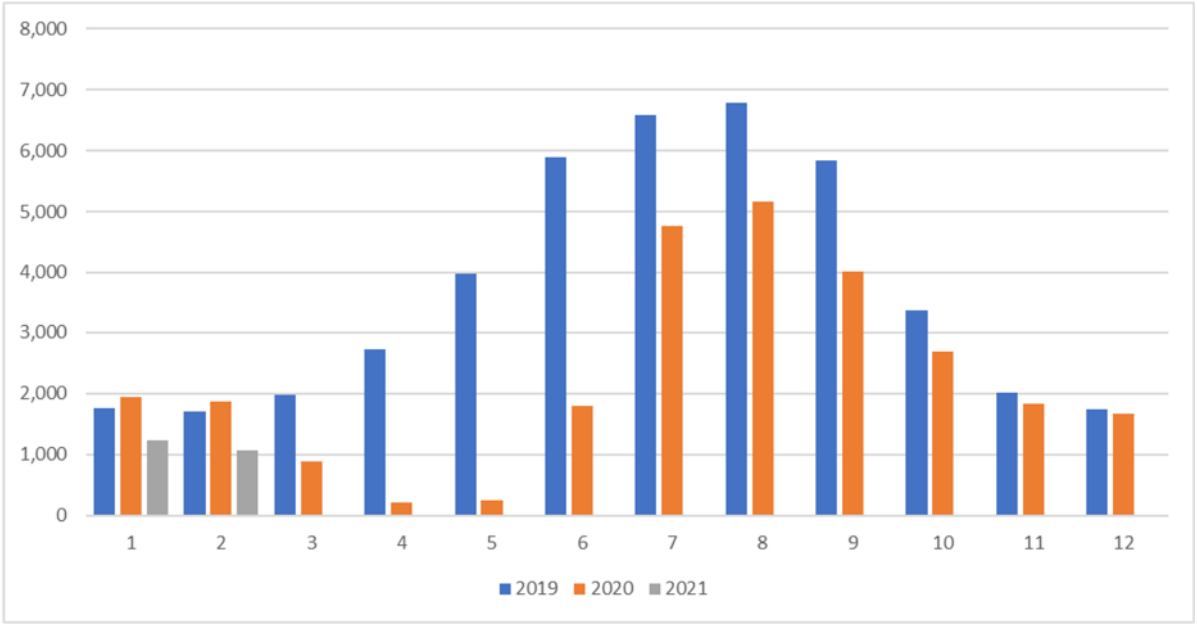

Figure 18: Ship calls by passenger ships reported to SSN in 2019, 2020 and 2021 per month.

[11] Oil tanker includes the following ship types: Crude Oil Tanker, Tanker (unspecified), Coal/Oil Mixture Tanker, Products Tanker, Asphalt/Bitumen Tanker, Bunkering Tanker, Crude/Oil Products Tanker, Shuttle Tanker, Oil Products Tanker, Bitumen Tanker, Chemical/Oil Product Tankers and Chemical/Products Tanker

Refrigerated cargo

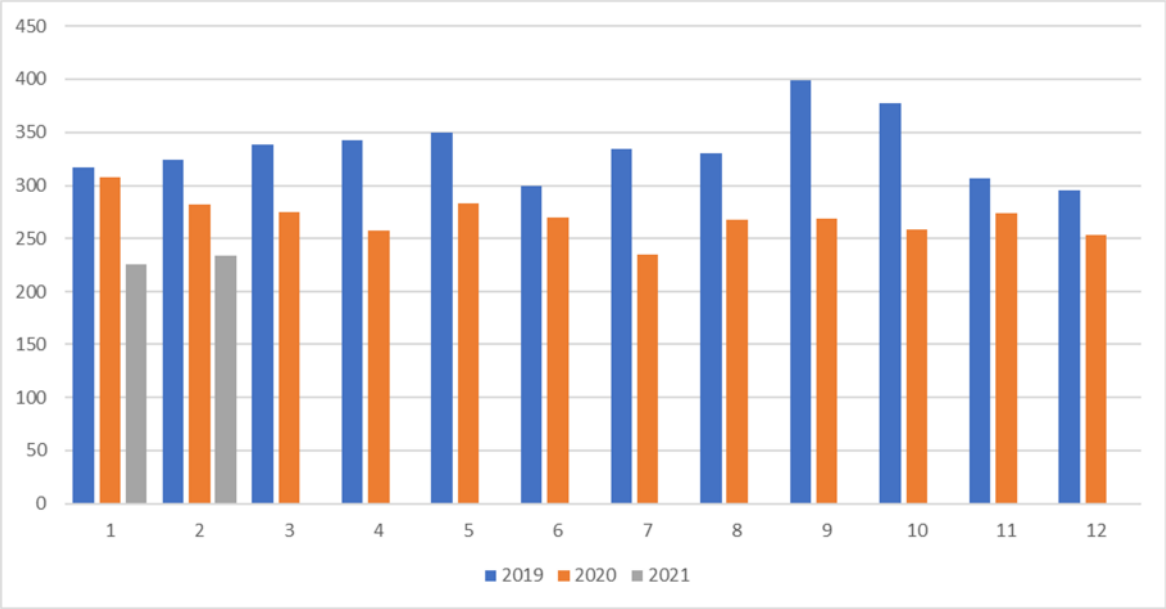

Figure 19: Ship calls by refrigerated cargo ships reported to SSN in 2019, 2020 and 2021 per month.

Ro-ro/passenger[12]

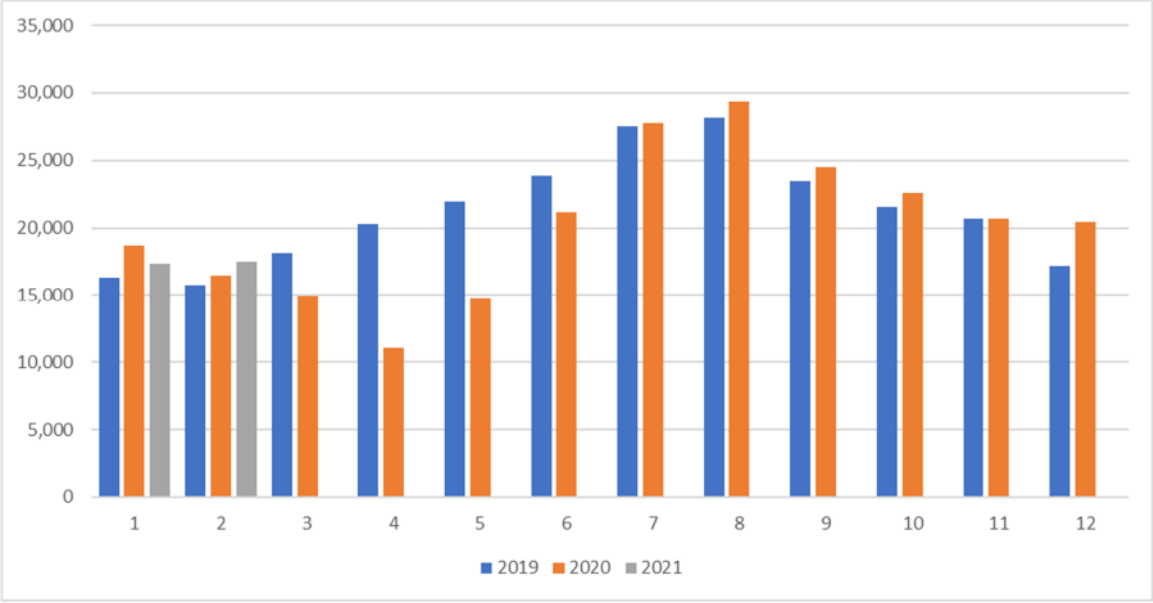

Figure 20: Ship calls by ro-ro/passenger ships reported to SSN in 2019, 2020 and 2021 per month.

[12] Ro-Ro/Passenger ship includes the following ship types: Passenger/Landing Craft, Passenger/Ro-Ro Ship (Vehicles/Rail), Passenger/Ro-Ro Ship (Vehicles), Passenger/Ro-Ro Cargo Ship.

Ro-ro/cargo[13]

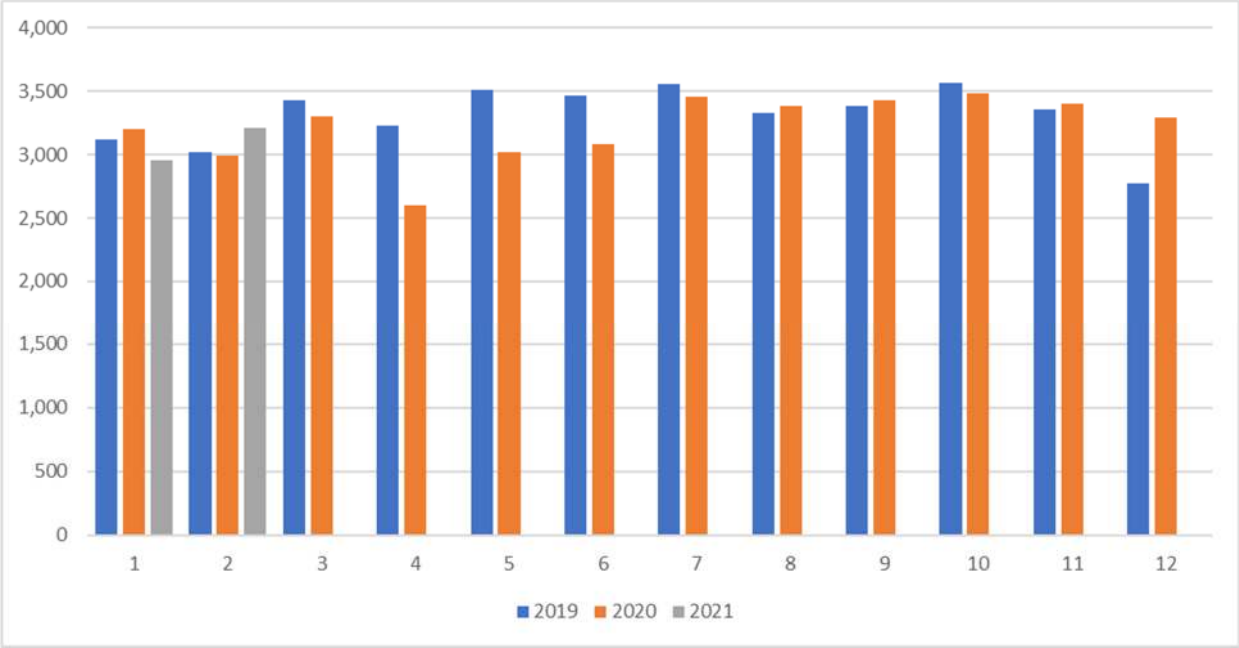

Figure 21: Ship calls by ro-ro/cargo ships reported to SSN in 2019, 2020 and 2021 per month.

Vehicle carrier

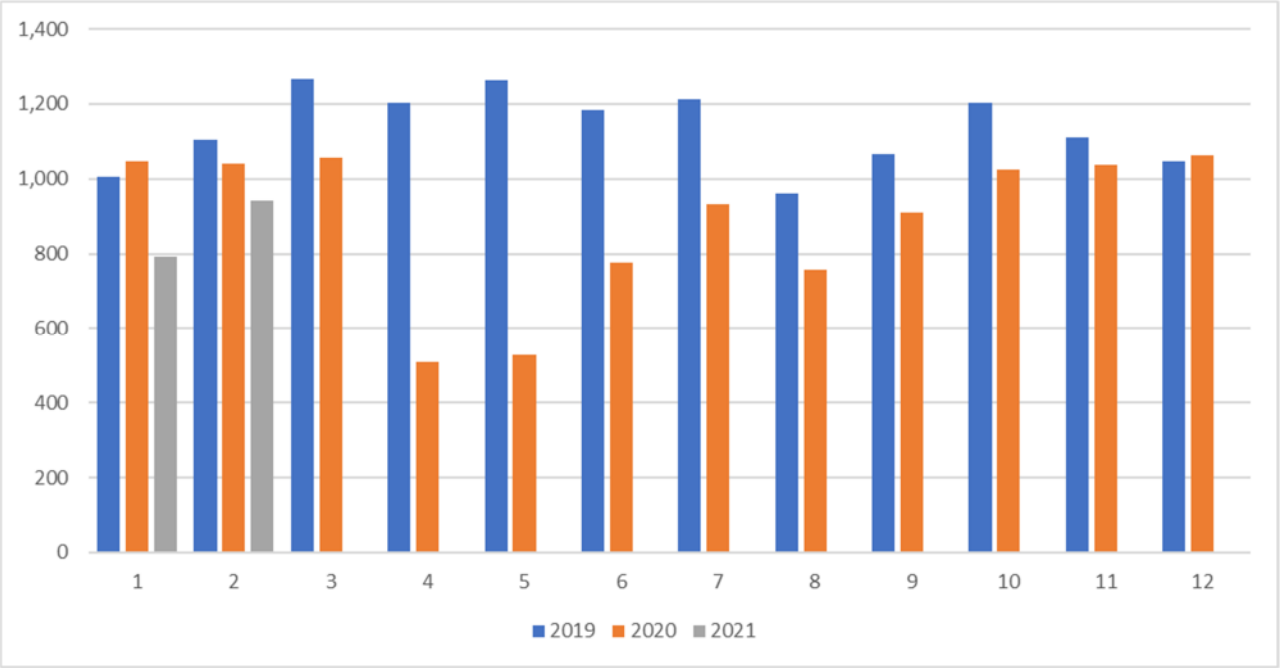

Figure 22: Ship calls by vehicle carriers reported to SSN in 2019, 2020 and 2021 per month.

[13] Ro-Ro/Cargo ship includes the following ship types: Rail Vehicles Carrier, Landing Craft, Container/Ro-Ro Cargo Ship, Ro-Ro Cargo Ship.

Appendix B Number of vessels flying the EU-MSs flag by ship type

Country of Flag	Bulk carrier	Chemical tanker	Containership	Cruise	General cargo	Liquified gas tanker	Oil tanker	Passenger	Refrigerated cargo	Ropax	Ro-Ro cargo	Vehicle carrier	Total
Belgium	20	1	7	4	11	30	21				5		**99**
Bulgaria	1				5	1	4	1		1	4		**17**
Croatia	15	10		26	11		7	170		51	2		**292**
Cyprus	267	50	181	2	185	13	51	7	4	74	12	5	**851**
Denmark	10	145	145		42	25	31	25	1	69	20		**513**
Estonia							5	1	1	20	1		**28**
Finland	3	3	3		42		4	16		51	29		**151**
France	3	20	31	14	20	8	16	40		57	22		**231**
Germany		5	77		64	8	20	72		25	6	3	**280**
Greece	165	61	5	4	48	47	273	150		198	9	1	**961**
Iceland					5		2	12		3			**22**
Ireland	2				42			17		4	3		**68**
Italy	35	102	7	28	37	17	35	137	4	170	57	24	**653**
Latvia		1			23		3	2		3			**32**
Lithuania		1	4		12		1		5	8	5		**36**
Luxembourg	6	9	1		19	2	4				2		**43**
Malta	578	365	301	52	192	93	271	17		10	45	34	**1958**
Netherlands	13	47	36	21	536	27	13	25	3	16	14		**751**
Norway	76	124	1	11	238	57	72	131	13	309	9	36	**1077**
Poland					8		1	16		8			**33**
Portugal	85	42	260	7	137	5	22	34		10	7	10	**619**
Romania		1			4		2						**7**
Spain	4	6			21	15	11	88	4	42	8	3	**202**
Sweden	7	32		4	20		10	91		57	17	7	**245**
Total	**1290**	**1025**	**1059**	**173**	**1722**	**348**	**879**	**1052**	**35**	**1186**	**277**	**123**	**9169**

Appendix C Number of EU-MSs flagged vessels calls (worldwide) per ship type

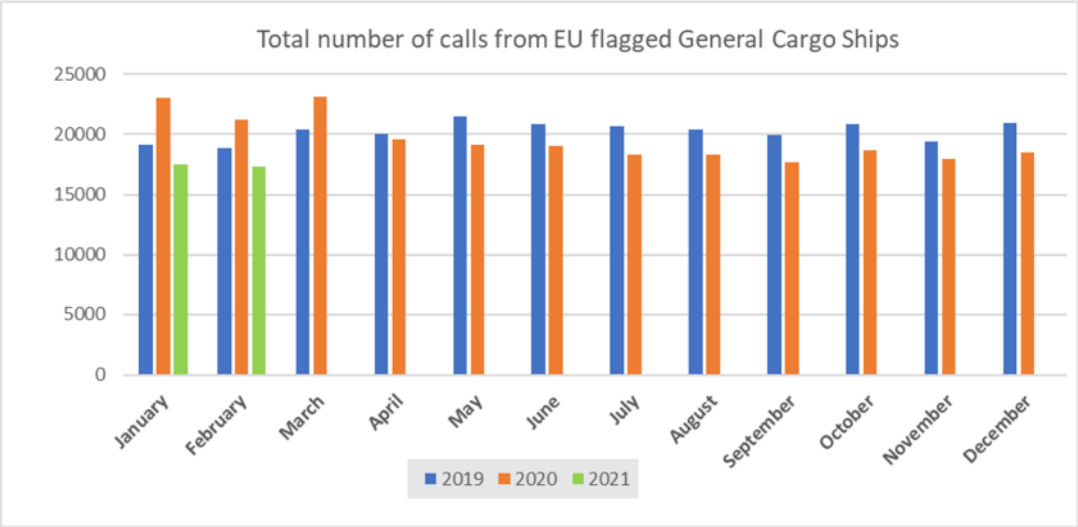

Figure 23: Total number of EU-MSs flagged vessels calls (worldwide) for 2019, 2020 and 2021 for General Cargo

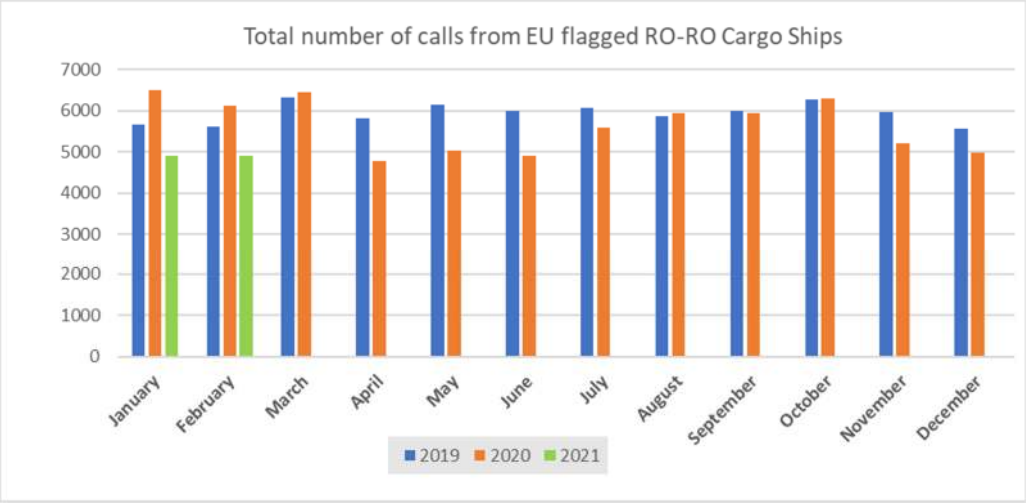

Figure 24: Total number of EU-MSs flagged vessels calls (worldwide) for 2019, 2020 and 2021 for Ro-Ro Cargo ships

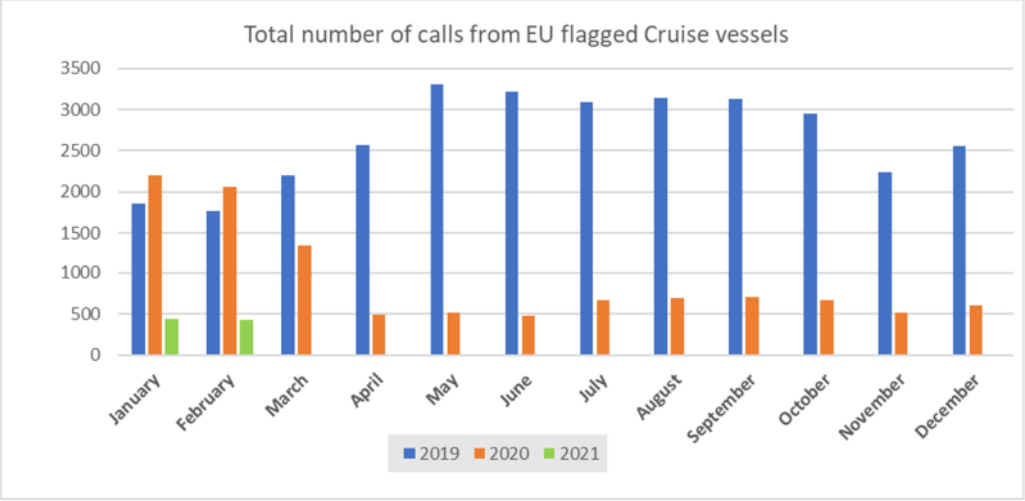

Figure 25: Total number of EU-MSs flagged cruise ships calls (worldwide) for 2019, 2020 and 2021

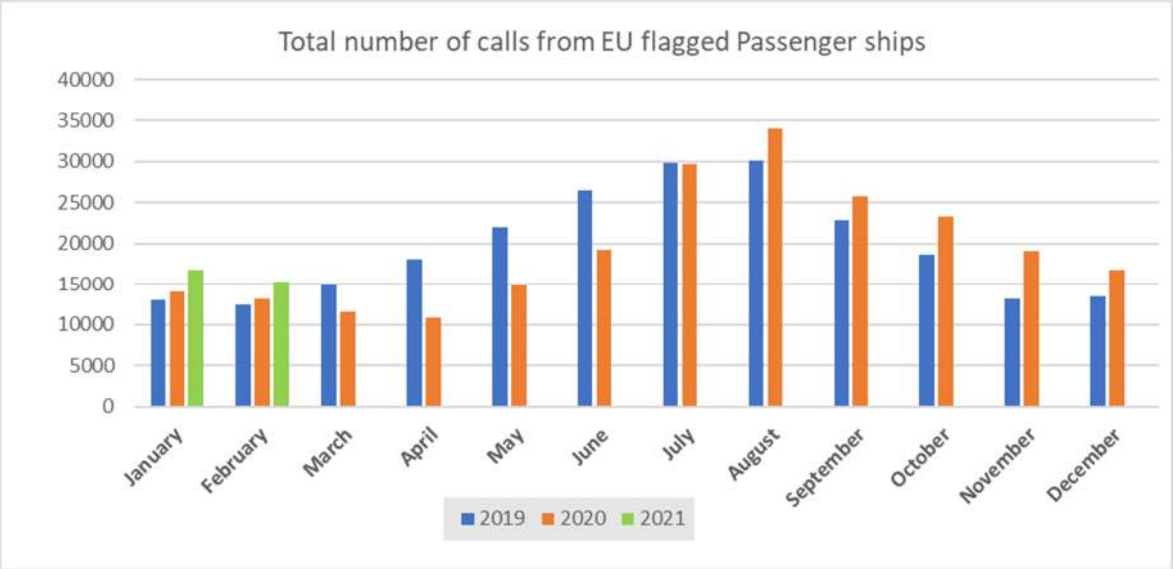

Figure 26: Total number of EU-MSs flagged passenger ships calls (worldwide) for 2019, 2020 and 2021

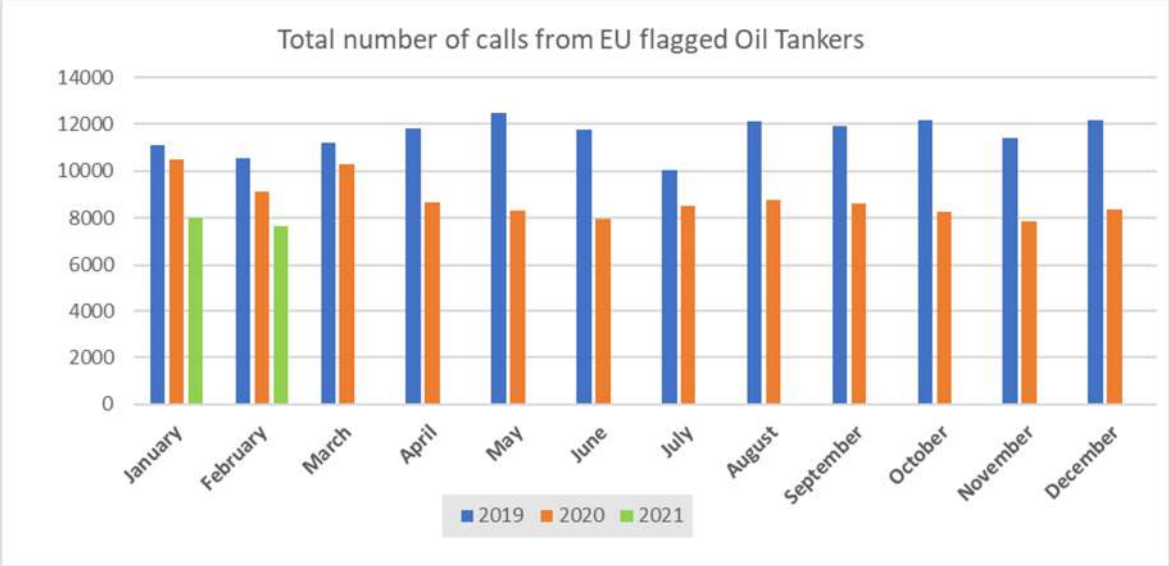

Figure 27: Total number of EU-MSs flagged oil tankers calls (worldwide) for 2019, 2020 and 2021

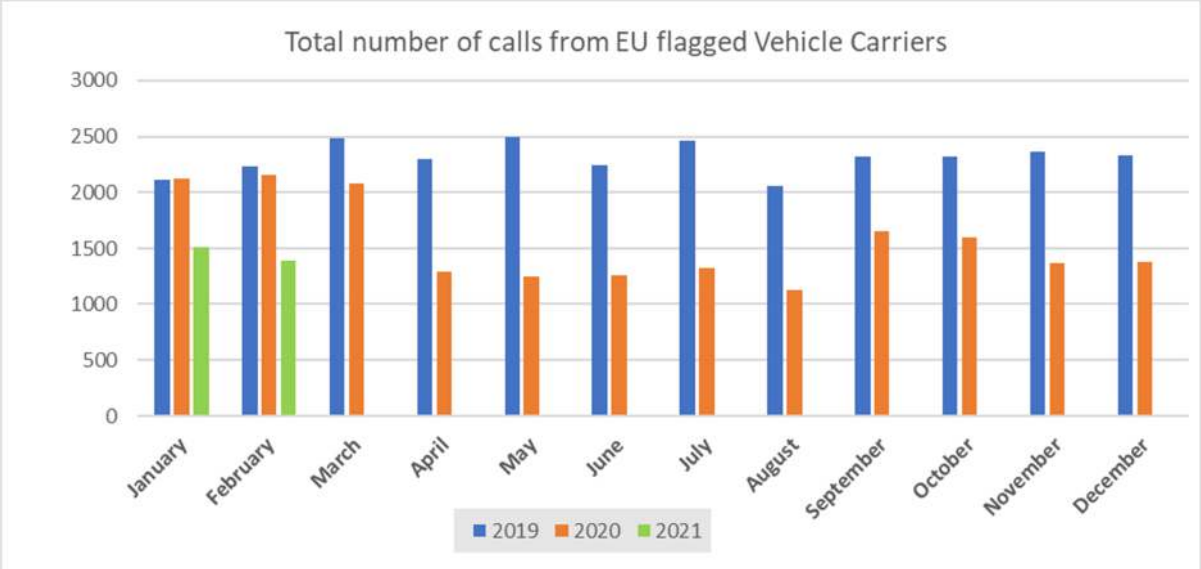

Figure 28: Total number of EU-MSs flagged vehicle carrier calls (worldwide) for 2019, 2020 and 2021

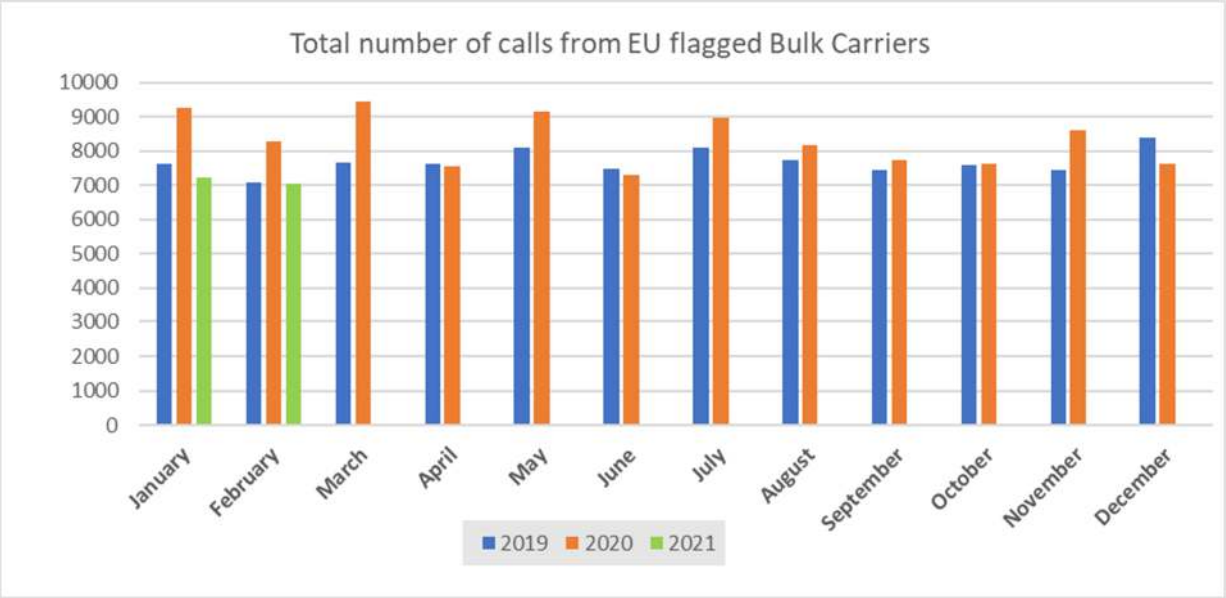

Figure 29: Total number of EU-MSs flagged bulk carriers calls (worldwide) for 2019, 2020 and 2021

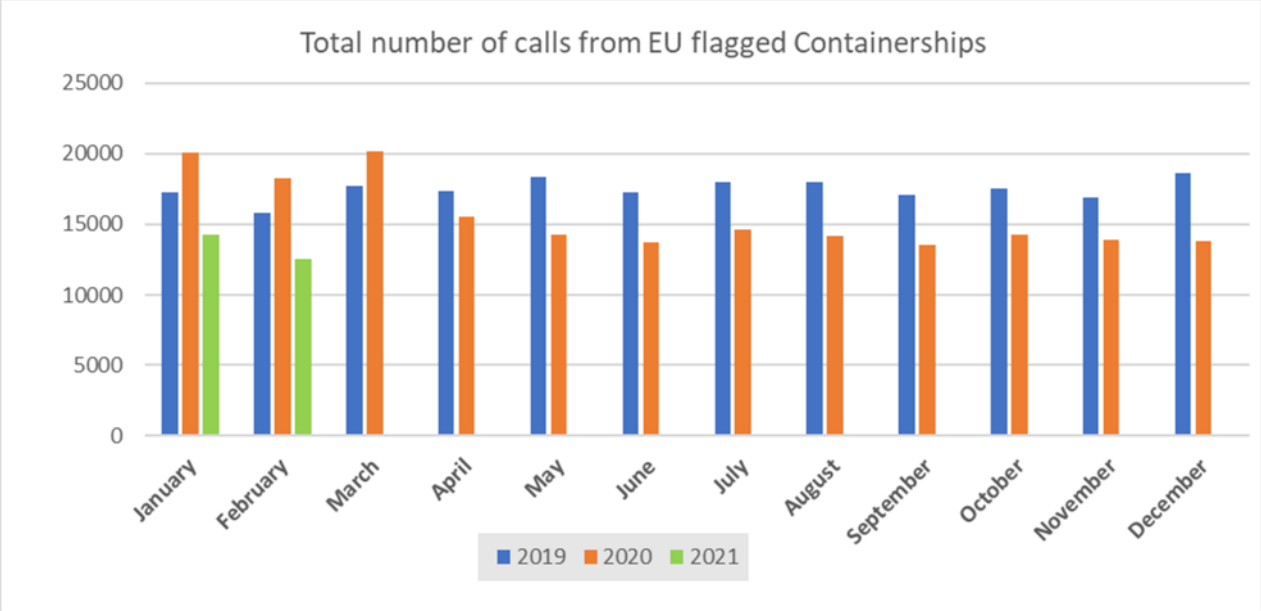

Figure 30: Total number of EU-MSs flagged containerships calls (worldwide) for 2019, 2020 and 2021

Appendix D Port calls between China and Europe per ship type

This Appendix shows the monthly fluctuation in port calls between China and Europe and vice versa for different ship types (Containerships, Vehicle carriers, General cargo, Gas carriers and Bulk carriers)

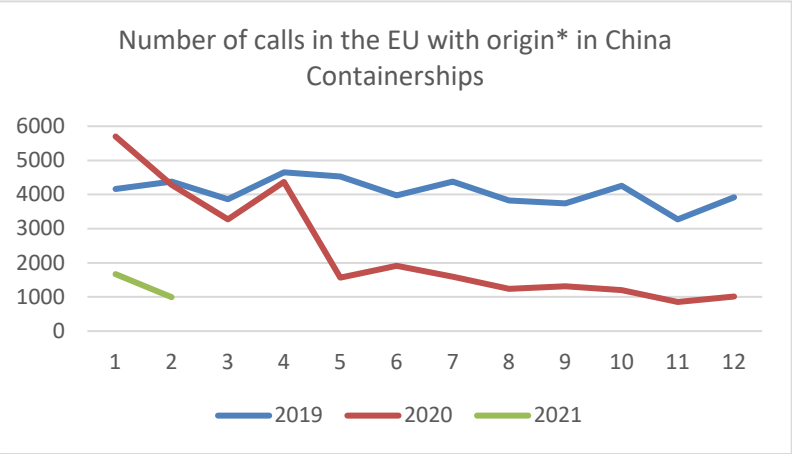

Figure 31: Total number of calls in EU for container ships with origin in China in 2019, 2020 and 2021 (up to February 2021)

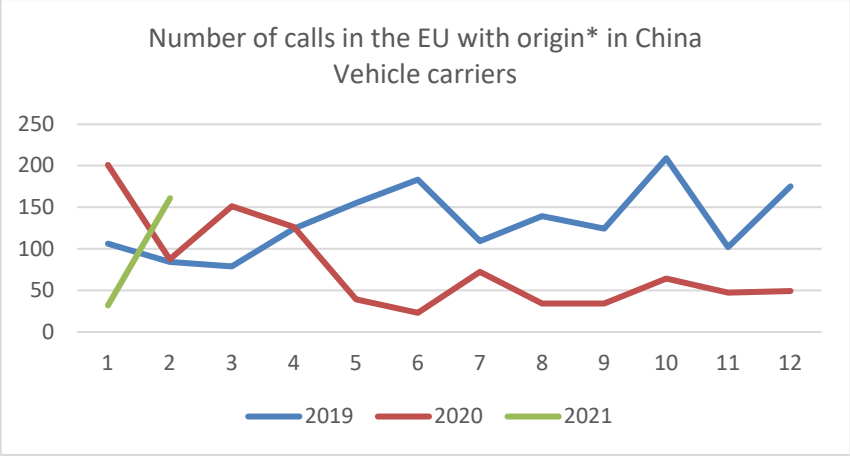

Figure 32: Total number of calls in EU for vehicle carriers with origin in China in 2019, 2020 and 2021 (up to February 2021)

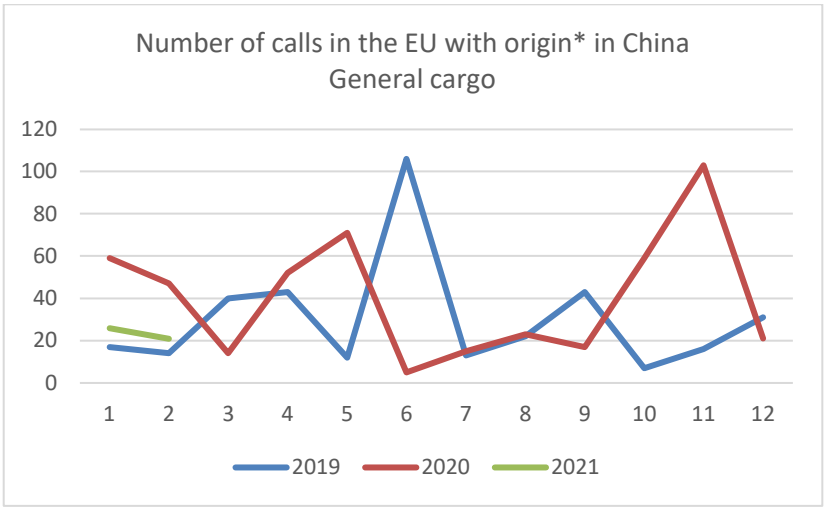

Figure 33: Total number of calls in EU for general cargo ships with origin in China in 2019, 2020 and 2021 (up to February 2021)

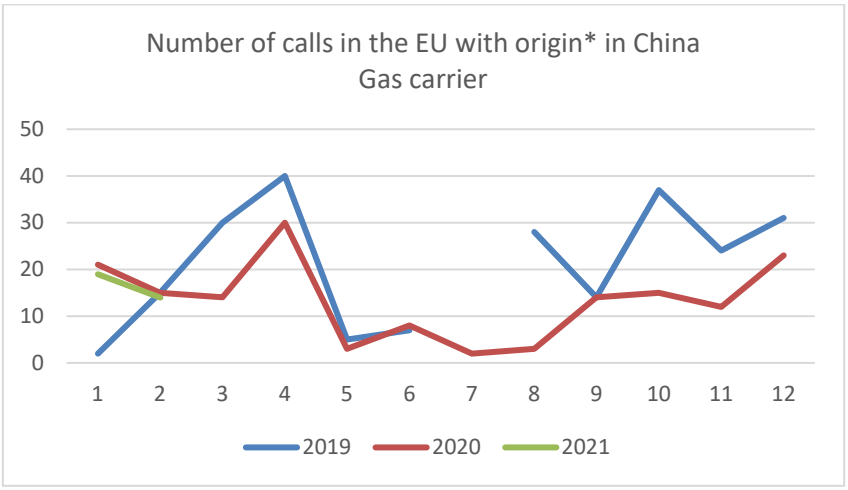

Figure 34: Total number of calls in EU for gas carriers with origin in China in 2019, 2020 and 2021 (up to February 2021)

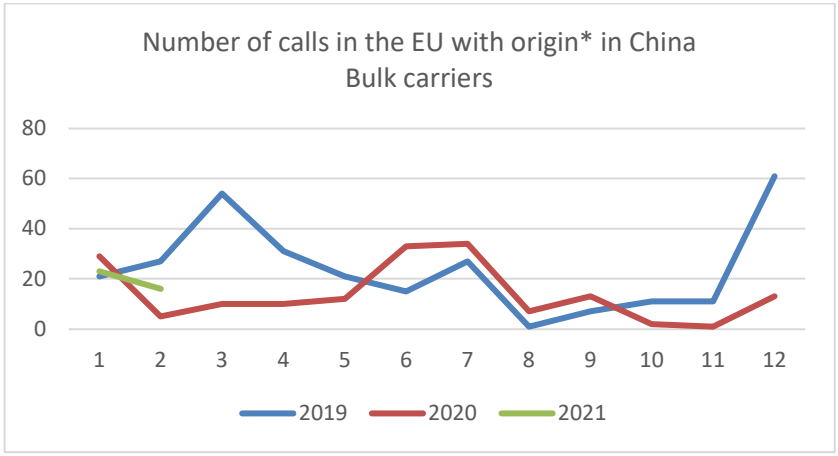

Figure 35: Total number of calls in EU for bulk carriers with origin in China in 2019, 2020 and 2021 (up to February 2021)

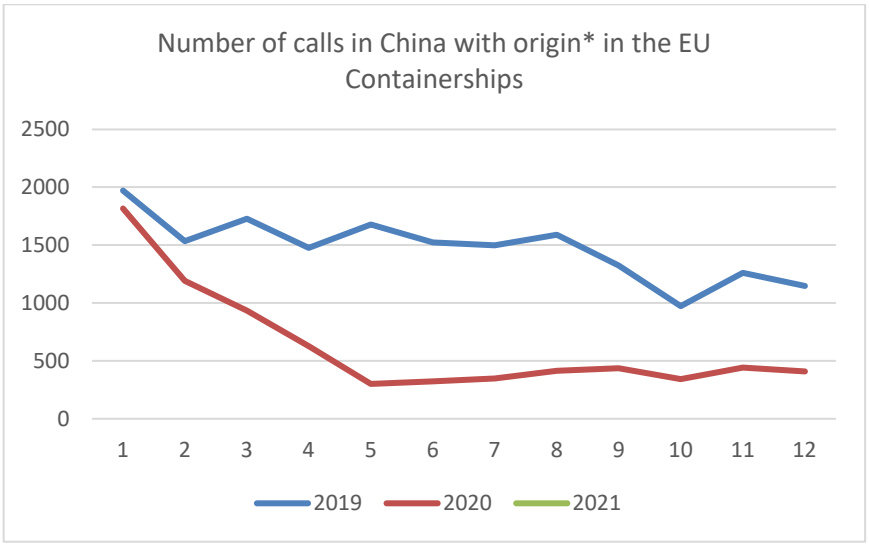

Figure 36: Total number of calls in China for container ships with origin in the EU in 2019, 2020 and 2021 (up to February 2021)

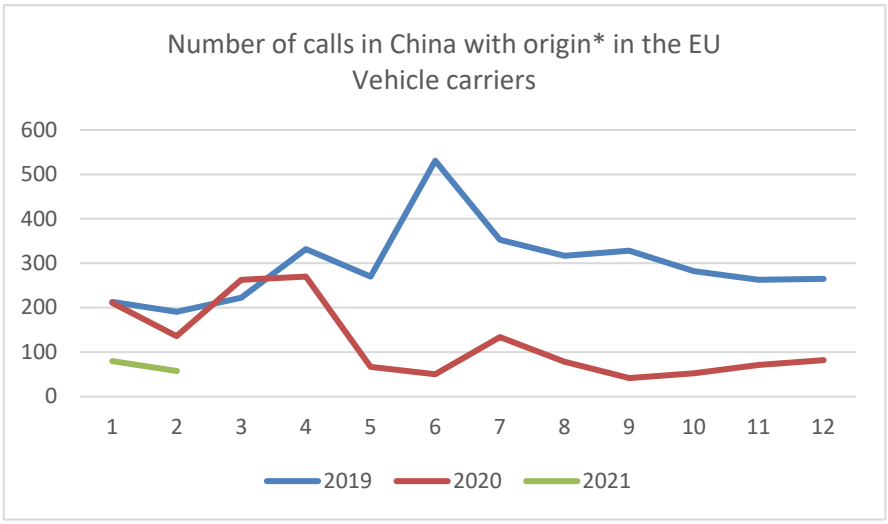

Figure 37: Total number of calls in China for vehicle carriers with origin in the EU in 2019, 2020 and 2021 (up to February 2021)

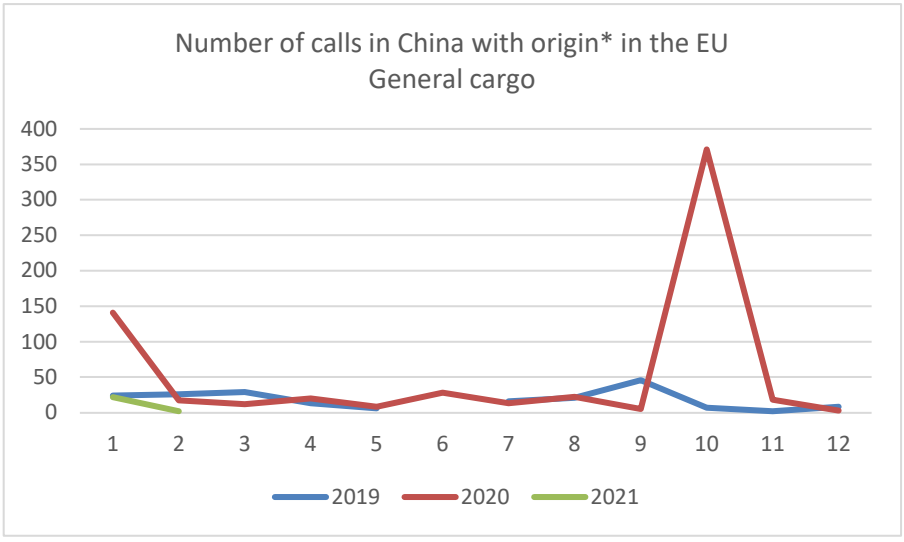

Figure 38: Total number of calls in China for general cargo with origin in the EU in 2019, 2020 and 2021 (up to February 2021)

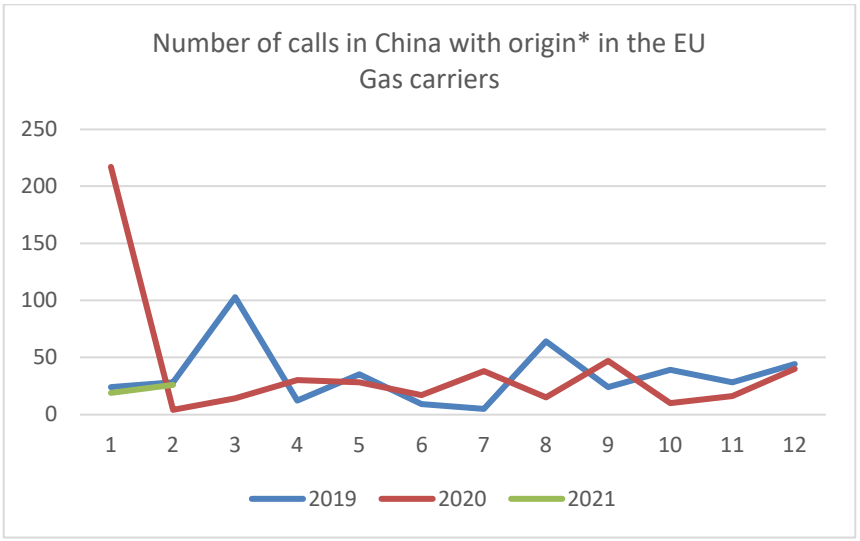

Figure 39: Total number of calls in China for gas carriers with origin in the EU in 2019, 2020 and 2021 (up to February 2021)

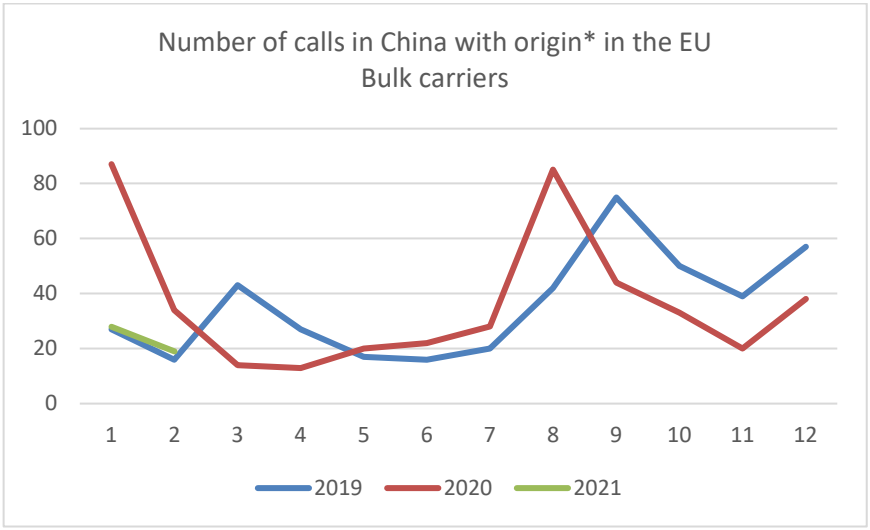

Figure 40: Total number of calls in China for bulk carriers with origin in the EU in 2019, 2020 and 2021 (up to February 2021)

Appendix E Port calls between US and Europe

This Appendix shows the weekly fluctuation in port calls between the US and Europe and vice versa for different ship types (Containerships and Vehicle carriers)

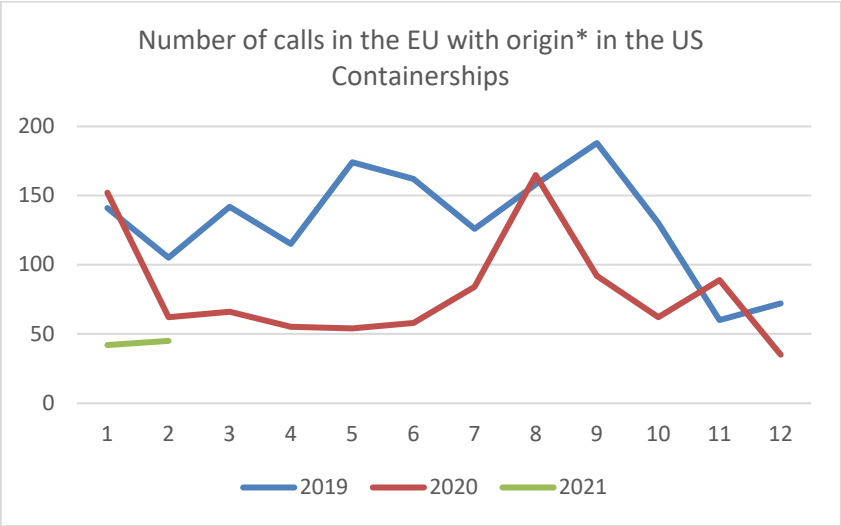

Figure 41: Number of calls in EU for container ships with origin in US in 2019, 2020 and 2021 (up to February 2021)

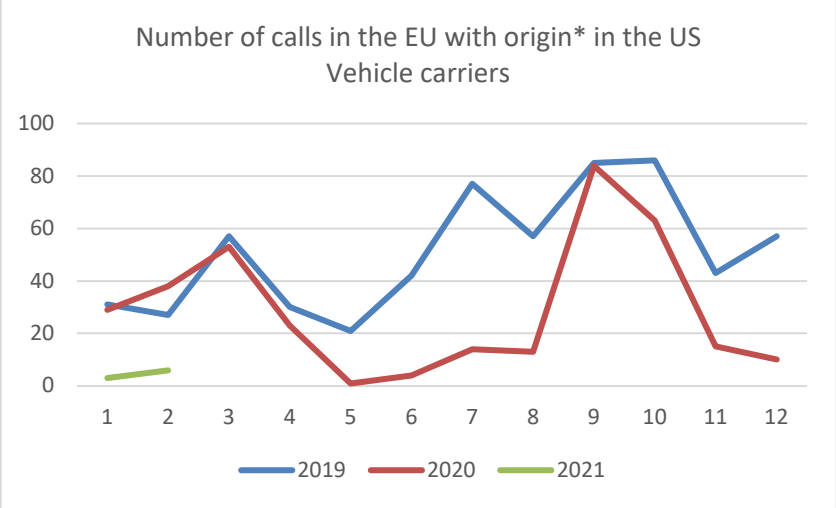

Figure 42: Number of calls in EU for vehicle carriers with origin in US in 2019, 2020 and 2021 (up to February 2021)

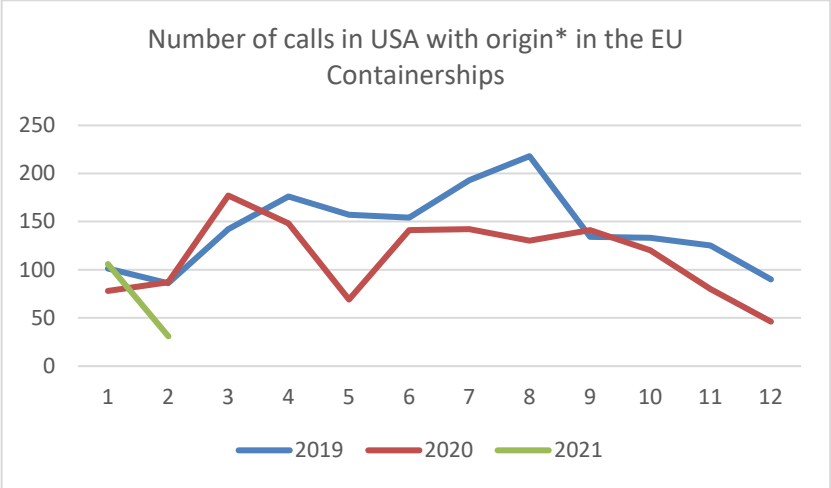

Figure 43: Number of calls in USA for container ships with origin in EU in 2019, 2020 and 2021 (up to February 2021)

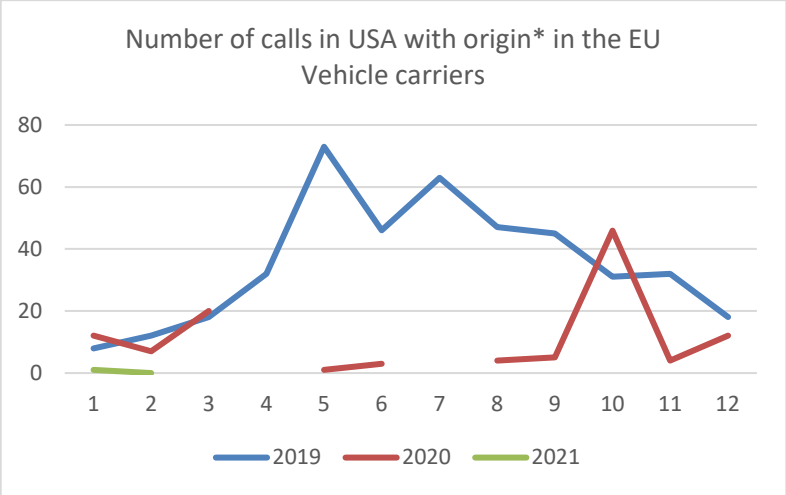

Figure 44: Number of calls in USA for vehicle carriers with origin in EU in 2019, 2020 and 2021 (up to February 2021)

European Maritime Safety Agency
Praça Europa 4
1249-206 Lisbon, Portugal
Tel +351 21 1209 200
Fax +351 21 1209 210
emsa.europa.eu