

# **COVID-19 – impact on shipping**

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# 1. Introduction

The recent and on-going global outbreak of the Coronavirus (COVID-19) has had a major 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, with a severe impact on health, people and economy. Many countries have responded to the pandemic by imposing lockdowns or restricting movement. 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) and the United Kingdom. The United Kingdom is included in the statistics since in 2019, the UK was still EU Member State and because during the transition period (due to end of 2020), the UK continues to report to SSN following the relevant EU rules.

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 and 2020 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 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 in the months between April and December 2020 and analyses the differences in PoB on passenger ships (2019 vs 2020). 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. Since these maps are issued on a monthly basis this section is only updated in the first report of the month.
- 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<sup>1</sup>), 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<sup>2</sup> 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 12.3% in the first 49 weeks of 2020 compared to the same period in the previous year. The number of ships calls in week 49 only (30 November – 6 December) declined by 5.1% compared to the same week in 2019. The most significantly affected sectors have been the Chemical tankers, Cruise ships and Passenger ships. Meanwhile, the number of Bulk carriers, Containerships, General Cargo, Oil tankers, and Ro-Ro cargo vessels had only a small decrease (up to 5%).

The most affected countries are Croatia, Iceland, Slovenia and Spain. The declines in number of ship calls between 2019 and 2020 is attributed to the Cruise and Passenger coastal ships traffic which has been heavily affected by the crisis. 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 and 2020, 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. A decrease of port calls worldwide by EU flagged ships was observed from the first half of March to December 2020, compared to the same weeks in 2019; a big decrease was observed for cruise and vehicle carriers. Since end of July (i.e. week 30), port calls (worldwide) from EU flagged passenger ships have shown an increase in comparison to the same weeks in 2019; similarly, since week 28 (mid-July) EU flagged Ropax traffic has shown a positive trend (in terms of number of port calls worldwide) compared with the same period in 2019. 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. From March to December 2020, the ship traffic from Europe to China and the US has declined when compared to same periods in 2019. Comparing weeks 1-49 in 2019 and 2020 there is a significant decrease of 51.9% from Europe to China, while the traffic flow from China to Europe showed a decrease of 40.3%. Comparing the same period of 2019 and 2020 for the traffic between Europe to the US a decline of 32.2% was measured while for the routes between the US to Europe the decline was even more significant reaching to 38.0%. 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 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 destined 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 (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 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.

<sup>1</sup> Directive 2002/59/EC on Vessel Traffic Monitoring

<sup>2</sup> 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 and 2020 (up to week 49). Only confirmed ship calls (i.e. ship calls for which MSs reported Actual Time of Arrival) have been extracted from SSN and grouped per week<sup>3</sup>. The ship types have been retrieved from the MARINFO database based on IMO numbers reported to SSN.

#### 3.1 General statistics

During the first 49 weeks of 2019, there were 839,593 ship calls at EU ports, and in the same period in 2020 there were 735,977 ship calls. The number of calls decreased by 12.3% in comparison with 2019.

The table below shows the number of ship calls per week in 2019 and 2020 and the trends between these years.

Week number (start date, Monday)	2019	2020	Trend 2019 to 2020
1 (30/12 - 05/01)	12098	12124	0%
2	13869	13901	0%
3	14330	13903	-3%
4	14330	14472	1%
5	14221	14614	3%
6	14534	14421	-1%
7	14755	13429	-9%
8	14954	13760	-8%
9	15151	14735	-3%
10	14868	14797	0%
11	14434	14556	1%
12 (16/03 - 22/03)	15692	12992	-17%
13	15826	12448	-21%
14	16472	12255	-26%
15	16617	11299	-32%
16	16224	11180	-31%
17	16597	11812	-29%
18	17321	12091	-30%
19	17817	12731	-29%
20	17859	12685	-29%
21	18327	12958	-29%
22	18435	13273	-28%
23	19138	14030	-27%
24	19255	14730	-24%
25	19635	15577	-21%
26	19672	16150	-18%
27	19787	16771	-15%
28	20228	17331	-14%
29	20013	17638	-12%
30	20060	17851	-11%
31	20263	18119	-11%
32	19834	18220	-8%
33	19551	18304	-6%
34	19915	18236	-8%
35	19809	18251	-8%
36	19264	18176	-6%
37	18583	17434	-6%
38	18649	17129	-8%
39	18119	16123	-11%
40	17415	16670	-4%
41	17268	16127	-7%
42	17308	15987	-8%
43	16477	15973	-3%
44	16159	15463	-4%
45	15744	15461	-2%
46	15517	15402	-1%
47	15936	14483	-9%
48	15662	15101	-4%
49 (30/11 - 06/12)	15601	14804	-5%

Table 1: Number of ship calls reported to SSN in 2019 and 2020 per week

<sup>3</sup> The ISO-8601-week date standard was used where Monday is the first day of the week and Sunday the final day.

The significant decrease in the number of ship calls began in week 12 (16-22 March). 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 week in 2019 and 2020:

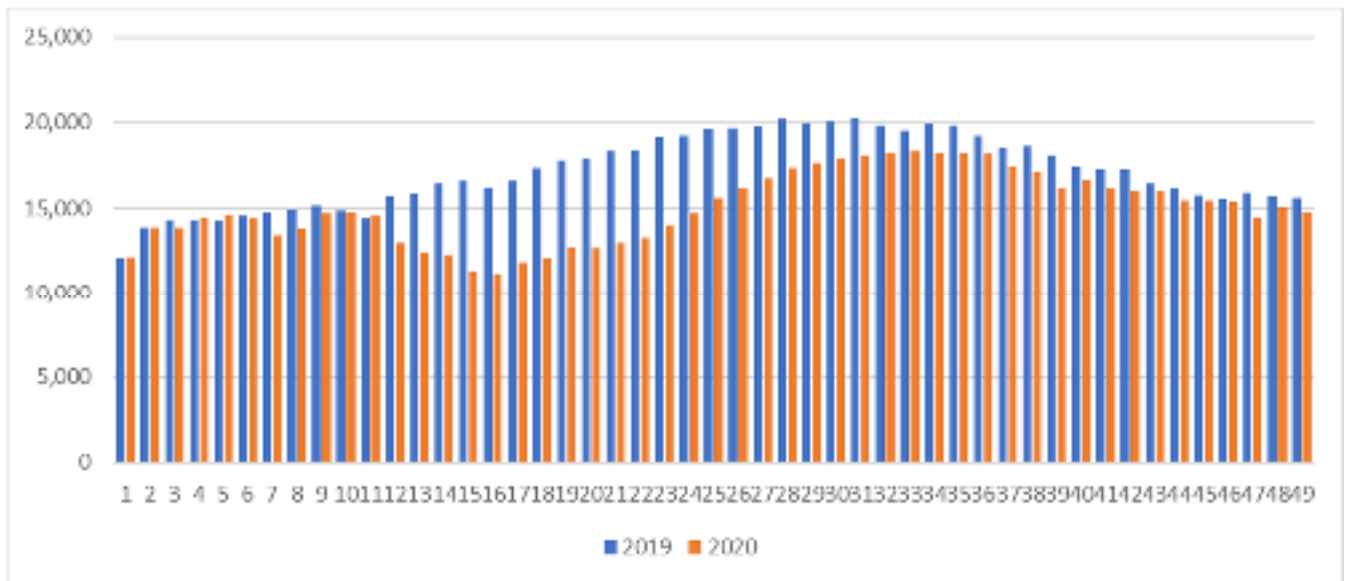


Figure 1: Ship calls reported to SSN in 2019 and 2020 per week

### 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 week in 2019 and 2020 for the selected ship types:

2019 vs 2020														
Ship type / Week	37	38	39	40	41	42	43	44	45	46	47	48	49	37-49
Bulk carrier	-7%	-3%	2%	8%	-6%	-12%	1%	-4%	6%	9%	-8%	-7%	-9%	-2%
Chemical tanker	-10%	-10%	-28%	-23%	-20%	-37%	-35%	-27%	-24%	-23%	-10%	-24%	-30%	-23%
Containership	-2%	-3%	-9%	0%	-4%	-3%	-5%	-7%	-4%	-2%	-7%	-7%	-8%	-5%
Cruise ships	-86%	-86%	-85%	-82%	-85%	-86%	-85%	-85%	-84%	-79%	-78%	-77%	-68%	-84%
General cargo	1%	-4%	-5%	2%	-4%	1%	0%	-2%	0%	10%	-2%	6%	-2%	0%
Liquefied gas tanker	-10%	-16%	-7%	1%	-11%	-11%	0%	0%	-6%	-11%	-14%	-8%	-8%	-8%
Oil tanker	1%	-2%	-8%	-3%	-2%	-8%	-7%	-3%	5%	0%	-6%	3%	-4%	-3%
Passenger	-26%	-31%	-42%	-20%	-16%	-30%	-8%	-8%	-4%	-8%	-25%	-27%	-33%	-24%
Ro-Ro passenger	7%	2%	3%	4%	4%	3%	6%	3%	0%	-4%	-7%	-6%	-4%	1%
Ro-Ro cargo	1%	1%	-3%	0%	0%	-3%	-3%	0%	-1%	3%	-3%	7%	4%	0%
Vehicle carrier	-23%	-13%	-26%	-12%	-15%	-19%	-10%	-14%	-11%	-2%	-10%	-6%	-11%	-13%
<b>Grand Total</b>	<b>-5%</b>	<b>-8%</b>	<b>-10%</b>	<b>-4%</b>	<b>-6%</b>	<b>-7%</b>	<b>-4%</b>	<b>-4%</b>	<b>-3%</b>	<b>-2%</b>	<b>-8%</b>	<b>-4%</b>	<b>-6%</b>	<b>-5%</b>

Table 2: Evolution in number of ship calls per week for different ship types  
(most affected ship types indicated in red)

By comparing the number of ship calls between weeks 37 and 49 reported in 2019 and in 2020, it was found that cruise ships, passenger ships and chemical tankers are the ship types for which the highest decrease in ship traffic has been detected.

### 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 week in 2019 and 2020. 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).

2019 vs 2020														
Member State / Week	37	38	39	40	41	42	43	44	45	46	47	48	49	37-49
Belgium	-7%	-8%	-17%	3%	-10%	-11%	-13%	-13%	-2%	-6%	-15%	-12%	-7%	-9%
Bulgaria	2%	-16%	-28%	6%	-12%	16%	-13%	18%	-19%	33%	-10%	21%	-19%	-3%
Croatia	-78%	-77%	-84%	-82%	-77%	-77%	-49%	-7%	-6%	44%	-21%	-10%	-36%	-70%
Cyprus	-14%	23%	-11%	20%	26%	-10%	15%	-13%	18%	0%	10%	-14%	11%	3%
Denmark	25%	33%	11%	18%	12%	9%	16%	23%	6%	25%	-6%	12%	11%	15%
Estonia	-12%	-11%	-15%	-3%	-9%	-10%	-6%	-16%	-17%	-12%	-5%	-8%	-3%	-10%
Finland	-16%	-23%	-17%	-18%	-22%	-18%	-13%	-19%	-20%	-18%	-20%	-7%	-22%	-18%
France	-20%	-24%	-28%	-21%	-16%	-14%	-15%	-15%	-13%	-12%	-19%	-11%	-10%	-17%
Germany	-9%	-7%	-2%	1%	-1%	-10%	-11%	-2%	-7%	-8%	-8%	-9%	-13%	-7%
Greece	87%	61%	72%	107%	97%	102%	108%	95%	65%	54%	41%	48%	50%	75%
Iceland	-59%	-37%	-37%	12%	-6%	33%	-12%	-14%	-16%	11%	3%	-13%	61%	-13%
Ireland	-11%	-10%	-5%	-4%	-4%	4%	-4%	-15%	12%	4%	3%	8%	0%	-2%
Italy	-15%	-12%	-24%	-19%	-14%	-29%	-10%	-13%	-5%	6%	-10%	-4%	-7%	-13%
Latvia	-1%	-16%	-16%	-15%	-10%	-12%	-4%	-15%	-9%	5%	-25%	4%	3%	-8%
Lithuania	7%	16%	3%	-13%	-1%	-3%	3%	-10%	-11%	2%	-25%	24%	8%	-1%
Malta	-8%	-19%												
Netherlands	-2%	-2%	-9%	2%	-7%	6%	-4%	-7%	3%	1%	-3%	-1%	-2%	-2%
Norway	-6%	-6%	-12%	2%	-9%	-12%	-2%	-10%	-16%	-11%	-14%	-2%	-10%	-8%
Poland	4%	-1%	-4%	-6%	-1%	-22%	-1%	-11%	-10%	12%	-10%	1%	5%	-4%
Portugal	-28%	-18%	3%	-13%	-3%	-15%	-32%	-9%	-12%	0%	-27%	-2%	-38%	-16%
Romania	-16%	-9%	-6%	3%	-6%	-16%	0%	23%	-22%	1%	3%	-1%	-10%	-5%
Slovenia	-35%	-15%	-44%	-6%	-28%	-21%	-16%	-6%	-29%	-18%	-7%	0%	-10%	-19%
Spain	-26%	-30%	-33%	-29%	-29%	-29%	-24%	-24%	-20%	-17%	-24%	-24%	-24%	-26%
Sweden	0%	-1%	-2%	-4%	-10%	-8%	-7%	-6%	-8%	-5%	-10%	-10%	-14%	-7%
United Kingdom	-10%	-5%	-11%	-7%	-14%	-12%	-12%	-19%	0%	-9%	-14%	-4%	-1%	-9%
<b>Grand Total</b>	<b>-6%</b>	<b>-8%</b>	<b>-11%</b>	<b>-4%</b>	<b>-7%</b>	<b>-8%</b>	<b>-3%</b>	<b>-4%</b>	<b>-2%</b>	<b>-1%</b>	<b>-9%</b>	<b>-4%</b>	<b>-5%</b>	<b>-6%</b>

**Table 3:** Evolution in number of ship calls per week by comparing data from 2019 and 2020 (in red most affected Member State)

The last column compares the number of ship calls reported between weeks 37 and 49 in 2019 with the ones reported in the same weeks in 2020 (week 37 in 2020 started on 7 September).

For Malta, only data between weeks 37-38 was analysed because the figures since week 39 are not available due to IT technical problem in the National Maltese SSN system.

The most affected countries are Croatia, Iceland, Slovenia and Spain. This declines in number of ship calls between 2019 and 2020 is attributed to the Cruise and Passenger coastal ships traffic which has been heavily affected by the crisis.



### 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 week in 2019 and 2020, and this confirms that there has been a decrease in ship traffic at most ports.

2019 vs 2020														
Port/ Week	37	38	39	40	41	42	43	44	45	46	47	48	49	37-49
Algeciras	-34%	-32%	-31%	-33%	-30%	-28%	-25%	-27%	-28%	-25%	-30%	-34%	-36%	-30%
Amsterdam	-17%	-19%	-22%	-9%	-8%	-4%	-10%	-25%	1%	6%	-11%	-4%	-12%	-11%
Antwerp	-7%	3%	-20%	6%	-6%	-9%	-7%	-8%	4%	1%	-13%	-16%	-4%	-6%
Barcelona	-30%	-36%	-29%	-29%	-32%	-36%	-19%	-30%	-24%	-8%	-29%	-11%	-15%	-26%
Bremerhaven	-23%	6%	-5%	-4%	-7%	-11%	-15%	5%	13%	3%	-10%	-8%	-37%	-8%
Constanta	26%	-12%	-10%	23%	-8%	-19%	2%	24%	-5%	-16%	-19%	11%	-21%	-3%
Dunkerque	-3%	-10%	-5%	-3%	-4%	-2%	-10%	1%	-10%	3%	-1%	-7%	-9%	-5%
Genova	-24%	-23%	-26%	-20%	-4%	-28%	3%	-24%	-12%	-4%	-4%	-18%	5%	-15%
Goteborg	-1%	0%	-19%	-27%	-13%	-18%	-10%	-13%	-4%	-20%	-19%	-11%	-24%	-14%
Hamburg	-15%	-3%	3%	13%	-5%	2%	-11%	-1%	-10%	-5%	-10%	7%	-12%	-4%
Le Havre	-35%	-21%	-30%	-28%	-28%	-4%	-17%	-12%	-5%	-13%	-18%	-2%	-16%	-18%
Marseille	-28%	-32%	-38%	-16%	-29%	-28%	-23%	-33%	-19%	-21%	-37%	-21%	-13%	-26%
Piraeus	91%	70%	99%	117%	78%	84%	75%	89%	110%	83%	58%	70%	75%	85%
Riga	-16%	-12%	-13%	-2%	-11%	-8%	-20%	-17%	2%	3%	-13%	-5%	0%	-9%
Rotterdam	6%	-1%	-9%	-8%	-3%	0%	-6%	-6%	5%	0%	1%	-1%	-1%	-2%
Sines	-22%	-26%	0%	-16%	13%	-8%	-10%	-24%	-37%	6%	-2%	-23%	-44%	-16%
Taranto	18%	20%	-36%	6%	20%	19%	-27%	73%	38%	186%	-33%	27%	-40%	7%
Trieste	-41%	-13%	24%	-10%	-8%	-38%	-17%	5%	-29%	-5%	267%	725%	-27%	-4%
Valencia	-1%	-7%	-16%	-7%	-13%	-2%	-8%	3%	-11%	-13%	-7%	-11%	-2%	-7%
Wilhelmshaven	40%	-10%	-25%	-6%	5%	-17%	-44%	5%	-21%	0%	0%	-22%	4%	-8%
<b>Grand Total</b>	<b>-9%</b>	<b>-9%</b>	<b>-12%</b>	<b>-7%</b>	<b>-8%</b>	<b>-8%</b>	<b>-8%</b>	<b>-7%</b>	<b>-2%</b>	<b>-2%</b>	<b>-9%</b>	<b>-7%</b>	<b>-10%</b>	<b>-8%</b>

**Table 4:** Evolution in the number of ship calls per week by comparing data from 2019 and 2020 (in red most affected ports)

The last column (37-49) compares the number of ship calls reported between weeks 37 and 49 in 2019 with those reported in the same weeks in 2020 (week 37 in 2020 started on 7 September).

By comparing numbers of ship calls between weeks 37 and 49 reported in 2019 and in 2020, it was found that Algeciras, Barcelona, Le Havre and Marseille are the ports with the highest decrease in ship traffic.

## 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. The port calls of those ships, at any port in the world, have been counted week-by-week and compared with equivalent periods in 2019.

These statistics have been built processing data from MARINFO for 2019 and 2020 (up to week 49) crosschecked with LRIT data. 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 decreased in March, April, May, June and July 2020 in comparison with the same period in 2019. In particular, the decrease started in mid-March, during weeks from 12 to 30 (i.e. the second half of March, April, May, June and July). This



trend appears to be an impact of the COVID-19 outbreak escalation across Europe that obliged many EU Member States to put in place lockdown measures from mid-March.

Week number	2019		2020		Trend 2019 to 2020	
	Port calls	Total GT	Port calls	Total GT	Port calls	Total GT
1	31592	636990379	34201	691890617	8%	9%
2	35113	684093310	37571	736731224	7%	8%
3	35551	668717405	38424	776172570	8%	16%
4	35279	669312963	38798	815978056	10%	22%
5	35176	685004546	38854	784587443	10%	15%
6	35523	680034119	38526	748467469	8%	10%
7	35748	684469296	37281	742294654	4%	8%
8	36968	698713744	37913	749224374	3%	7%
9	37506	725590503	37777	738143287	1%	2%
10	37047	718435264	39567	783688052	7%	9%
11	36421	702017893	39156	775370770	8%	10%
12	37278	700392331	35857	733305842	-4%	5%
13	35516	681948765	33788	724100527	-5%	6%
14	37582	685200088	28798	593015576	-23%	-13%
15	39082	709334201	30725	611898517	-21%	-14%
16	38895	722527608	31118	557025455	-20%	-23%
17	38729	715187650	32283	567868262	-17%	-21%
18	39240	719657806	31174	549532127	-21%	-24%
19	39987	733333640	31635	514018098	-21%	-30%
20	40428	733392174	31790	522541411	-21%	-29%
21	42100	758902263	33096	547156977	-21%	-28%
22	42056	735693243	33464	545533076	-20%	-26%
23	42970	736726966	31525	488850118	-27%	-34%
24	43211	734575802	33880	506078235	-22%	-31%
25	43582	726550914	34078	507005557	-22%	-30%
26	44380	742449249	38004	600221355	-14%	-19%
27	44179	744002354	37669	578659319	-15%	-22%
28	44628	742716115	39561	587309293	-11%	-21%
29	44751	745011245	41065	586437159	-8%	-21%
30	45590	752168491	44166	602792372	-3%	-20%
31	44697	742905817	44922	590546570	1%	-21%
32	46170	743739818	44617	567972632	-3%	-24%
33	44713	737685586	45990	589760246	3%	-20%
34	44940	746799467	45346	582312597	1%	-22%
35	43121	700397217	44164	581284802	2%	-17%
36	42806	733297995	42398	577491195	-1%	-21%
37	41665	726604851	42055	579059439	1%	-20%
38	41213	712743898	40375	548126902	-2%	-23%
39	40233	708752849	38517	547785607	-4%	-23%
40	39412	704237601	38001	577491882	-4%	-18%
41	39337	689459965	38748	590367253	-1%	-14%
42	39471	699825522	38817	570921344	-2%	-18%
43	38626	694339536	38299	549132223	-1%	-21%
44	36348	656305422	37397	550122164	3%	-16%
45	36270	691554565	36865	528742848	0%	-23%
46	35785	670115457	36191	531156294	1%	-21%
47	36375	679756578	35342	515041222	-3%	-24%
48	35918	660076541	36267	558417711	1%	-15%
49	36525	672710127	35833	548720900	-2%	-18%

**Table 5:** Number of port calls worldwide (at EU and non-EU ports) by MS flagged vessels in 2019 and 2020 (weeks 1-49), and related total gross tonnage (in red weeks for which a decrease was detected)

After small increases in the previous weeks (i.e. 33, 34, 35, 37, 44, 45, 46 and 48), in the last week (i.e. 49) the number of port calls worldwide by vessels flying the flags of EU Member States slightly decreased again compared to the same week in 2019, like in weeks 38, 39, 40, 41, 42, 43 and 47. These figures seem to indicate a tendency for the EU flagged traffic to pick-up to a standard behaviour.

The analysis per flag is shown in Table 6. The last column compares the number of port calls (worldwide) reported between weeks 12 (i.e. mid-March) and 48 in 2019 with the ones reported in the same weeks in 2020. A reduction in the number of port calls (worldwide) is observed for almost all the EU-MS flagged fleets; the highest decreases in traffic (in percentage terms, in the period within weeks 12 and 49) are observed for ships flying the flags of Croatia and Spain.

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Country of flag	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	12-49
Belgium	-24%	-24%	-45%	-47%	-44%	5%	-4%	-30%	-23%	-10%	-27%	-46%	-28%	-34%	-30%	-46%	-27%	-29%	-33%	-24%	-34%	-40%	-26%
Bulgaria	-28%	-43%	-41%	-40%	-46%	-52%	-41%	-24%	-34%	24%	-34%	-38%	-22%	29%	-26%	-9%	12%	-41%	81%	-3%	-14%	-34%	-25%
Croatia	-64%	-66%	-63%	-57%	-60%	-55%	-45%	-49%	-51%	-52%	-54%	-50%	-54%	-53%	-58%	-49%	-33%	-32%	-21%	-24%	-28%	-30%	-59%
Cyprus	-22%	-25%	-18%	-20%	-18%	-23%	-18%	-20%	-16%	-18%	-15%	-14%	-12%	-14%	-3%	-9%	-14%	-19%	-19%	-7%	-11%	-16%	-17%
Denmark	11%	26%	34%	31%	33%	39%	25%	27%	26%	48%	44%	26%	25%	39%	27%	19%	14%	17%	27%	14%	14%	16%	17%
Estonia	-12%	8%	-18%	4%	25%	13%	11%	-25%	-12%	2%	19%	9%	27%	6%	-14%	-18%	20%	-3%	5%	-25%	-22%	-7%	-12%
Finland	0%	-1%	-7%	-7%	-4%	3%	-3%	-3%	-10%	-1%	-8%	-3%	-4%	-13%	-11%	-11%	3%	-6%	-2%	-3%	13%	2%	-6%
France	-32%	-29%	-29%	-22%	-23%	-22%	-25%	-30%	-24%	-26%	-27%	-27%	-23%	-25%	-28%	-23%	-10%	-20%	-21%	-25%	-20%	-21%	-33%
Germany	-11%	8%	6%	6%	7%	20%	9%	-3%	5%	-2%	4%	15%	2%	8%	-5%	0%	3%	-12%	-16%	-11%	-8%	-9%	-9%
Greece	-27%	-18%	-8%	-9%	-3%	-5%	-10%	-2%	-11%	-10%	-22%	-13%	-8%	-8%	0%	-4%	10%	-9%	-18%	-15%	-14%	-8%	-20%
Iceland	-35%	-55%	-32%	-7%	-31%	-1%	-41%	-38%	-61%	-53%	-52%	-62%	-59%	-70%	-65%	-54%	-65%	-61%	-48%	-32%	-52%	-63%	-31%
Ireland	2%	3%	-26%	14%	-22%	-28%	32%	-7%	34%	14%	-22%	8%	-23%	-15%	6%	-8%	-8%	-38%	17%	-4%	-9%	-40%	-1%
Italy	-23%	-16%	-10%	7%	-11%	34%	4%	-1%	-1%	-6%	-4%	-21%	-20%	-11%	-13%	-8%	-3%	2%	0%	-16%	-16%	-23%	-23%
Latvia	-33%	-29%	-37%	-18%	-51%	3%	-62%	-32%	-50%	-44%	-42%	-48%	-22%	-39%	-14%	-41%	-42%	-41%	-29%	-29%	-31%	-42%	-33%
Lithuania	-25%	-14%	-31%	-36%	-14%	-28%	-1%	-20%	-7%	-24%	-15%	-21%	-19%	-31%	-25%	-25%	-23%	-19%	-7%	-14%	-34%	-19%	-18%
Luxembourg	-23%	-34%	-18%	-37%	-30%	-3%	-35%	-31%	-37%	-12%	-29%	-39%	19%	16%	-33%	-50%	-43%	-38%	-21%	63%	83%	-18%	-11%
Malta	-21%	-23%	-18%	-15%	-22%	-37%	-17%	-9%	-20%	-13%	-27%	-22%	-29%	-26%	-29%	-21%	-24%	-23%	-23%	-30%	-15%	-19%	-20%
Netherlands	-1%	-6%	-9%	-6%	-6%	-21%	-7%	4%	-7%	-9%	-7%	-11%	-8%	-12%	-3%	-8%	3%	-6%	-8%	-9%	-1%	-8%	-7%
Norway	20%	24%	41%	48%	43%	-3%	40%	42%	39%	38%	41%	33%	36%	36%	39%	40%	48%	44%	49%	51%	48%	60%	30%
Poland	-46%	-45%	-61%	-52%	-54%	40%	-49%	-50%	-12%	9%	11%	11%	-30%	223%	25%	48%	194%	206%	194%	231%	105%	174%	-26%
Portugal	4%	15%	9%	6%	-2%	-22%	12%	15%	16%	15%	5%	5%	2%	7%	-4%	7%	14%	21%	12%	5%	15%	-11%	4%
Romania	33%	-14%	-78%	-80%	-90%	18%	-100%	-60%	-83%	-50%	-50%	-47%	-50%	0%	100%	-45%	-83%	-77%	-82%	33%	200%	-100%	-25%
Spain	-29%	-37%	-29%	-23%	-33%	-58%	-21%	-26%	-30%	-22%	-27%	-33%	-33%	-30%	-31%	-20%	-28%	-33%	-30%	-32%	-31%	-34%	-40%
Sweden	-1%	5%	14%	14%	11%	-17%	22%	16%	14%	9%	13%	18%	29%	20%	18%	22%	21%	22%	31%	21%	21%	14%	7%
United Kingdom	-4%	-4%	4%	4%	3%	10%	8%	23%	11%	13%	11%	11%	13%	11%	16%	6%	7%	7%	9%	-5%	3%	2%	-6%

Table 6: Variation between 2019 and 2020 (weeks 28-49) in the number of port calls (worldwide) by flag (in red weeks for which a decrease was detected)

## 4.2 Statistics per ship type

EMSA analysed the variation between 2019 and 2020 in the total number of port calls (worldwide) by EU-MS flagged vessels by ship type and week. The vessels have been grouped following the ship type aggregation. 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.

Ship type	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	12-49
Bulk carrier	0%	-21%	4%	6%	8%	-20%	-19%	3%	-24%	3%	2%	-7%	-21%	-22%	-22%	-2%	-1%	8%	-6%	-3%	20%	-2%	-3%
Chemical tanker	-20%	-21%	-27%	-13%	-24%	-16%	-5%	-9%	-24%	-19%	-20%	-27%	-27%	-26%	-24%	-26%	-19%	-26%	-24%	-30%	-25%	-20%	-18%
Containership	-16%	-22%	-25%	-26%	-26%	-20%	-24%	-25%	-21%	-25%	-31%	-21%	-19%	-17%	-21%	-27%	-20%	-19%	-21%	-21%	-17%	-26%	-20%
Cruise ships	-83%	-83%	-82%	-81%	-83%	-82%	-83%	-84%	-84%	-84%	-81%	-85%	-78%	-84%	-85%	-84%	-84%	-85%	-82%	-86%	-82%	-83%	-83%
General cargo	-10%	-17%	-20%	-23%	-24%	-18%	-18%	-9%	-16%	-18%	-21%	-15%	-13%	-18%	-18%	-21%	-8%	-20%	-17%	-13%	-10%	-17%	-13%
Liquified gas tanker	-36%	-27%	-28%	-26%	-17%	-4%	-14%	-28%	-23%	-24%	-32%	-42%	-21%	-5%	3%	-21%	-19%	-39%	-39%	-19%	0%	-5%	-20%
Oil tanker	-21%	-21%	-23%	-29%	-36%	-20%	-28%	-16%	-29%	-27%	-34%	-30%	-29%	-33%	-40%	-32%	-26%	-36%	-27%	-36%	-34%	-35%	-30%
Passenger	-18%	-1%	9%	15%	9%	17%	19%	14%	17%	20%	16%	8%	5%	19%	24%	34%	34%	46%	50%	32%	31%	18%	-5%
Refrigerated cargo	-33%	0%	-36%	-10%	-40%	-34%	-46%	-18%	-13%	-3%	3%	-21%	7%	-7%	-13%	34%	-15%	15%	18%	-7%	-2%	-5%	-6%
Ropax	1%	8%	18%	24%	20%	27%	22%	22%	24%	28%	27%	23%	24%	26%	26%	27%	28%	29%	30%	25%	25%	30%	8%
Ro-Ro cargo	-12%	-20%	-6%	-9%	-10%	1%	-5%	4%	0%	-3%	-2%	-17%	-1%	-3%	-1%	1%	-8%	-10%	-15%	-19%	-12%	-15%	-11%
Vehicle carrier	-50%	-40%	-51%	-46%	-50%	-44%	-49%	-40%	-40%	-43%	-29%	-17%	-33%	-25%	-26%	-34%	-40%	-46%	-38%	-47%	-44%	-42%	-41%

Table 7: Variation between 2019 and 2020 (weeks 28-49) of ship calls (worldwide) of EU-MSs flagged vessels, by ship type

Starting from the second half of March 2020, a reduction in activities (in terms of calls at any port in the world) compared to 2019 has been seen, especially for some ship types, such as cruise and vehicle carriers (see last column of **Table 7**). While all EU flagged ship types experienced reductions in calls worldwide since the 2<sup>nd</sup> half of March, major variations compared with equivalent periods in 2019 can be observed for cruise and vehicle carriers. Since week 30 the number of port calls (worldwide) from EU flagged Passenger ships has shown an increase in comparison to the same weeks in 2019; similarly, starting from week 28, 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.

## 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 in comparison with 2019. 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 segregated 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 2020 and 2019, since any inaccuracies affect the calculations of both years in the same way.

### 5.2 General picture between Europe and China/US

From the number of port calls, it appears that in certain periods, particularly during March, April and May 2020, ship traffic from Europe to China and the US reduced in comparison to the same periods in 2019. However, to better set the scene, and before looking at the weekly evolution of port calls, it is important to first compare the overall calls made up until week 49 (30 November – 06 of December 2020) with the figures for the same period in 2019, in order to see the broader picture and get an indication of the external EU shipping trade (i.e. from and to China and the US).

The analysis of the traffic from China to Europe is reduced by 40.3%, while from Europe to China, there is a more significant decrease of 51.9%. There is a general decrease in the number of port calls from China to EU ports from March 2020 onwards, however, in January 2020 the EU ports received more calls from China when compared to January 2019. This is perceived in all ship's types and not limited to a certain type of ship.

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<sup>4</sup>. 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.

A decrease of 32.2% in port calls by ships travelling from Europe to the US was observed and the number of port calls from the US to Europe decreased by 38.0%. Table 8 shows the number of EU - China and EU – US ship calls in 2019 and 2020 (weeks 1-49).

The number of port calls decreased for both destinations and directions in March, April and May 2020 compared to January and February 2020, with signs of slight improvement in July and August 2020. This is especially evident for calls in China by ships coming from ports in Europe.

Port calls in Europe by ships coming from ports in China increased during the first two months of 2020 when compared with 2019. A reduction started in week 9 (end February) with an exception in weeks 15 and 16 (this might not be correct due to the methodological limitations).

<sup>4</sup> <http://www.europarl.europa.eu/factsheets/en/sheet/160/a-uniao-europeia-e-os-seus-parceiros-comerciais>

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Week	CHINA TO EU		EU TO CHINA	
	2019	2020	2019	2020
1	1,019	1,245	428	587
2	1,012	1,485	596	630
3	986	1,444	643	566
4	919	1,270	447	436
5	1,054	1,134	393	471
6	1,189	687	393	471
7	1,113	1,362	442	276
8	1,076	1,201	551	302
9	1,211	1,042	491	269
10	918	773	566	195
11	691	705	501	265
12	932	1,010	469	396
13	1,186	613	350	276
14	1,130	761	413	304
15	1,218	1,484	418	239
16	1,115	1,132	447	234
17	1,021	814	512	173
18	948	748	565	94
19	1,004	445	451	99
20	1,152	319	397	114
21	1,118	287	416	109
22	1,136	382	484	76
23	950	282	443	96
24	1,036	333	558	103
25	994	503	358	111
26	1,066	785	534	126
27	1,110	392	432	114
28	1,039	468	517	160
29	961	382	358	129
30	967	364	431	127
31	1,109	363	464	110
32	859	307	418	194
33	912	288	508	125
34	818	261	414	116
35	906	266	500	142
36	703	325	406	143
37	1,035	452	439	170
38	1,061	289	474	114
39	898	283	353	126
40	1,073	283	282	95
41	1,153	292	355	224
42	1,001	268	339	168
43	923	376	264	296
44	968	289	363	205
45	645	257	354	139
46	730	215	400	101
47	827	245	443	111
48	1,015	285	247	105
49	1,219	119	346	56
Total	<b>49,126</b>	<b>29,315</b>	<b>21,373</b>	<b>10,288</b>
Variation		<b>-40.3%</b>		<b>-51.9%</b>

Year	2019	2020	
<b>Total</b>	70,499	39,603	<b>-43.8%</b>

Week	USA TO EU		EU TO USA	
	2019	2020	2019	2020
1	43	24	21	19
2	44	54	29	28
3	64	35	40	26
4	39	48	30	27
5	35	83	32	39
6	32	33	44	26
7	40	39	22	26
8	39	49	19	21
9	36	40	12	40
10	35	40	36	43
11	86	72	46	41
12	66	56	39	74
13	53	37	54	46
14	42	34	90	53
15	40	28	41	43
16	71	9	51	45
17	41	30	46	14
18	76	6	57	18
19	58	19	73	20
20	74	22	52	22
21	54	11	63	24
22	110	11	43	16
23	49	37	58	70
24	61	15	45	67
25	35	35	64	43
26	54	37	100	41
27	67	27	45	47
28	46	48	63	105
29	82	42	63	27
30	60	22	94	22
31	85	51	59	27
32	94	32	77	28
33	80	61	77	36
34	71	32	65	53
35	47	57	84	22
36	65	31	42	33
37	79	49	54	53
38	165	96	76	37
39	63	12	46	22
40	69	29	61	24
41	62	29	43	42
42	59	62	55	47
43	43	18	79	51
44	24	23	65	19
45	35	12	56	11
46	55	18	59	25
47	42	82	48	24
48	34	27	45	56
49	49	5	38	21
Total	<b>2,853</b>	<b>1,769</b>	<b>2,601</b>	<b>1,764</b>
Variation		<b>-38.0%</b>		<b>-32.2%</b>

Year	2019	2020	
<b>Total</b>	5,454	3,533	<b>-35.2%</b>

Table 8: Number of port calls per week between EU and China and between EU and US in 2019 and 2020 (weeks 1-49)

### 5.3 Trade between China and Europe by ship type

The main ship types engaged in trade between Europe and China were container ships, vehicle carriers, general cargo, gas carriers and bulk carriers.

Table 9 shows the total number of port calls per ship type from China to Europe and vice versa for 2019 and 2020 (comparing the equivalent period from week 1 to week 49).

Ship type	CHINA TO EUROPE		Var (%)	EUROPE TO CHINA		Var (%)
	2019	2020		2019	2020	
Containerships	46,504	27,495	-40.9%	16,825	7,213	-57.1%
Vehicle carriers	1,481	885	-40.2%	3,355	1,387	-58.7%
General cargo	357	469	31.4%	189	655	246.6%
Gas carriers	212	137	-35.4%	371	439	18.3%
Bulk Carriers	226	156	-31.0%	399	399	0.0%

**Table 9:** Port calls per ship type between EU and China in 2019 and 2020 (period from week 1 to week 49).

The number of ship calls from EU to China increased for general cargo ships, gas carriers, for bulk carriers the difference is for the first time null (equal number of port calls in both years) and decreased by 58.7% for vehicle carriers and by 57.1% for container ships, which represent the most important type of ship used for trading goods between China and Europe (as shown in the table, the number of calls for container ships is substantially higher compared to the other ship types). In the opposite direction, that is from China to Europe the reduction in the number of port calls for containerships has registered a slighter reduction of 40.9% and of 40.2% for vehicle carriers.

### 5.4 Trade between US and Europe by ship type

The most relevant ship types engaged in trade between Europe and the US are container ships and vehicle carriers. Contrary to the trade with China, for containerships, the impact is higher on incoming voyages from the US and lower on outgoing voyages from Europe to the US.

Table 10 shows that the number of port calls by container ships dropped 38.1% from United States to Europe and only 19.6% from Europe to the US. Even though less significant in terms of volume of port calls, Vehicle carriers are the ship type showing the highest reduction in the number of port calls from Europe to the United States (73.1%). In the opposite direction the reduction is of 42.5%.

Ship type	USA TO EUROPE		Var (%)	EUROPE TO USA		Var (%)
	2019	2020		2019	2020	
Containerships	1,521	941	-38.1%	1,649	1,325	-19.6%
Vehicle carriers	588	338	-42.5%	413	111	-73.1%

**Table 10:** Port calls per ship type between EU and the US in 2019 and 2020 (period from week 1 to week 49)

As presented in the last full report, in order to better analyze the time trend of the traffic between EU and these two important destinations for the shipping transport, see below the graphs representing the evolution of such traffic (measured in terms of “number of port calls”) over the past 6 months. In order to use data as much stable as possible, the number of port calls for the past 2 weeks (weeks 47 and 48) is not included in this monthly analysis (sequences of 4-week periods) as we receive updates from the data provider in the following weeks that may change significantly the numbers for the more recent weeks. Therefore, the data represented below covers the months from May to mid-November (week 19 to week 46). This data will be refreshed in the next full report.



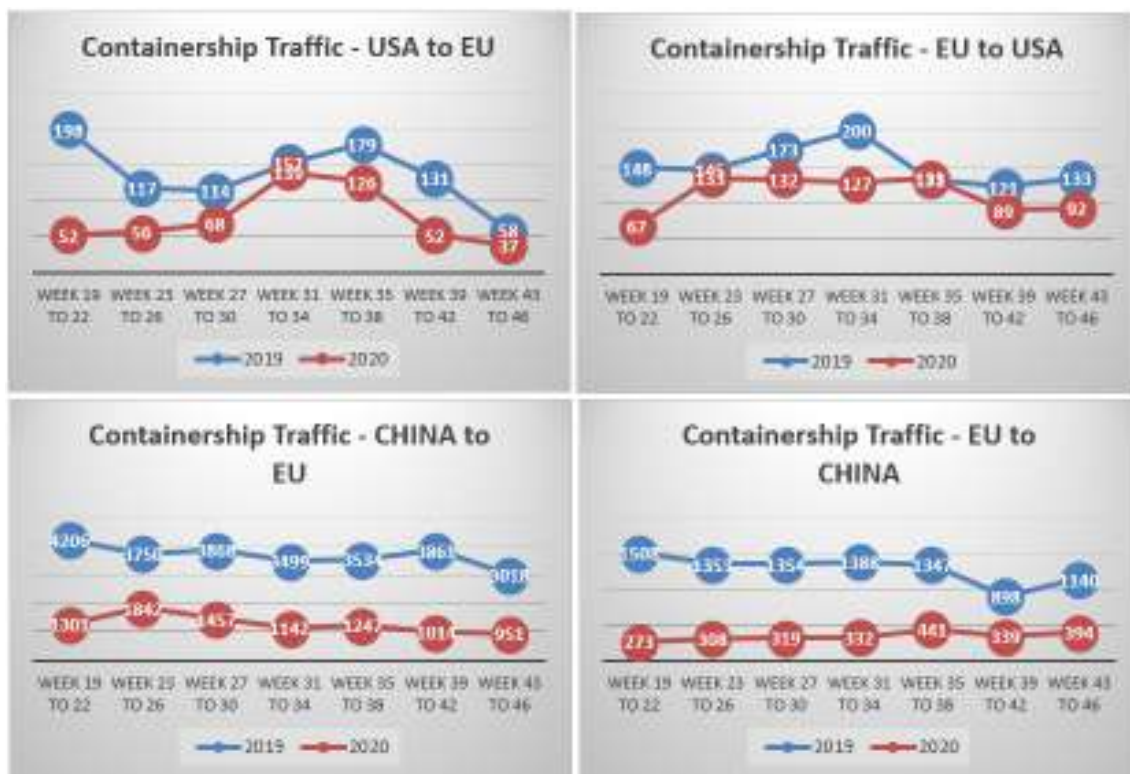


Figure 2: Trend between EU and China/USA traffic for containerships (weeks 19 to 46)

For the containership sector, the traffic with the United States after having almost stabilized (reaching values closer to the observed values in 2019) continues aligned in 2020 with the observed trend from 2019 (dropping in the USA-EU direction and slightly increasing in the EU-USA direction).

The traffic between EU and China is taking longer to uptake to the values observed in 2019. To note that the variations seen in 2020 are in general aligned with similar variations happening in 2019, therefore not COVID-19 related, only the difference in volume is explained by the pandemia.

## 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, as major USA cruise lines are on an operational pause until at least 31 December 2020, bound by the Cruise Lines International Association (CLIA) decision.

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

### 6.1 Cruise ship calls

In March, 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:

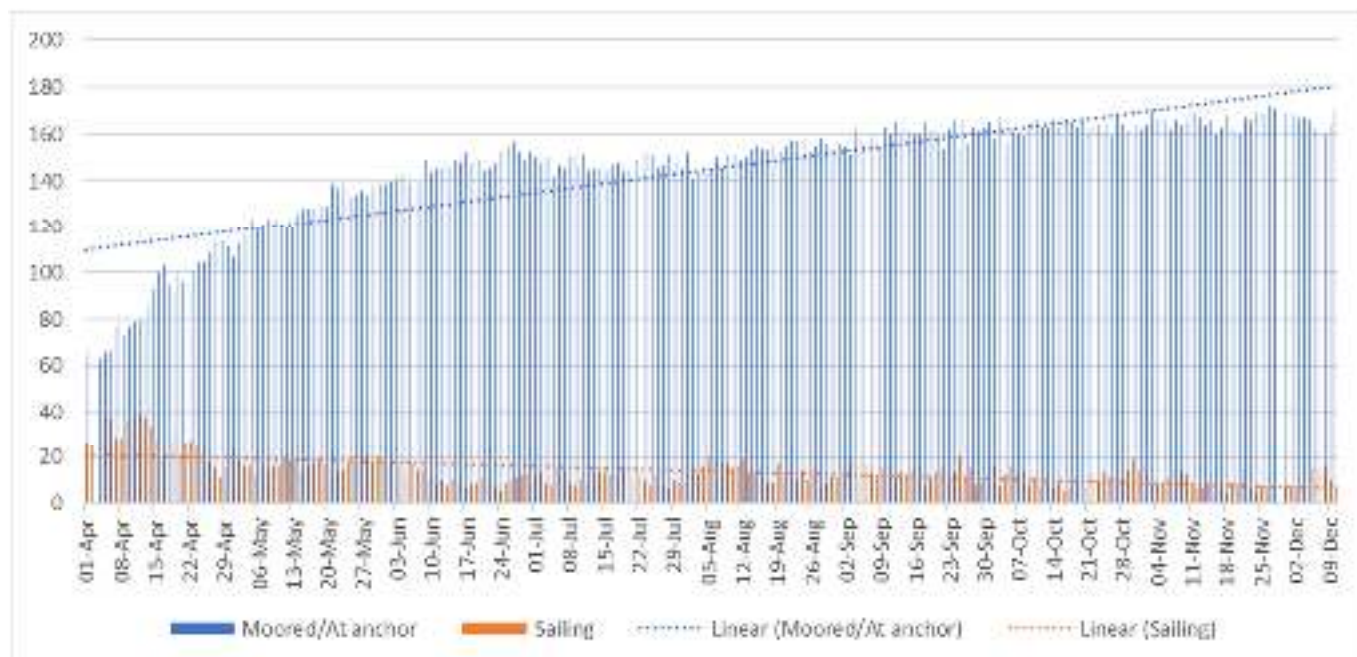


Figure 3: Cruise ships moored/at anchor and sailing in and around EU waters (1 April 2020 – 10 December 2020)

The figures show a growing number of cruise ships bound for EU ports and staying at ports or anchorages. The destinations are mainly ports in the Canary Islands, Germany, the Mediterranean, Portugal and the UK.

## 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<sup>5</sup>, 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 4, 5 and 6). The figures show the PoB per week during 2019 (in blue) and 2020 (in orange).

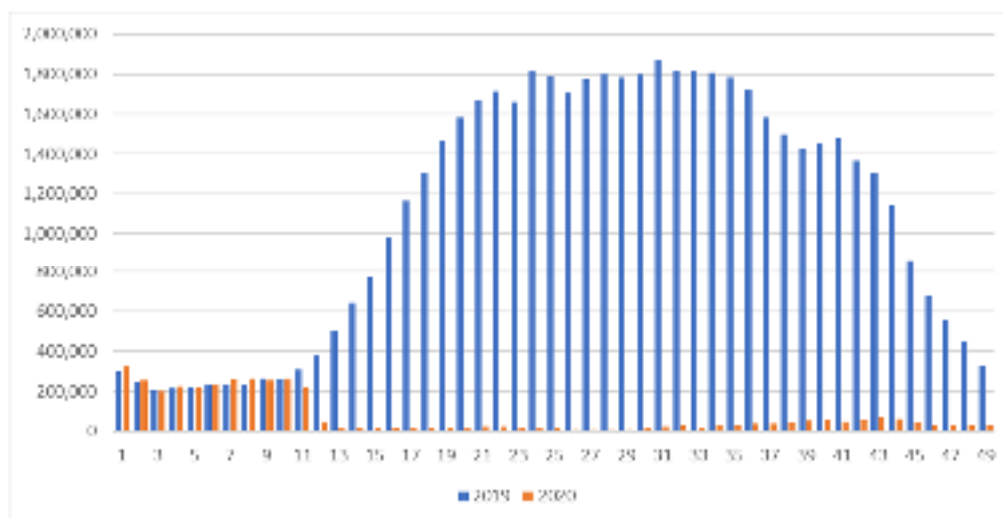


Figure 4: Persons on Board cruise ships

<sup>5</sup> The PoB is used in SSN to report the total number of passengers and crew.



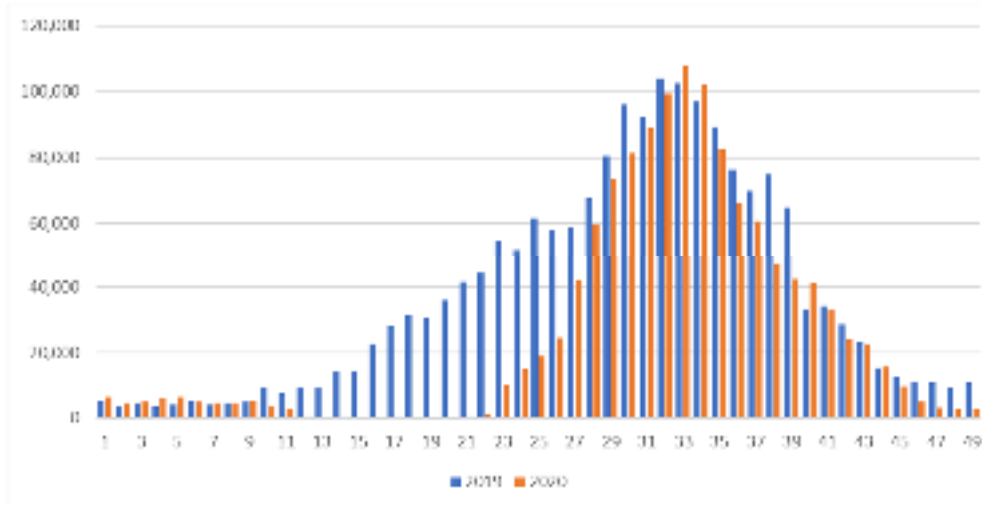


Figure 5: Persons on Board passenger ships

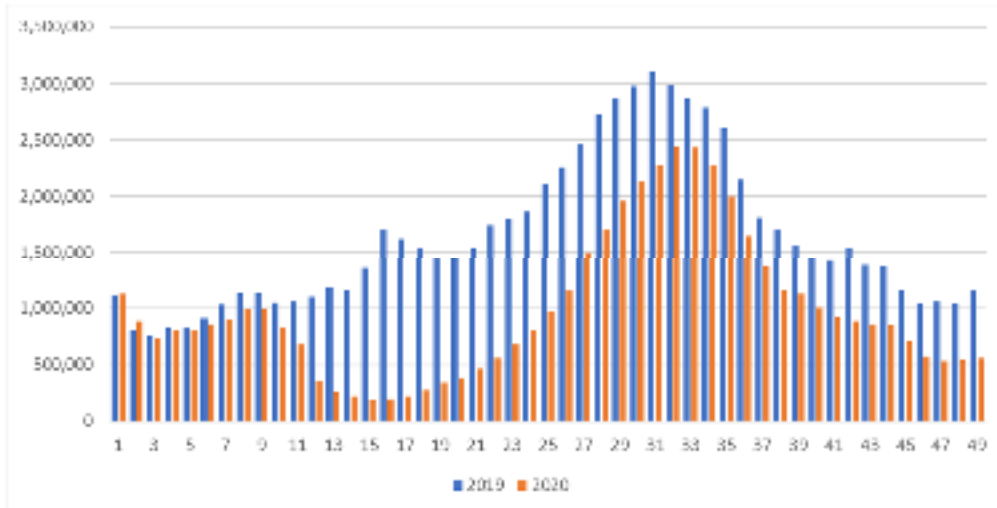


Figure 6: Person on Board Ro-Ro/Passenger ships

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 the beginning of March (around week 10). 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.

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 figures below show traffic density map for all ships, tankers, cargo vessels, and passenger ships in European waters in November 2019 and November 2020. The main conclusion is that traffic in and around EU waters was not heavily affected apart from passengers' ships.

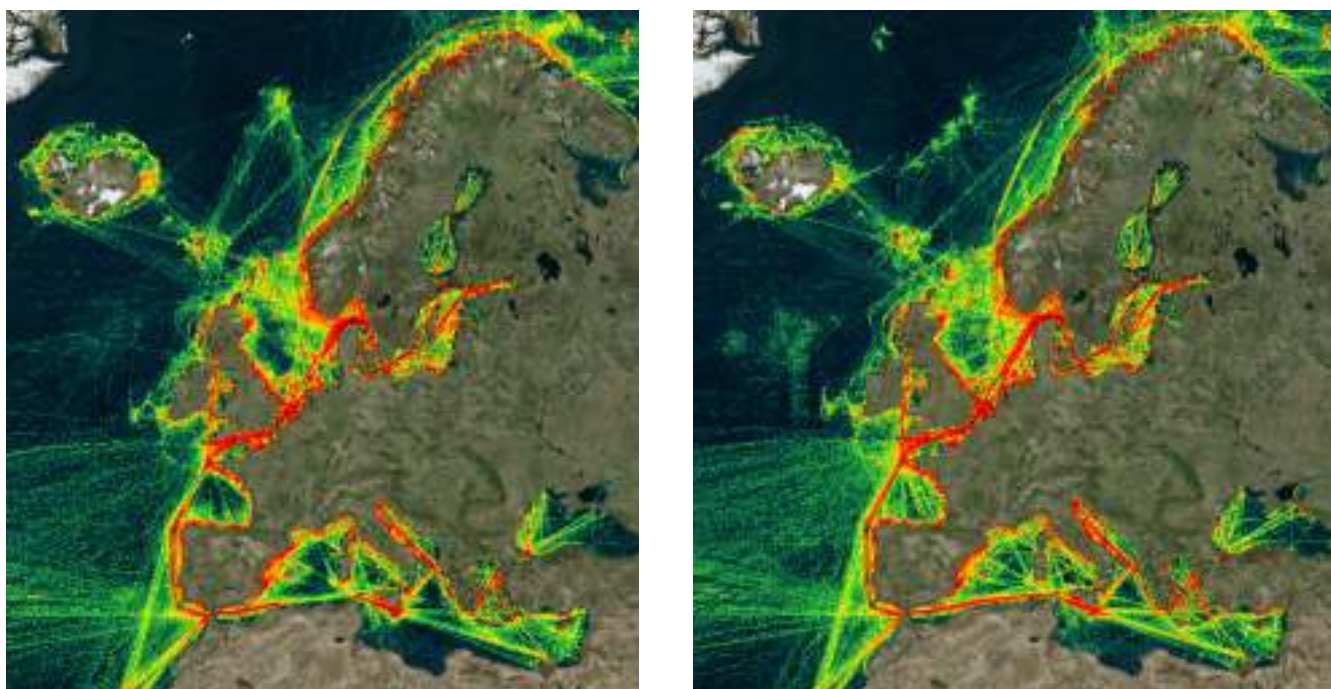


Figure 7: All ship types: ship traffic density in November 2019 (left) and in November 2020 (right)

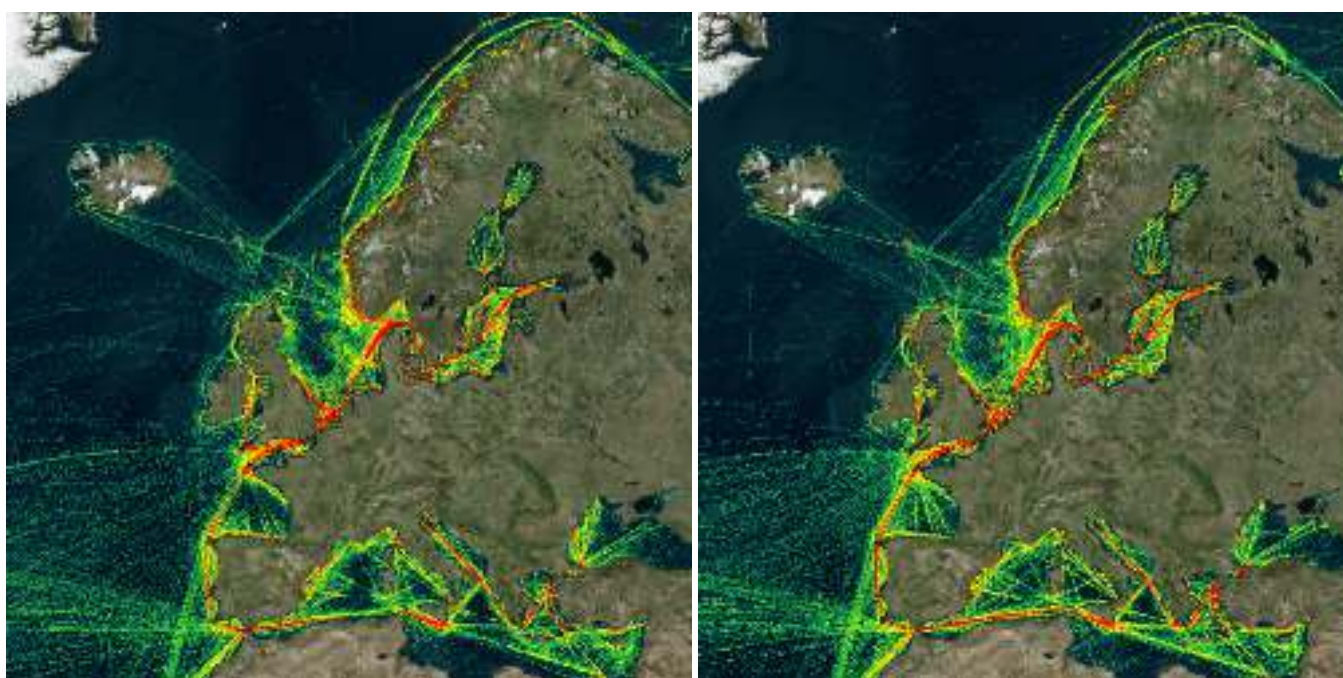
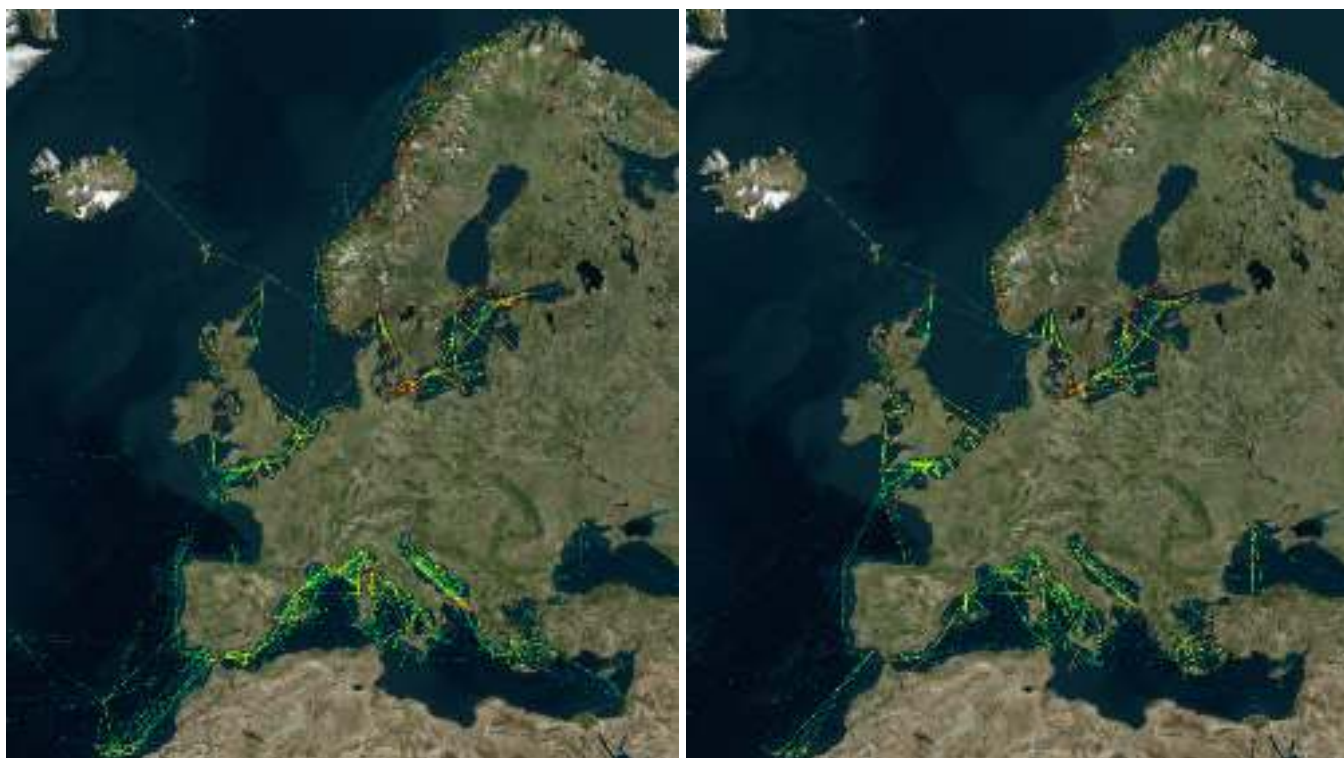
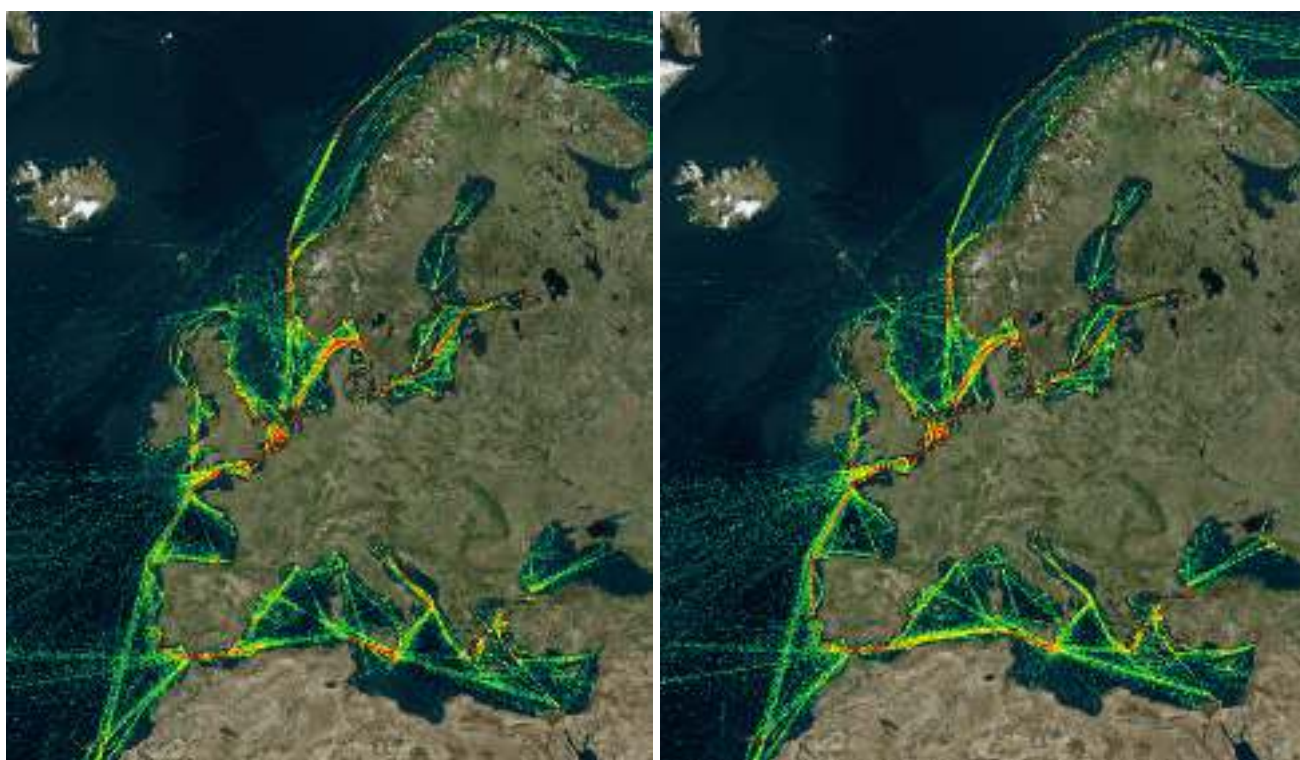


Figure 8: Cargo vessels: ship traffic density in November 2019 (left) and in November 2020 (right)





**Figure 9:** Passenger ships: ship traffic density in November 2019 (left) and in November 2020 (right)



**Figure 10:** Tankers: ship traffic density in November 2019 (left) and in November 2020 (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 the first 49 weeks of 2019 (blue color) and 2020 (orange color):

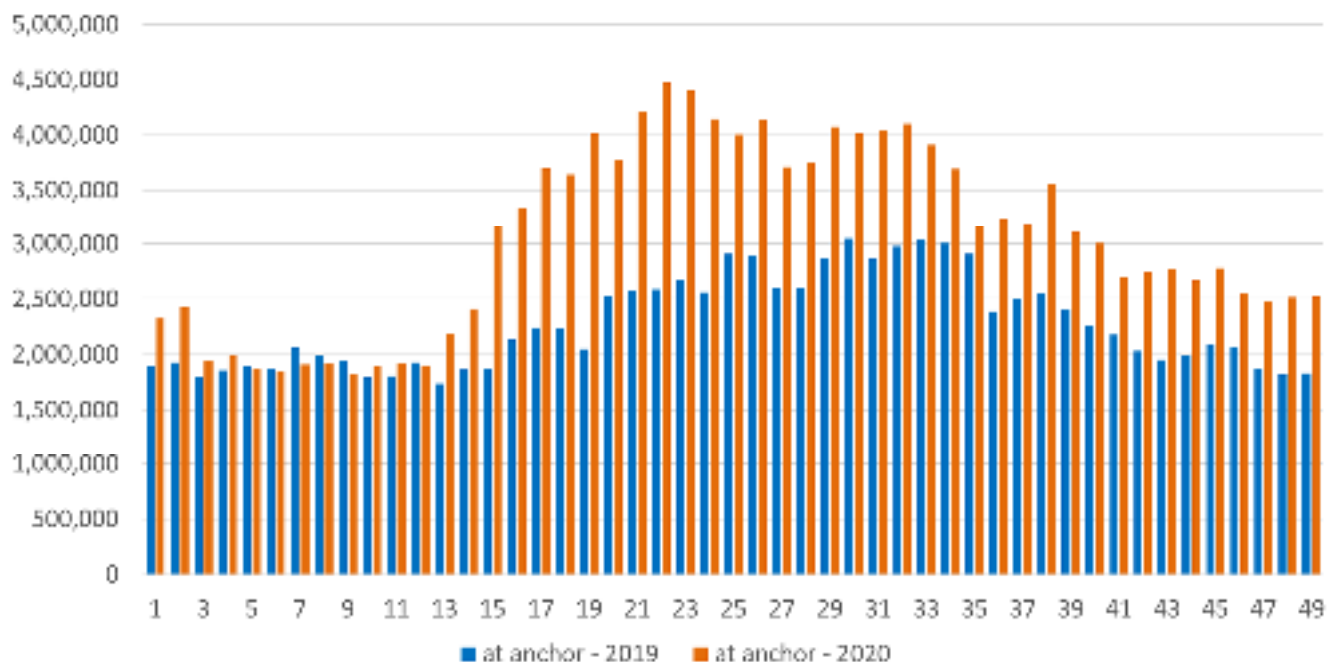


Figure 11: AIS data reports reporting navigational status “at anchor” in and around EU waters in 2019 and 2020 (weeks 1 to 49)

The graph shows that, from week 13, there is an increase of number of AIS reports indicating navigational status “at anchor” in comparison with 2019.

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