European Maritime Safety Agency

COVID-19 – impact on shipping

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EMSA

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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 during April, May, June, July and August 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[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 15.5% in the first 34 weeks of 2020 compared to the same period in the previous year. The number of ships calls in week 34 only (17 August – 23 August) declined by 9.4% compared to the same week in 2019. The most significantly affected sectors have been the Cruise ships, Passenger ships and Vehicle carriers. Meanwhile, the number of Chemical Tankers ship calls increased in comparison with 2019 and the numbers for Bulk carriers, Containerships, General cargo, Oil tankers and Ro-Ro ships had only small decrease (up to 10%).

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.

The EMSA report analyses also the impact of the EU flag ships to the ship calls in any port of the world by processing data from MARINFO for 2019 and 2020. While EU flagged ship experienced a small decline of port calls worldwide during the first half of April, the major decline was again observed for cruise, passenger, Ropax vessels and vehicle carriers. In the past weeks EU flagged Ropax traffic shows a positive trend in terms of number of port calls (worldwide), compared with the same period in 2019; similarly, in the last weeks, port calls (worldwide) from EU flagged passenger ships show an increase in comparison to the same week 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. During March, April, May, June and July 2020, the ship traffic from Europe to China and the US has declined when compared to same periods in 2019. Comparing weeks 1-34 in 2019 and 2020 there is a significant decrease of 49.1% from Europe to China, the traffic flow from China to Europe showed a decrease of 28.6%. Comparing the same period of 2019 and 2020 for the traffic between Europe to the US a decline of 28.2% was measured while for the routes between the US to Europe the decline was even more significant reaching to 38.3%. 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 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 (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.

[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 and 2020 (up to week 34). 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[3]. The ship types have been retrieved from the MARINFO database based on IMO numbers reported to SSN.

3.1 General statistics

During the first 34 weeks of 2019, there were 581,752 ship calls at EU ports, and in the same period in 2020 there were 491,852 calls. The number of calls decreased by 15.5% 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)	12091	12098	0%
2	13865	13861	0%
3	14322	13863	-3%
4	14323	14427	1%
5	14212	14568	3%
6	14513	14370	-1%
7	14739	13388	-9%
8	14938	13707	-8%
9	15137	14677	-3%
10	14857	14757	-1%
11	14423	14513	1%
12 (16/03 - 22/03)	15680	12963	-17%
13	15815	12417	-21%
14	16458	12234	-26%
15	16609	11273	-32%
16	16208	11166	-31%
17	16590	11795	-29%
18	17313	12070	-30%
19	17810	12702	-29%
20	17849	12659	-29%
21	18316	12933	-29%
22	18430	13252	-28%
23	19129	13995	-27%
24	19240	14687	-24%
25	19629	15539	-21%
26	19664	16114	-18%
27	19779	16741	-15%
28	20215	17289	-14%
29	20006	17593	-12%
30	20053	17796	-11%
31	20257	18024	-11%
32	19825	18133	-9%
33	19547	18204	-7%
34 (17/08 - 23/08)	19910	18044	-9%

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

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:

[3] The ISO-8601-week date standard was used where Monday is the first day of the week and Sunday the final day.

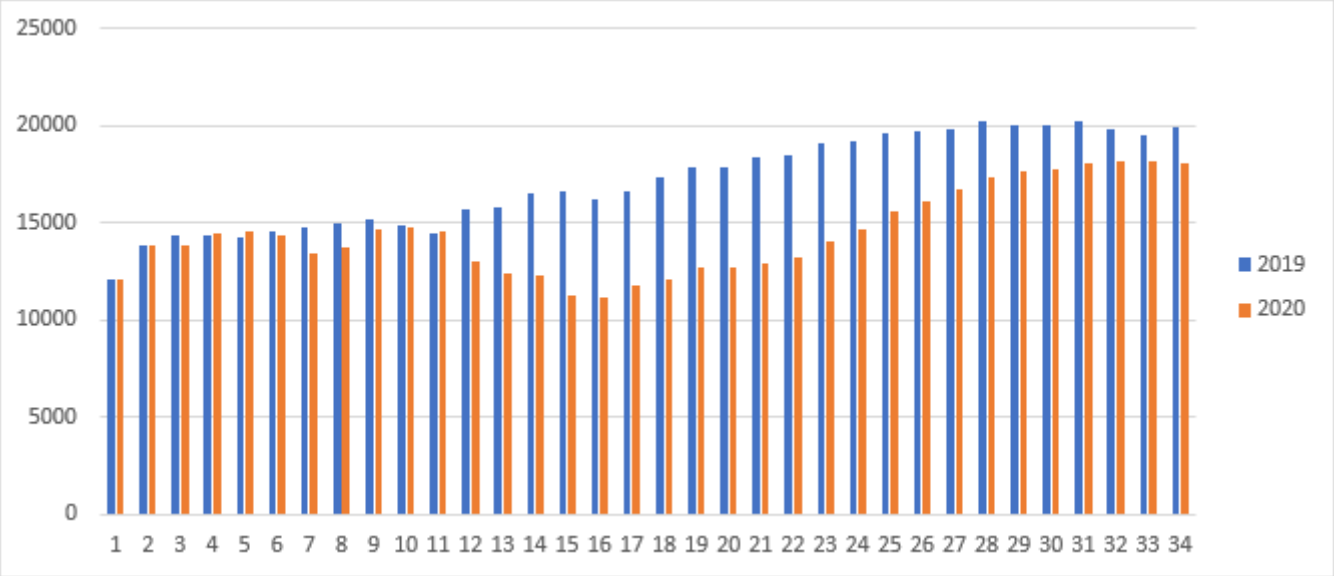

Figure 1: Ship calls reported to SSN in 2019 and 2020 per week

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	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**22-34**
Bulk carrier	-5%	-8%	-8%	4%	-6%	1%	0%	-9%	-6%	0%	-6%	7%	-6%	-3%
Chemical tanker	28%	36%	21%	29%	-4%	18%	11%	2%	-5%	-18%	-11%	-28%	16%	5%
Containership	-11%	-9%	-13%	-9%	-8%	-5%	-10%	-7%	-6%	-4%	-5%	-6%	-4%	-7%
Cruise ships	-95%	-94%	-96%	-94%	-94%	-94%	-92%	-93%	-92%	-89%	-90%	-89%	-88%	-92%
General cargo	-8%	-14%	-8%	-8%	-7%	-9%	-12%	-7%	-4%	-4%	-4%	-5%	-6%	-7%
Liquified gas tanker	-12%	-23%	-6%	-11%	-5%	-14%	-14%	-13%	-3%	3%	-7%	-16%	-1%	-10%
Oil tanker	-3%	-6%	-8%	-1%	-4%	-3%	-6%	-2%	-4%	-7%	3%	-5%	-5%	-4%
Passenger	-91%	-79%	-72%	-69%	-58%	-39%	-27%	-30%	-28%	-25%	-25%	-25%	-24%	-44%
Ro-Ro passenger	-31%	-23%	-16%	-13%	-8%	-4%	-1%	1%	-1%	-1%	2%	7%	4%	-6%
Ro-Ro cargo	-11%	-17%	-16%	-12%	-13%	-9%	-9%	-3%	-5%	-7%	-9%	6%	-4%	-9%
Vehicle carrier	-47%	-46%	-43%	-36%	-28%	-29%	-26%	-33%	-20%	-12%	-18%	-26%	-23%	-30%
Grand Total	**-27%**	**-26%**	**-22%**	**-19%**	**-16%**	**-13%**	**-12%**	**-10%**	**-10%**	**-9%**	**-8%**	**-6%**	**-8%**	**-14%**

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 22 and 34 reported in 2019 and in 2020, it was found that cruise ships, passenger ships and vehicle carriers 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	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**22-34**
Belgium	-12%	-16%	-18%	-13%	-4%	-2%	-10%	-10%	-10%	-6%	6%	-8%	-11%	-9%
Bulgaria	-12%	-24%	-8%	-18%	-10%	-9%	-24%	-30%	-33%	27%	-6%	14%	-33%	-15%
Croatia	-86%	-89%	-87%	-83%	-80%	-77%	-76%	-72%	-65%	-57%	-54%	-57%	-64%	-73%
Cyprus	7%	27%	-21%	15%	-18%	-18%	-3%	-26%	-15%	7%	0%	22%	15%	-3%
Denmark	8%	-3%	3%	4%	12%	-8%	-5%	8%	1%	-6%	10%	12%	23%	4%
Estonia	-18%	-17%	-13%	-6%	-19%	-11%	-20%	-11%	-15%	-7%	-8%	2%	-9%	-12%
Finland	-28%	-29%	-27%	-25%	-27%	-25%	-25%	-19%	-20%	-17%	-18%	-17%	-20%	-23%
France	-35%	-39%	-34%	-28%	-27%	-27%	-24%	-24%	-17%	-21%	-16%	-20%	-19%	-25%
Germany	-23%	-22%	-20%	-18%	-17%	-17%	-16%	-15%	-16%	-14%	-15%	-5%	-11%	-16%
Greece	14%	39%	59%	44%	51%	64%	73%	71%	69%	76%	87%	77%	85%	64%
Iceland	-66%	-55%	-69%	-60%	-55%	-47%	-72%	-49%	-61%	-65%	-57%	-40%	-55%	-58%
Ireland	-12%	-18%	-24%	-19%	-15%	-13%	-9%	-3%	-11%	-2%	1%	-14%	-18%	-12%
Italy	-31%	-37%	-31%	-22%	-21%	-19%	-21%	-19%	-18%	-17%	-18%	-8%	-19%	-21%
Latvia	-16%	-8%	2%	-2%	-17%	-13%	-11%	-2%	-18%	-4%	-9%	-13%	0%	-9%
Lithuania	-22%	-7%	11%	-1%	-12%	0%	-7%	-4%	3%	-15%	-1%	-5%	1%	-5%
Malta	-14%	-18%	-27%	-15%	-20%	-24%	-19%	-26%	-20%	-16%	-30%	-23%	-9%	-20%
Netherlands	-7%	-16%	-16%	-12%	-14%	-4%	-15%	-6%	-3%	-8%	-5%	-3%	-8%	-9%
Norway	-36%	-31%	-28%	-31%	-29%	-25%	-27%	-25%	-27%	-22%	-28%	-20%	-11%	-26%
Poland	-12%	-29%	-29%	-19%	-21%	1%	-17%	-18%	-12%	-12%	-16%	-8%	-20%	-17%
Portugal	-23%	-36%	-41%	-34%	-30%	-35%	-37%	-21%	-24%	-18%	-16%	-22%	-21%	-28%
Romania	-17%	-4%	-2%	-4%	-20%	-1%	-22%	15%	-30%	-2%	-9%	-6%	-2%	-9%
Slovenia	0%	-24%	-28%	-24%	-50%	-36%	-43%	-47%	-31%	-38%	-38%	-25%	-31%	-34%
Spain	-55%	-54%	-51%	-47%	-39%	-36%	-33%	-33%	-34%	-34%	-34%	-29%	-34%	-39%
Sweden	-19%	-18%	-18%	-16%	-11%	-19%	-19%	-15%	-15%	-29%	-27%	-16%	-16%	-18%
United Kingdom	-31%	-27%	-27%	-23%	-18%	-21%	-16%	-15%	-10%	-17%	-9%	-17%	-18%	-19%
Grand Total	**-28%**	**-27%**	**-24%**	**-21%**	**-18%**	**-15%**	**-14%**	**-12%**	**-11%**	**-11%**	**-9%**	**-7%**	**-9%**	**-16%**

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 22 and 34 in 2019 with the ones reported in the same weeks in 2020 (week 22 in 2020 started on 31 May).

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	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**22-34**
Algeciras	-43%	-42%	-42%	-47%	-34%	-40%	-36%	-43%	-45%	-52%	-46%	-36%	-44%	-43%
Amsterdam	-2%	-15%	-25%	-22%	-21%	-24%	-33%	-3%	-21%	-16%	-17%	-8%	-19%	-18%
Antwerp	-10%	-7%	-15%	-15%	0%	2%	-11%	-9%	-11%	-2%	10%	-11%	-6%	-7%
Barcelona	-37%	-46%	-34%	-35%	-39%	-37%	-30%	-25%	-19%	-34%	-24%	-30%	-30%	-32%
Bremerhaven	-23%	-9%	-20%	-21%	-18%	-18%	-15%	-9%	-16%	-11%	-14%	-9%	-16%	-16%
Constanta	-25%	-7%	-8%	-11%	-7%	-12%	-11%	2%	-25%	0%	-14%	-5%	14%	-9%
Dunkerque	-18%	-16%	-15%	-13%	-24%	-21%	-19%	-19%	-8%	-2%	-13%	-4%	-12%	-14%
Genova	-41%	-35%	-36%	-20%	-31%	-25%	-32%	-25%	-13%	-19%	-15%	-9%	-22%	-25%
Goteborg	-17%	-17%	-17%	-17%	-13%	-27%	-18%	-20%	-35%	-39%	-30%	-21%	-15%	-23%
Hamburg	-8%	-15%	-7%	-21%	-14%	-25%	-9%	-8%	-4%	-4%	-18%	4%	-5%	-11%
Le Havre	-44%	-34%	-22%	-21%	-25%	-25%	-32%	-18%	-19%	-18%	-24%	-7%	-24%	-24%
Marseille	-35%	-34%	-23%	-21%	-15%	-31%	-31%	-35%	-23%	-33%	-21%	-26%	-23%	-27%
Piraeus	62%	100%	136%	101%	91%	150%	134%	146%	149%	156%	144%	118%	122%	124%
Riga	-24%	-14%	7%	-2%	-26%	-10%	-18%	0%	-19%	-5%	-3%	-10%	15%	-9%
Rotterdam	2%	-14%	-12%	-9%	-12%	-2%	-9%	-5%	4%	-2%	5%	-4%	0%	-5%
Sines	-33%	-44%	-20%	-20%	-16%	-23%	-18%	-5%	35%	-11%	42%	9%	-23%	-12%
Taranto	-11%	-71%	-29%	-43%	22%	-16%	-6%	50%	-11%	43%	6%	55%	-43%	-11%
Trieste	-15%	-32%	-8%	-18%	-19%	-37%	-15%	-11%	-45%	-10%	-24%	3%	-29%	-21%
Valencia	-23%	-18%	-25%	-10%	-15%	-7%	-17%	-9%	-17%	-19%	1%	-10%	-3%	-14%
Wilhelmshaven	14%	47%	0%	-23%	-5%	-24%	14%	-31%	-24%	13%	5%	17%	5%	-1%
Grand Total	**-16%**	**-17%**	**-14%**	**-16%**	**-14%**	**-12%**	**-13%**	**-10%**	**-10%**	**-11%**	**-8%**	**-6%**	**-10%**	**-12%**

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 (22-34) compares the number of ship calls reported between weeks 22 and 34 in 2019 with those reported in the same weeks in 2020 (week 22 in 2020 started on 31 May).

By comparing numbers of ship calls between weeks 22 and 34 reported in 2019 and in 2020, it was found that Algeciras, Barcelona, Genova, 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 34) 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.

In week 34 the number of port calls worldwide by vessels flying the flags of EU Member States slightly increased again, similarly to week 31 and 33. These increases are quite volatile but indicate a tendency for the EU flagged traffic to pick-up to a standard behaviour.

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%

Table 5: Number of port calls worldwide (at EU and non-EU ports) by MS flagged vessels in 2019 and 2020 (weeks 1-34), and related total gross tonnage (in red weeks for which a decrease was detected)

The analysis shows that a significant decrease in the total number of ship calls is particularly evident from the second half of March 2019 (from week 12), compared to 2019. The analysis per flag is shown in Table 6.

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.

Country of flag	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Belgium	9%	-27%	-17%	-14%	-10%	-32%	-32%	19%	-13%	-32%	-35%	-34%	-27%	-56%	-30%	-24%	-24%	-45%	-47%	-44%	5%	-4%
Bulgaria	-22%	6%	-24%	-25%	-19%	-11%	7%	-11%	-13%	-2%	-38%	-35%	-46%	-39%	-73%	-28%	-43%	-41%	-40%	-46%	-52%	-41%
Croatia	-35%	-60%	-59%	-64%	-62%	-73%	-70%	-81%	-72%	-71%	-80%	-82%	-79%	-67%	-68%	-64%	-66%	-63%	-57%	-60%	-55%	-45%
Cyprus	16%	-12%	-17%	-21%	-13%	-16%	-23%	-22%	-23%	-24%	-32%	-29%	-28%	-15%	-19%	-22%	-25%	-18%	-20%	-18%	-23%	-18%
Denmark	0%	-16%	-6%	2%	-2%	5%	9%	9%	10%	9%	4%	8%	14%	17%	6%	11%	26%	34%	31%	33%	39%	25%
Estonia	-18%	-45%	-29%	-42%	-27%	-32%	-33%	-36%	-32%	-20%	-44%	-29%	-29%	4%	12%	-12%	8%	-18%	4%	25%	13%	11%
Finland	-17%	-17%	-5%	27%	19%	-1%	2%	-2%	-2%	-9%	-24%	-17%	-21%	-16%	-18%	0%	-1%	-7%	-7%	-4%	3%	-3%
France	-32%	-48%	-44%	-37%	-43%	-52%	-51%	-52%	-49%	-50%	-51%	-43%	-46%	-45%	-33%	-32%	-29%	-29%	-22%	-23%	-22%	-25%
Germany	-17%	-33%	-38%	-38%	-34%	-29%	-34%	-35%	-18%	-15%	-20%	-12%	-10%	-10%	-7%	-11%	8%	6%	6%	7%	20%	9%
Greece	-10%	-34%	-38%	-45%	-51%	-45%	-44%	-47%	-41%	-42%	-36%	-34%	-39%	-34%	-24%	-27%	-18%	-8%	-9%	-3%	-5%	-10%
Iceland	91%	-23%	-26%	-1%	33%	53%	37%	-3%	-28%	-33%	-21%	-48%	-50%	-31%	3%	-35%	-55%	-32%	-7%	-31%	-1%	-41%
Ireland	36%	34%	10%	-10%	7%	-28%	45%	-1%	-10%	-24%	-14%	23%	-8%	-9%	-17%	2%	3%	-26%	14%	-22%	-28%	32%
Italy	-37%	-51%	-51%	-60%	-53%	-60%	-52%	-50%	-45%	-44%	-50%	-40%	-38%	-27%	-32%	-23%	-16%	-10%	7%	-11%	34%	4%
Latvia	49%	-5%	-13%	-20%	-38%	-36%	-55%	-62%	-56%	-5%	-36%	-5%	0%	-33%	-58%	-33%	-29%	-37%	-18%	-51%	3%	-62%
Lithuania	17%	-9%	-14%	-32%	-6%	-6%	-23%	-33%	-27%	-32%	-36%	-26%	-21%	4%	7%	-25%	-14%	-31%	-36%	-14%	-28%	-1%
Luxembourg	25%	43%	35%	-28%	-23%	-2%	-33%	-36%	8%	26%	-2%	-18%	-29%	7%	1%	-23%	-34%	-18%	-37%	-30%	-3%	-35%
Malta	13%	-6%	-11%	-24%	-16%	-21%	-22%	-29%	-24%	-20%	-31%	-27%	-32%	-24%	-20%	-21%	-23%	-18%	-15%	-22%	-37%	-17%
Netherlands	8%	-11%	-6%	-12%	0%	-7%	-13%	-21%	-17%	-12%	-10%	-8%	-10%	6%	-2%	-1%	-6%	-9%	-6%	-6%	-21%	-7%
Norway	-4%	-17%	-1%	30%	36%	31%	27%	33%	19%	25%	11%	22%	15%	21%	14%	20%	24%	41%	48%	43%	-3%	40%
Poland	-7%	-73%	-38%	-55%	-59%	-72%	-75%	-37%	-73%	-57%	-42%	-50%	-31%	-25%	-20%	-46%	-45%	-61%	-52%	-54%	40%	-49%
Portugal	5%	-10%	-7%	4%	6%	-11%	-2%	8%	-4%	-10%	-15%	-15%	-15%	1%	-1%	4%	15%	9%	6%	-2%	-22%	12%
Romania	-71%	100%	150%	0%	-25%	700%	400%	250%	80%	-50%	-33%	-50%	33%	-86%	125%	33%	-14%	-78%	-80%	-90%	18%	-100%
Spain	-47%	-62%	-69%	-59%	-65%	-66%	-65%	-58%	-66%	-63%	-66%	-60%	-58%	-40%	-36%	-29%	-37%	-29%	-23%	-33%	-58%	-21%
Sweden	-11%	-17%	-1%	-7%	1%	-3%	-3%	-8%	-5%	-6%	-15%	-11%	4%	-1%	-1%	-1%	5%	14%	14%	11%	-17%	22%
United Kingdom	-1%	-20%	-25%	-19%	-20%	-26%	-30%	-32%	-31%	-32%	-34%	-34%	-28%	-30%	-18%	-4%	-4%	4%	4%	3%	10%	8%

Table 6: Variation between 2019 and 2020 (weeks 13-34) in the number of port calls (worldwide) by flag (in red weeks for which a decrease was detected)

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, passenger, ro-ro vessels, oil tankers and vehicle carriers.

Ship type	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Bulk carrier	46%	2%	3%	-13%	3%	-16%	-16%	-7%	23%	14%	-14%	-24%	-21%	-7%	4%	0%	-21%	4%	6%	8%	-20%	-19%
Chemical tanker	14%	2%	-9%	-15%	-7%	-15%	-11%	-15%	-18%	-22%	-25%	-21%	-21%	-25%	-13%	-20%	-21%	-27%	-13%	-24%	-16%	-5%
Containership	15%	1%	-12%	-20%	-15%	-15%	-26%	-25%	-31%	-25%	-32%	-25%	-28%	-18%	-23%	-16%	-22%	-25%	-26%	-26%	-20%	-24%
Cruise ships	-53%	-81%	-83%	-86%	-82%	-88%	-87%	-88%	-83%	-87%	-90%	-90%	-88%	-86%	-84%	-83%	-83%	-82%	-81%	-83%	-82%	-83%
General cargo	19%	-1%	-3%	-3%	6%	-7%	-11%	-18%	-22%	-14%	-23%	-22%	-17%	-5%	-13%	-10%	-17%	-20%	-23%	-24%	-18%	-18%
Liquified gas tanker	12%	-12%	-2%	-24%	-24%	-26%	-24%	-18%	-36%	-25%	-34%	-33%	-41%	-12%	-17%	-36%	-27%	-28%	-26%	-17%	-4%	-14%
Oil tanker	-7%	-24%	-22%	-33%	-32%	-35%	-38%	-37%	-38%	-35%	-39%	-35%	-37%	-34%	-15%	-21%	-21%	-23%	-29%	-36%	-20%	-28%
Passenger	-42%	-57%	-51%	-34%	-35%	-39%	-33%	-30%	-34%	-34%	-41%	-31%	-33%	-24%	-25%	-18%	-1%	9%	15%	9%	17%	19%
Refrigerated cargo	20%	-6%	-6%	7%	35%	54%	54%	-24%	13%	19%	43%	-1%	9%	-51%	-32%	-33%	0%	-36%	-10%	-40%	-34%	-46%
Ropax	-22%	-39%	-28%	-18%	-16%	-16%	-13%	-13%	-10%	-12%	-15%	-8%	-8%	-1%	-6%	1%	8%	18%	24%	20%	27%	22%
Ro-Ro cargo	2%	-16%	-26%	-15%	-8%	-5%	-17%	-20%	-24%	-16%	-29%	-24%	-22%	-15%	-13%	-12%	-20%	-6%	-9%	-10%	1%	-5%
Vehicle carrier	-31%	-31%	-31%	-56%	-58%	-45%	-51%	-51%	-56%	-51%	-51%	-55%	-42%	-44%	-43%	-50%	-40%	-51%	-46%	-50%	-44%	-49%

Table 7: Variation between 2019 and 2020 (weeks 13-34) of ship calls (worldwide) of EU-MSs flagged vessels, by ship type

While all EU flagged ship types experienced a reduction (even small) in calls worldwide in April, May, June and July, major variations compared with equivalent periods in 2019 can be observed for cruise, passenger ships (until week 28), ro-ro vessels (until week 27), oil tankers and vehicle carriers. 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; similarly, 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.

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 34 (17 August – 23 of August 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 28.6%, while from Europe to China, there is a more significant decrease of 49.1%. 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[4]. 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 28.2% 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 38.3%. Table 8 shows the number of EU - China and EU – US ship calls in 2019 and 2020 (weeks 1-34).

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).

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

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	109
26	1,066	785	534	126
27	1,110	392	432	114
28	1,039	468	517	157
29	961	382	358	129
30	967	364	431	126
31	1,109	363	464	108
32	859	307	418	192
33	912	288	508	123
34	818	152	414	78
Total	**34,969**	**24,962**	**15,808**	**8,043**
Variation		***-28.6%***		***-49.1%***

Year	2019	2020	
Total	50,777	33,005	***-35.0%***

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	24	65	33
Total	**1,962**	**1,211**	**1,750**	**1,257**
Variation		***-38.3%***		***-28.2%***

Year	2019	2020	
Total	3,712	2,468	***-33.5%***

Table 8: Number of port calls per week between EU and China and between EU and USA in 2019 and 2020 (weeks 1-34)

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 34).

Ship type	CHINA TO EUROPE		Var (%)	EUROPE TO CHINA		Var (%)
	2019	**2020**		**2019**	**2020**	
Containerships	33,219	23,604	-28.9%	12,368	5,751	-53.5%
Vehicle carriers	977	729	-25.4%	2,404	1,200	-50.1%
General cargo	267	278	4.1%	131	247	88.5%
Gas carriers	127	94	-26.0%	263	363	38.0%
Bulk Carriers	197	139	-29.4%	187	290	55.1%

Table 9: Port calls per ship type between EU and China in 2019 and 2020 (period from week 1 to week 34).

The number of ship calls from EU to China increased for general cargo ships, gas carriers and bulk carriers, and decreased by 50.1% for vehicle carriers and by 53.5% 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 much slighter reduction of 28.9% and of 25.4% 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 41.9% from United States to Europe and only 22.1% 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 (83.2%). In the opposite direction the reduction is of 48.5%.

Ship type	USA TO EUROPE		Var (%)	EUROPE TO USA		Var (%)
	2019	**2020**		**2019**	**2020**	
Containerships	1,116	648	-41.9%	1,206	940	-22.1%
Vehicle carriers	336	173	-48.5%	280	47	-83.2%

Table 10: Port calls per ship type between EU and the US in 2019 and 2020 (period from week 1 to week 34)

Comparing the previous two full reports (week 31 vs week 26) it was observable a steady increase in 2020 of the number of port calls from the Containership segment from Europe to the United States of America (even though much less significant than in the previous full report, from week 21, which shown an increase of 85%). An increase of 6% (in a 5-week period) of port calls from Containerships from Europe to US was noted, meaning 148 port calls from week 22 to week 26 *versus* 157 port calls from week 27 to week 31. In the opposite direction, however, that is from the US to Europe, the increase is now more significant with 72% more port calls (in a 5-week period) meaning 65 port calls from week 22 to week 26 *versus* 112 port calls from week 27 to week 31.

On the trade between China and Europe the number of port calls from Containerships from China to Europe has firstly increased (week 21 had 223 port calls and week 26 had 773 port calls) and then decreased again (week 31 had 342 port calls). It was also noted on the last full report a modest increase on the number of port calls from Vehicle carriers from Europe to China, which is observable also in the last weeks (week 21 had 2 port calls, week 26 had 27 port calls and week 31 had 25 port calls). These are still far from 2019 values but are showing an increase in the volume of port calls in 2020.

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, passenger/ro-ro ferries and other types of passenger ships are the 3 ship types mostly affected by COVID-19. Every major cruise line in the world suspended departures in March as the coronavirus outbreak grew.

On 05 August 2020 the Cruise Lines International Association (CLIA) that represent most cruise lines made the decision to voluntarily extend the ongoing suspension of U.S. cruise operations until at least 31 October 2020 with the understanding that they will revisit a possible further extension on or before 30 September 2020.

The vast majority of the cruise industry has been idled for nearly five months and while the industry continues to hope that at least limited operations might resume in the fall of 2020, several cruise lines have cancelled all of their planned 2020 sailings.

MSC cruises announced that their two flagships, MSC Grandiosa and MSC Magnifica, resuming operations in the Mediterranean starting from 16 and 26 September 2020 (initially planned for 29 August) respectively, offering guests from Schengen countries full-experience cruise holidays.

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

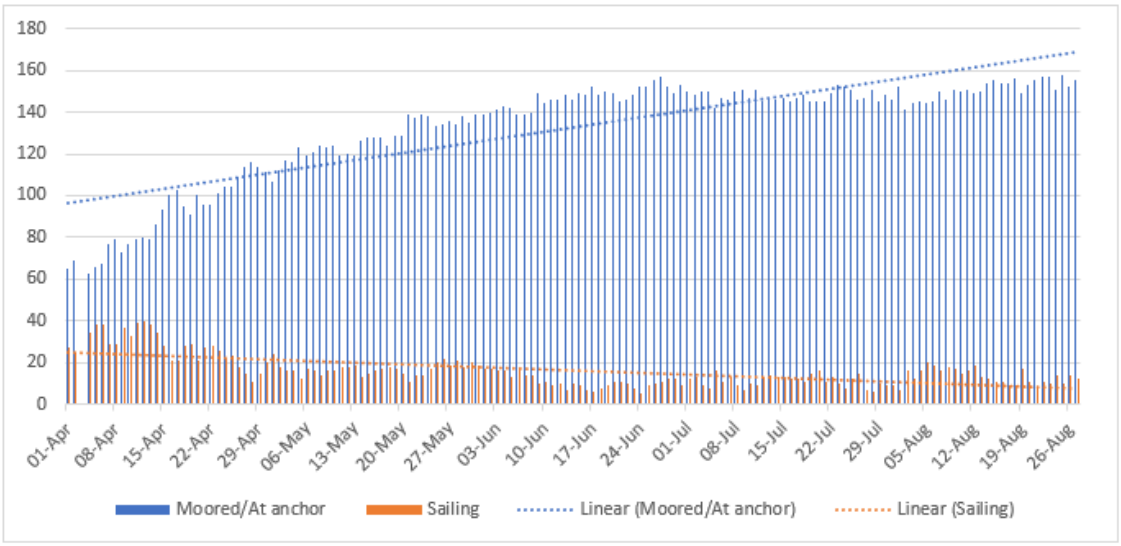

Figure 2: Cruise ships moored/at anchor and sailing in and around EU waters
(1 April 2020 – 27 August 2020)

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[5], 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 week during 2019 (in blue) and 2020 (in orange).

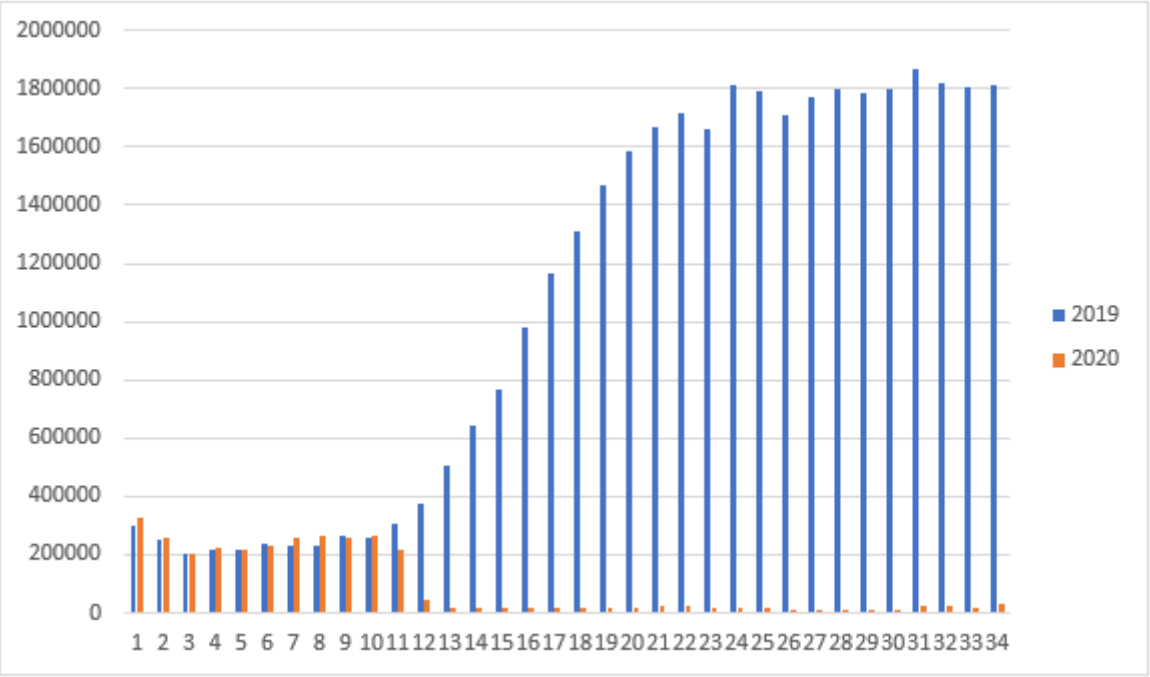

Figure 3: Persons on Board cruise ships

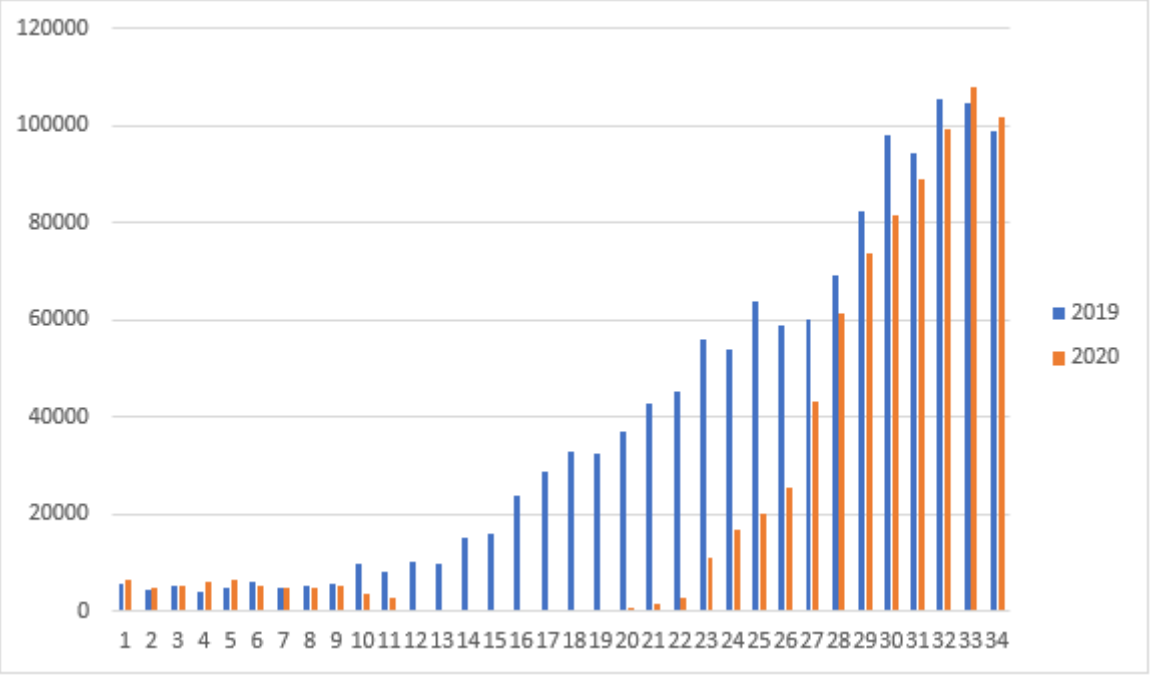

Figure 4: Persons on Board passenger ships

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

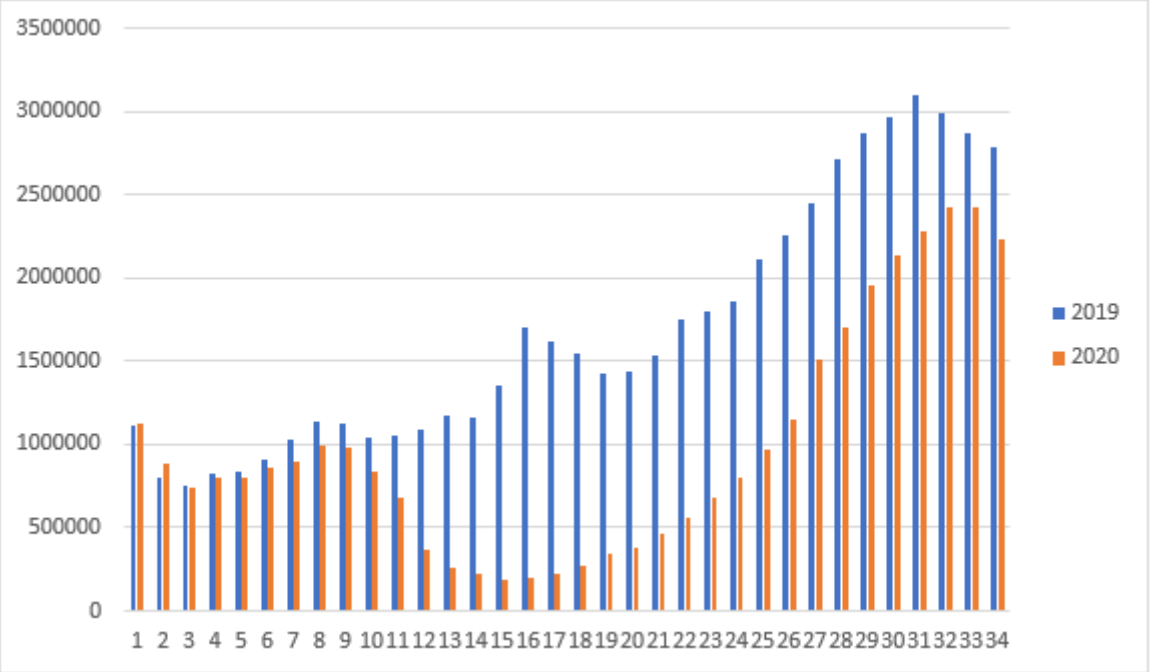

Figure 5: Person on Board Ro-Ro/Passenger ships

Cruise ship operators almost lost their businesses during the Covid-19 pandemic. The Figure 3 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.

In the last weeks a continuous increase in the number of PoB on board of Passenger ships and Ro-Ro/ Passenger ships can be observed. The number of PoB on board of Passenger ships in last two weeks (33 and 34) was higher compared to the same weeks in 2019.

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 July 2019 and July 2020. The main conclusion is that traffic in and around EU waters was not heavily affected apart from passengers' ships.

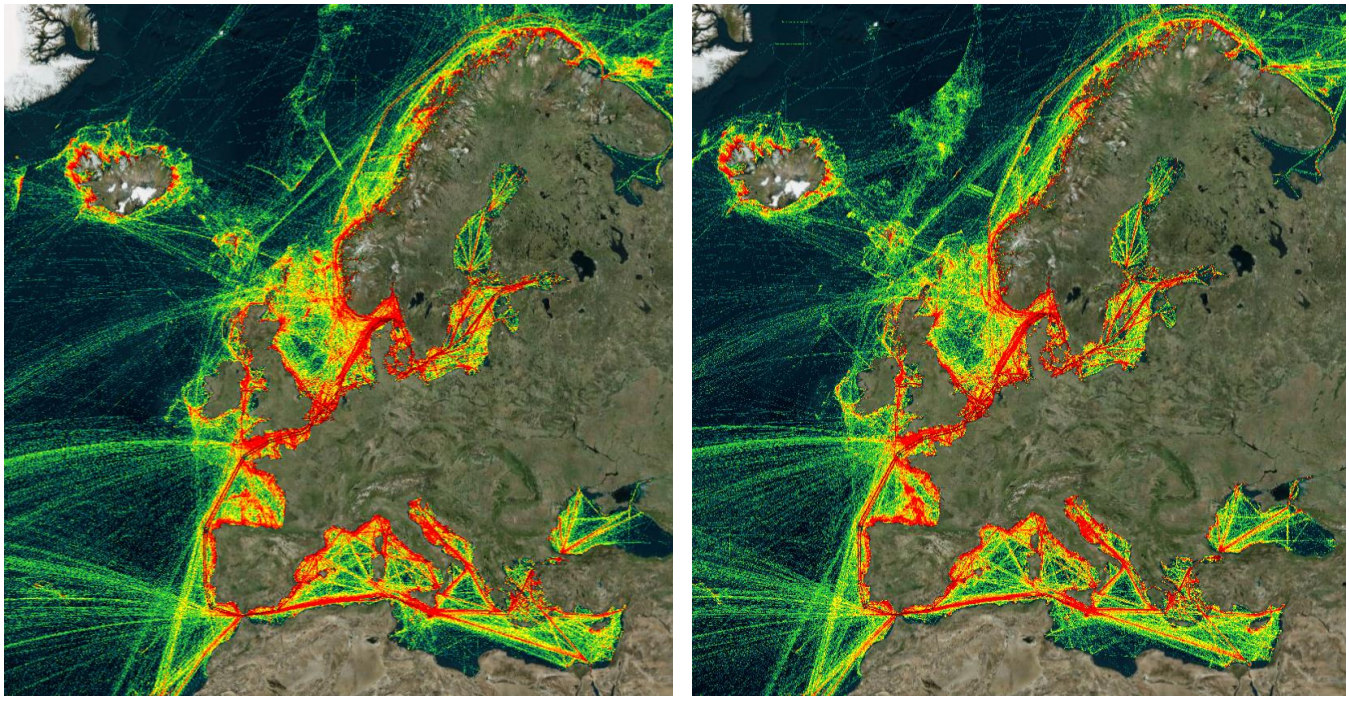

Figure 6: All ship types: ship traffic density in July 2019 (left) and in July 2020 (right)

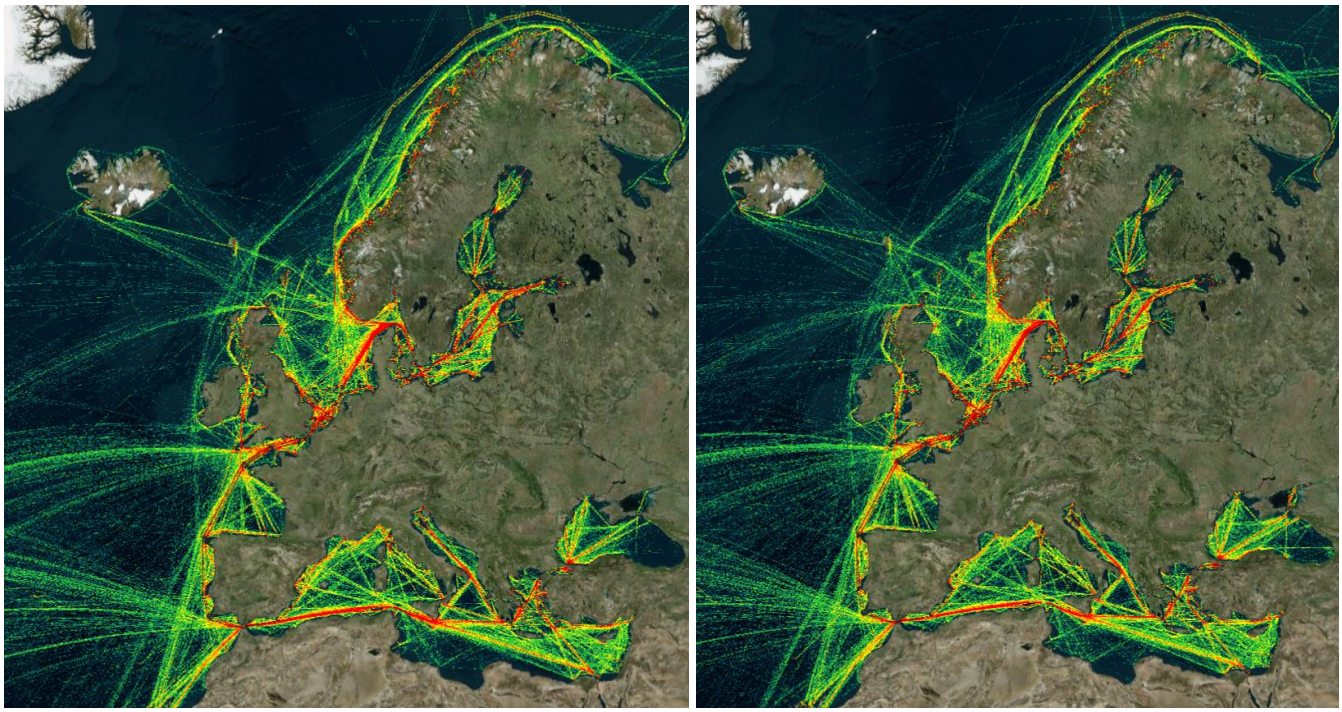

Figure 7: Cargo vessels: ship traffic density in July 2019 (left) and in July 2020 (right)

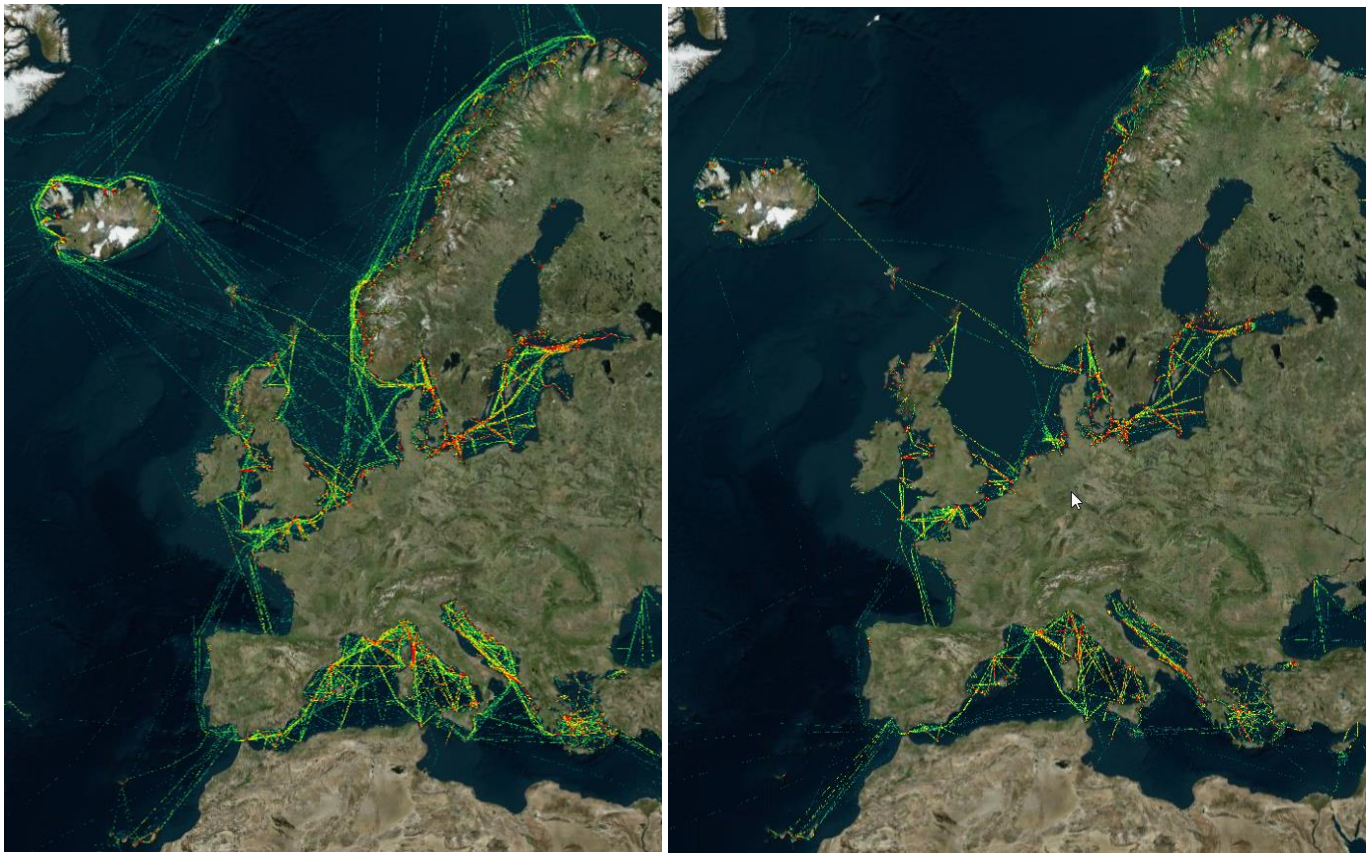

Figure 8: Passenger ships: ship traffic density in July 2019 (left) and in July 2020 (right)

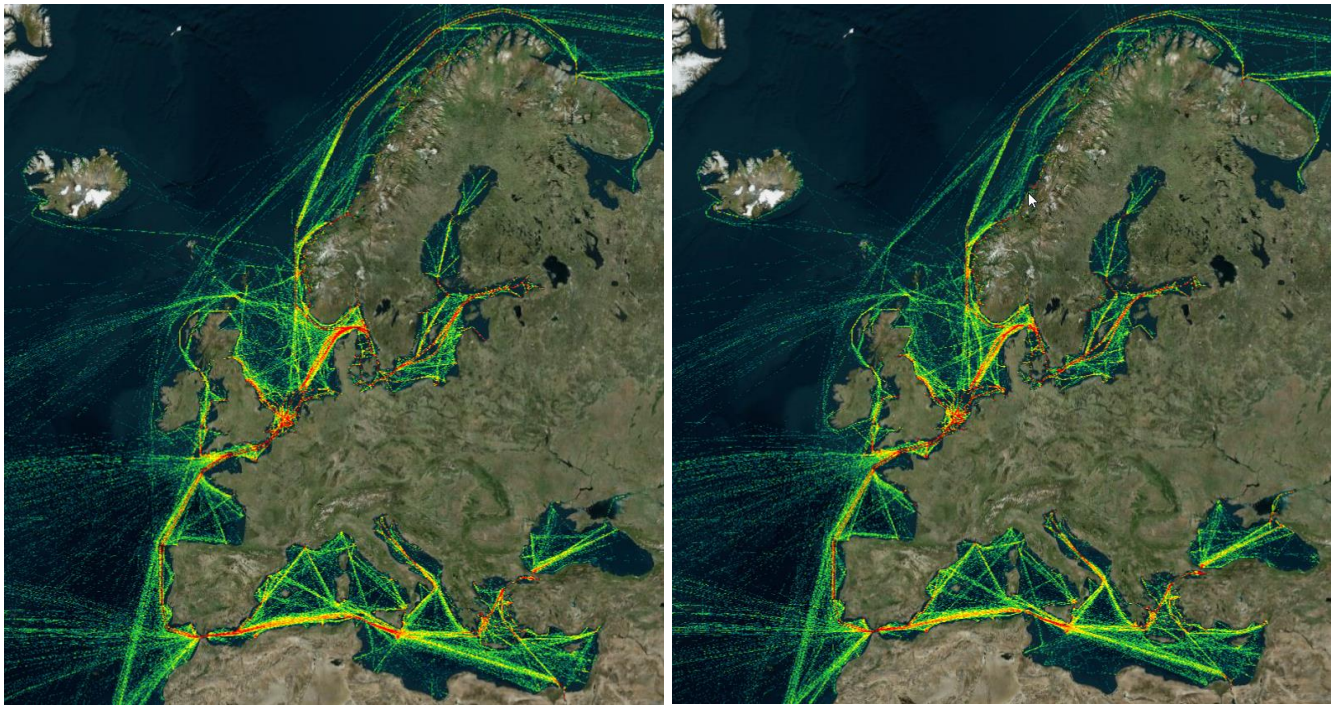

Figure 9: Tankers: ship traffic density in July 2019 (left) and in July 2020 (right)

8. Congestion at anchorages in EU waters

The maritime sector faces the prospect of an unprecedented number of vessels at anchor. Figure 10 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 34 weeks of 2019 (blue color) and 2020 (orange color):

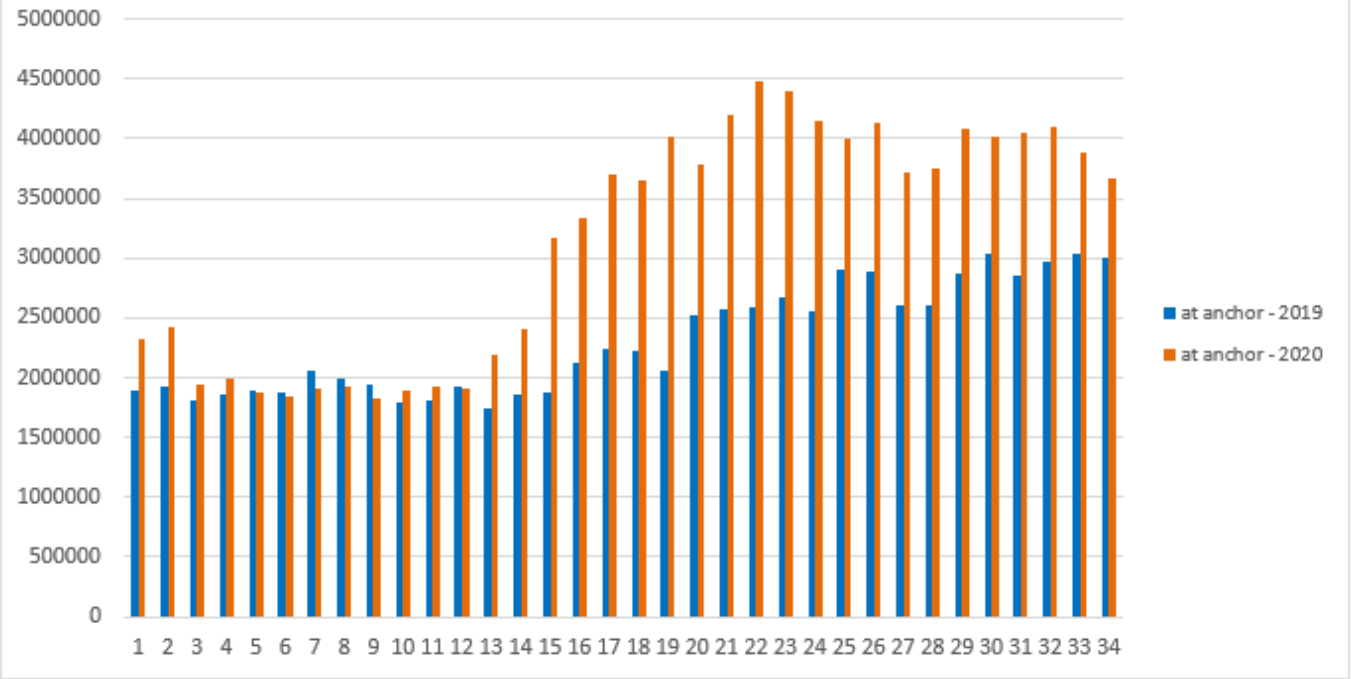

Figure 10: AIS data reports reporting navigational status “at anchor” in and around EU waters in 2019 and 2020 (weeks 1 to 34)

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.

The screenshots below were taken from SafeSeaNet for English Channel and Strait of Gibraltar on 27 August 2020. Only ships transmitting AIS navigational status “at anchor” were shown (passenger ships are blue, tankers are red, cargo ships are green and ships not having declared their navigation status in AIS are grey).

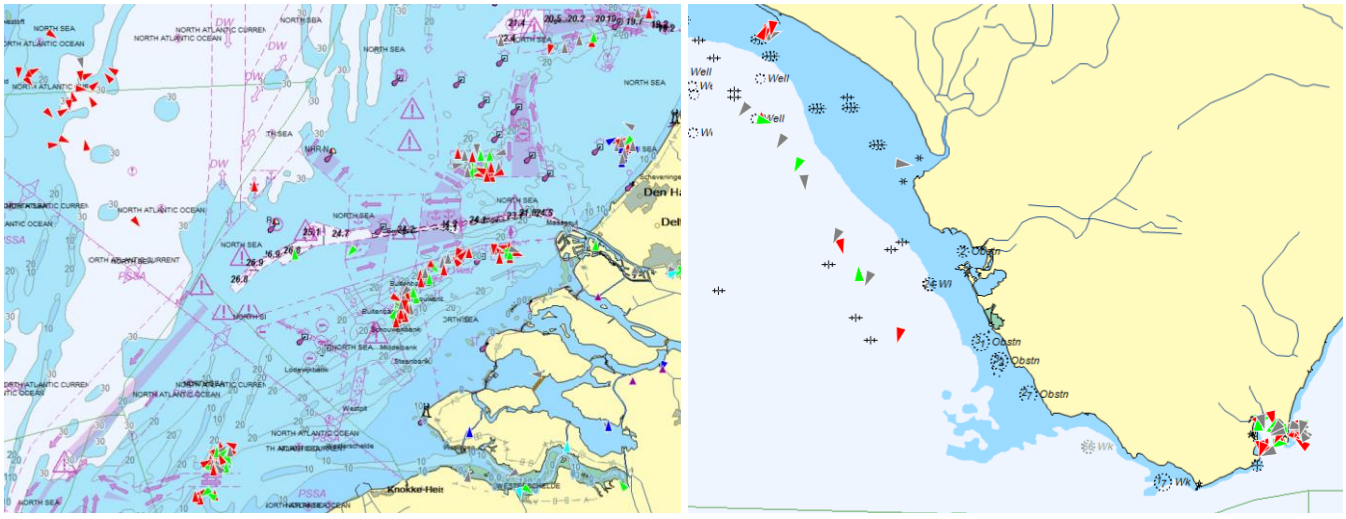

Figure 11: Ships at anchor in some areas on EU waters on 27 August 2020

Comparing the above image with the traffic image before the crisis, the number of red triangles (representing tankers) is much higher than usual, with many of them being Very Large Crude Carriers (VLCCs). Furthermore, there are vessels away from shore (nearly idle) just waiting.

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