CRUISE LINES INTERNATIONAL ASSOCIATION

A RESEARCH REPORT REALISED BY

RISPOSTE TURISMO

TRENDS AND PERSPECTIVES IN THE EUROMED CRUISE TOURISM

FIRST EDITION | 2022

RISPOSTE TURISMO for CRUISE LINES INTERNATIONAL ASSOCIATION

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A research report realised by Risposte Turismo
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Foreword

Looking at the cruise industry and tourism today and imagining and predicting the dynamics that will characterize their evolution in the coming years is a decidedly complex task. This complexity derives from the combination and succession of events - unforeseen and not very controllable -which have removed the certainties on which our economic and social plans (at least in an important portion of the world as a whole) can be based. Today, uncertainty is a key element that we must deal with, and which complicates the decision-making processes of companies or organizations that ideally should count on greater predictability for the near future.

Obviously, this does not apply only to cruises, but this is the sector to which this new study carried out for CLIA by Risposte Turismo is dedicated. We had to take these difficulties into account when drawing it up. As is usual for us, every step required the utmost attention, considering as many variables as possible that may affect future results (not limited to traffic variables). Accordingly, we involved numerous professionals within this industry, from the top representatives of CLIA itself to the executives of cruise companies; the managers and executives of cruise terminals and port authorities; the representatives of the various associations representing this sector; and other players. We wish to thank them all.

Hence our report: published in mid-2022, it is focused on what is happening and what may happen shortly in cruising, particularly in Europe and in the Mediterranean (what in this report is defined as EuroMed area, which includes all cruise ports located in the Mediterranean - European and not - and on the north coasts of Europe - Atlantic Ocean and Baltic Sea), with more in-depth analysis for Italy. It is a report that contains information and forecasts on total traffic, passengers and calls, for the entire Euro-Mediterranean area, for individual countries, or for macro areas. For Italy, details are included on individual ports and regions. However, it is a report also that seeks to clarify the directions that this industry will embark on in the light of investments (that resume – and which in truth have never stopped) by both cruise lines and ports. Most of these investments are now characterised by a firm commitment to carbon neutrality.

Cruising - like almost all other sectors of tourism and beyond - is poised at the starting blocks of a new era, or is necessarily characterised by other priorities than in the past. If we want to attain a new cycle, it may perhaps be less decisive for the cruise industry to reach new traffic records or to calculate the size of economic impacts generated. Diverse sensitivities and goals may gain ground - both in analytic work and in decision-making - e.g. concern for the environment and decarbonisation, as mentioned, as well as seeking an increasingly harmonious presence of ships and passengers within the local communities visited, a return to reliance on local suppliers implying a deceleration of the process of globalization.

New challenges that will therefore make it even more exciting to be part of this industry that will once again be able to positively become a protagonist within the wider tourism industry.

Francesco di Cesare
President, Risposte Turismo

1 CRUISE TOURISM AND CRUISERS

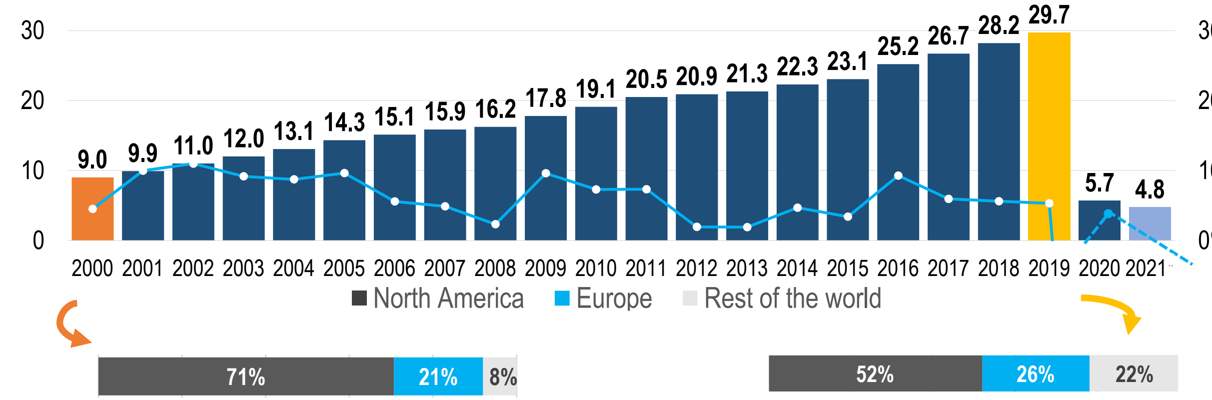
1.1 Cruise tourism demand performance and trends in key European markets, comparisons 2019-2020-2021
1.2 Demand volumes and trends for the Italian market

1.1 *Cruise tourism demand performance and trends in key European markets, comparisons 2019-2020-2021*

The cruise sector is one of the few phenomena of the tourism industry that has shown growth year after year, a growth stopped only by the global pandemic. At the end of 2019, the forecasts for 2020 had indicated 32 million customers worldwide, a potential new record for the industry. The interruption of mobility, travel and restrictions instead brought the value to just under 6 million cruise clients onboard. The level recorded brought the industry back to late-1990s cruise traffic results.

In 2022 the sector is still recovering from impediments to globally setting sail and travelling. Compared to 2000 and 2019, the last 2 years have witnessed a major change in origin of cruisers due to the varying protocols adopted by countries for navigating national waters or visiting other countries or continents: the United States banned cruise ships for all 2020 and half of 2021 and, at the same time, Americans weren't permitted to travel to Europe until late summer of 2021.

Graph 1.1 **Cruise clients around the world, 2000-2021 and region of residence, in detail for 2000 and 2019**

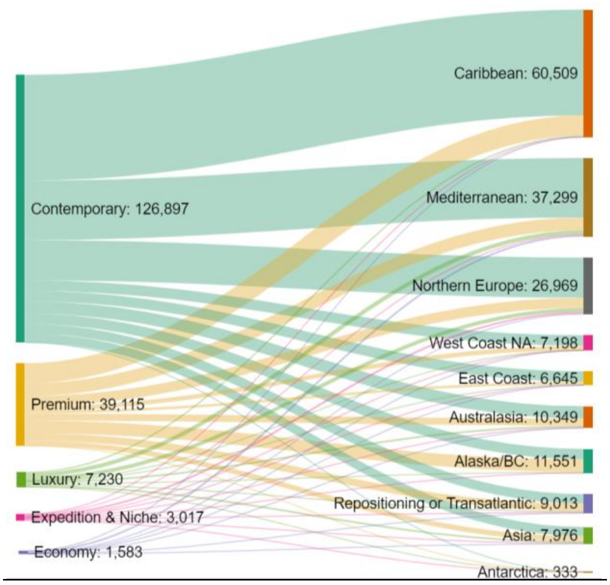


Source: Risposte Turismo elaboration based on information provided by CLIA Association and individual cruise line groups (Carnival Corporation Plc, Royal Caribbean Group, Norwegian Cruise Line Holding, MSC Cruises), 2022.

As the dynamics of deployment in the three-year period 2020-2022 had been conditioned – and are still conditioned –by the pandemic, it is more useful to present a first overview of possible deployment of cruise ships in 2023. Even with a current extreme fluidity of deployment, the scenario should be closer to the post-pandemic new normal, highlighting the leadership of the Caribbean, followed by the Mediterranean. Northern Europe continues to establish itself as an international cruise region and ranks third. It should be highlighted how the segments shown on the left are distributed almost proportionally in the various areas, confirming that the cruise ship has been a global phenomenon for years and that the cruise holiday is a product that continues to please, supported by targeted investments ensured by companies, ports and numerous other operators involved in the restart of this business. On origin of cruisers, there had been a marked increase for the European market. The share of European cruises reached a quarter of the global market in 2019.
On origin of cruisers, there had been a marked increase for the European market. The share of European cruises reached a quarter of the global market in 2019.
The pie-charts below show European cruise passenger data divided into three source macro areas. Although the differences between 2019 and 2021 are minimal, it may be noted how Eastern Europeans notably reduced their share of cruise trips in a three-year-period: compared to the other two regions, the market share of East Europe has almost halved.
The following bar charts present a time series from 2012 to 2021 for the first five source countries of cruise passengers and the other EuroMed countries' aggregated data (absolute value and percentage).

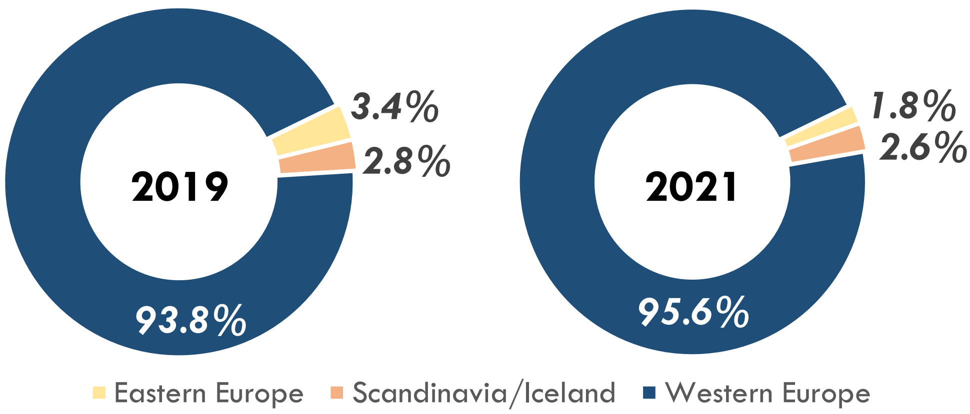
United Kingdom and Ireland were the first source countries of Europe until 2014, when Germany overtook the English-speaking countries and gained the place of first country of origin for European cruisers.
It should be pointed out that, because of the Covid-19 pandemic, Spain had to close its cruise ports and ban cruise traffic for most of 2020, which not only caused a major reduction of cruise traffic (with the exception of the Canary Islands) but also implied the shrinking of the Spain source market.

Fig 1.1 Cruise pax days in main global cruise regions per segment, 2023



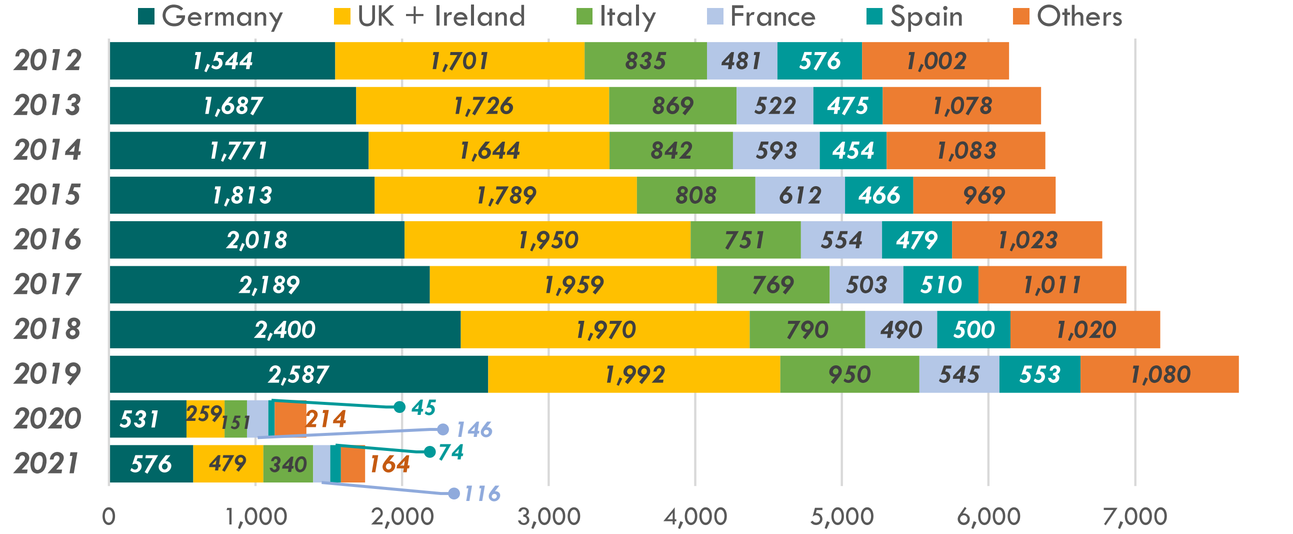
Source: Tourism Economics Cruise Platform/TravTech 2022.

Graph 1.2 European cruise passengers divided by macroareas,2019-2021



Source: CLIA One reSource Passenger Data, 2022.

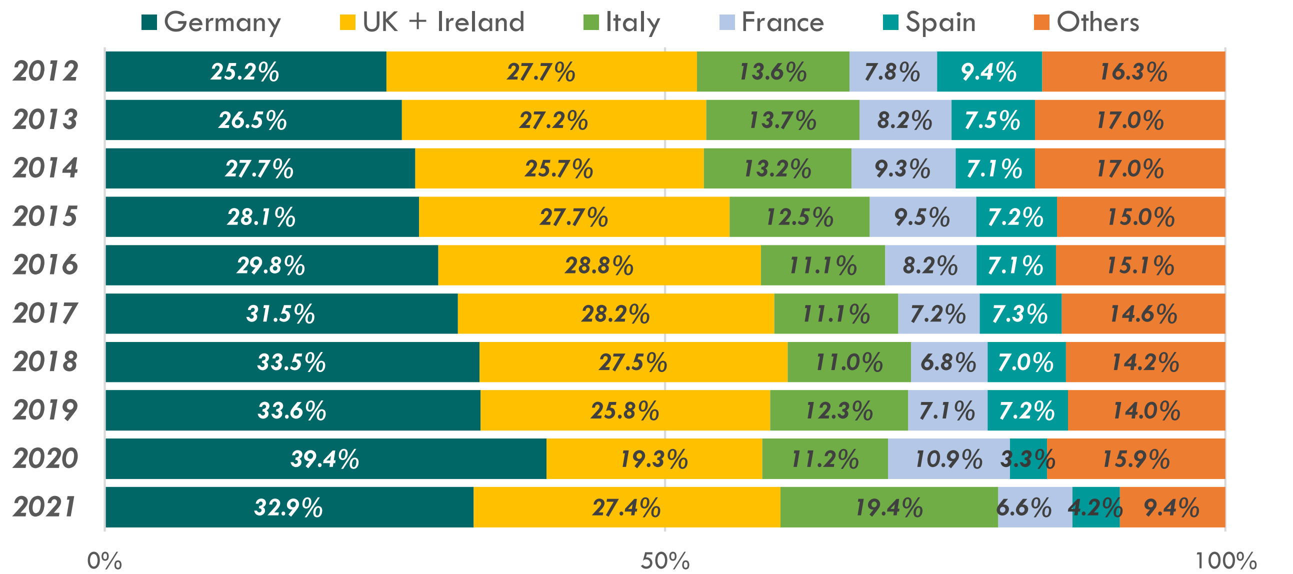
Graph 1.3 European cruise passengers, top5 and other countries,2012-2021 – absolute values



Source: CLIA One reSource Passenger Data, 2022. Note: the values of other countries is aggregated.

Analysis of European passengers in percentage terms serves as an aid to highlighting the rise of market share for Germany in 2020 and for Italy in 2021.In 2020 the market share of Germany noticeably increased, counting on the possibility of *fly&cruise*. The data for 2021 underscore growth of the Italian cruisers' share due to the possibility of directly embarking in many cruise ports was not affected by reduced airlift. France and other countries of origin such as Poland, Finland and Denmark also grew, although not as markedly.

Graph 1.4 European cruise passengers, top5 countries and others (aggregate), 2012-2021 – percentage



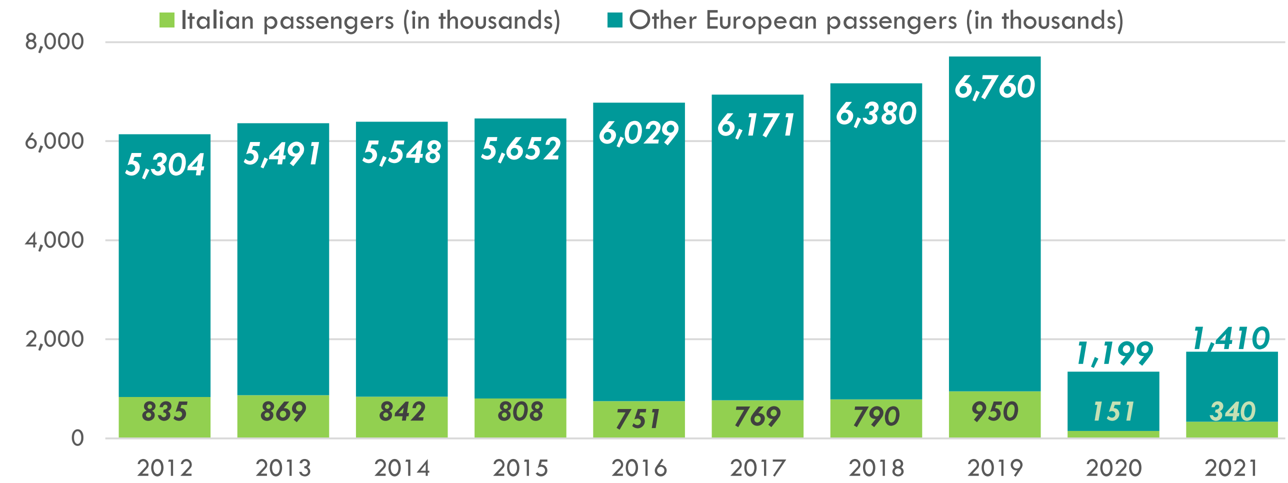
Source: CLIA One reSource Passenger Data, 2022. Note: Percentages may not total 100 due to rounding. Note: the values of other countries is aggregated.

1.2 *Demand volumes and trends for the Italian market*

Graph 1.5 shows a 10-year time series for cruise passengers originating in Europe, and the market share of Italy as absolute value, while 1.6 highlights the share of the Italian market in the European total.

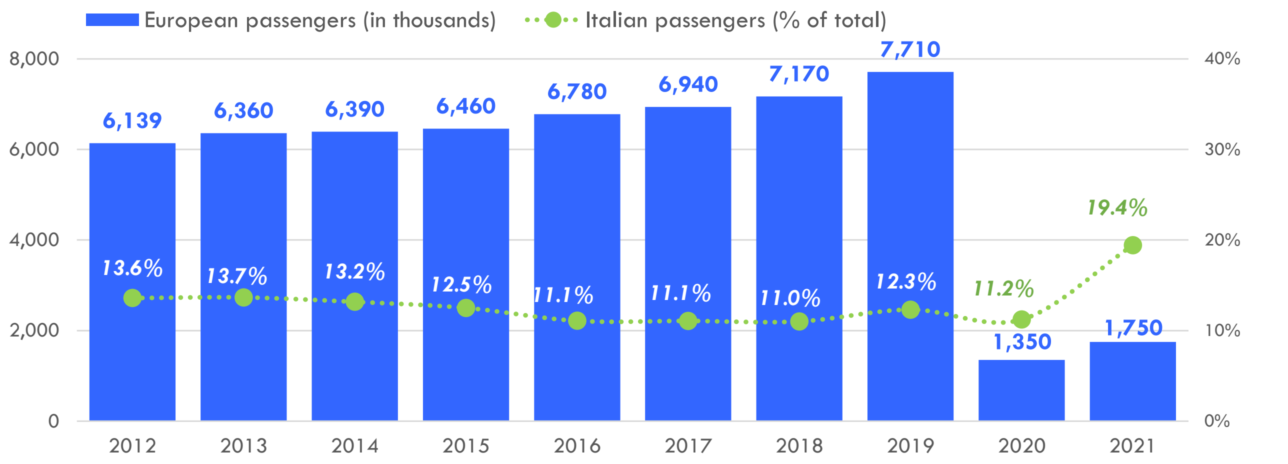
While in 2019 a higher number of Italian clients was noted (950,000), the percentage *vis-à-vis* all European passengers peaked in 2021 with the already mentioned value of 19.4%.

Graph 1.5 Italian cruise market and other European markets, 2012-2021



Source: CLIA One reSource Passenger Data, 2022. Note: values in thousands.

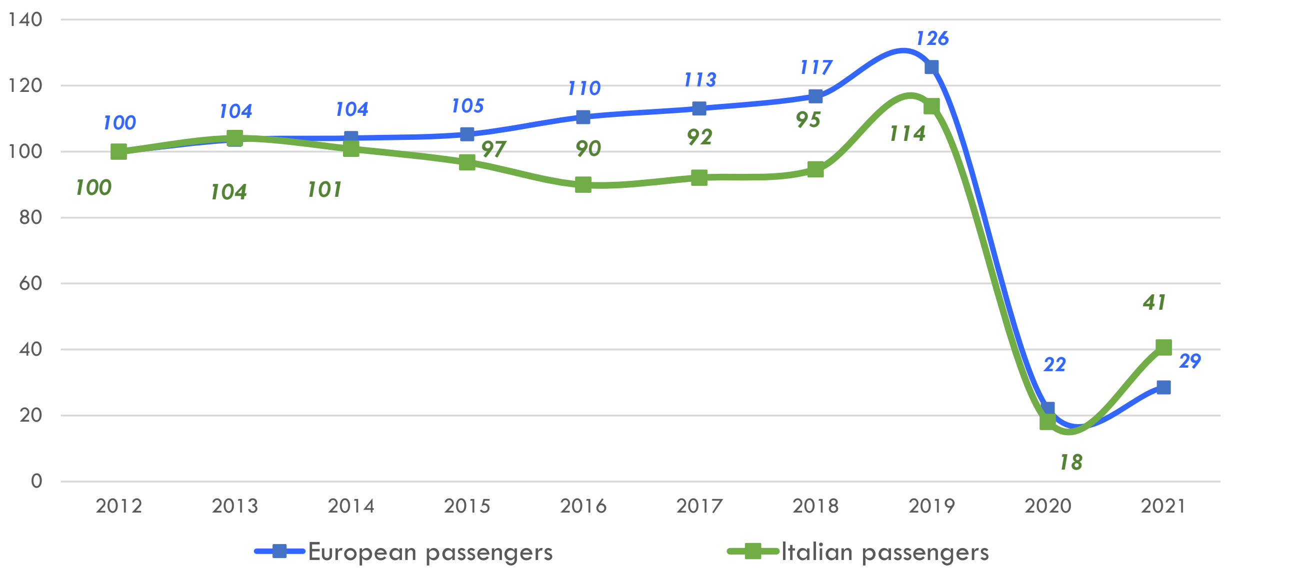
Graph 1.6 Share of Italian cruise passengers vs overall European market, 2012-2021



Source: CLIA One reSource Passenger Data, 2022. Note: values in thousands.

The indexed values emphasize various trends shown by Italy and Europe as a whole. After years of underperformance in comparison to other cruise markets, in 2019 Italy was starting to grow, thus reducing the indexed values gap vs Europe overall. It will be very interesting to see if the Italian market will at least partially keep the shares attained with complete recovery of other European markets.

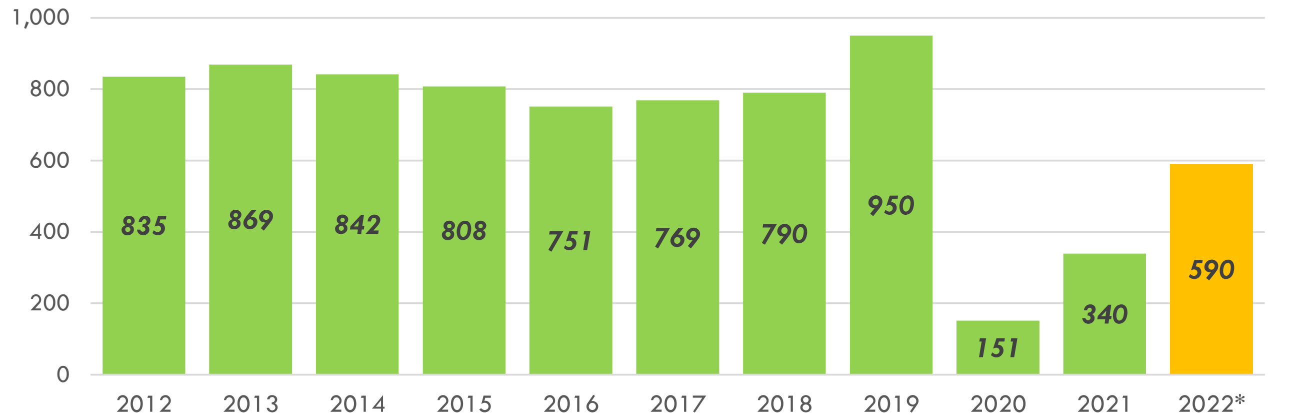
Graph 1.7 Indexed values (2012=100) for cruise passenger traffic in Europe and Italy 2012-2021



Source: CLIA One reSource Passenger Data, 2022

Aware of the difficulty of presenting forecasts, the estimated market of Italian customers 2022 is provided in the graph below. Managing to operate in particularly complex months has represented the main indicator for consolidating the product's success, firstly relative to already loyal customers. Further innovations and announcements from cruise companies will support this recovery trajectory in a year that should see almost full use of fleets in the Mediterranean.The estimates, based on the views and data collected from cruise companies, ports and other organizations' representatives, forecast to almost double the values of last year (+74% variation on 2021).

Graph 1.8 Volumes of the Italian market 2012-2021 and estimates for 2022



Source: CLIA One reSource Passenger Data, 2022. Note: (*) Risposte Turismo estimate; values in thousands

2 CRUISE TRAFFIC IN THE EUROMED AREA

2.1 *Rankings in the EuroMed Area 2019-2021*

The cruise sector experienced, up to the 2019, a trend of unstoppable growth on several fronts, starting with cruise traffic entering increasing numbers of ports around the world. Rarely, if not in the face of unique and particular geopolitical situations, have there been negative variations in traffic in Europe and the Mediterranean. However, this was the case in 2020 and 2021 for almost all tourism & travel industry indicators, and hence also cruise tourism.
The slow restart, sustained by the great commitment of companies and port communities, enabled at least some traffic in many ports in the European and Mediterranean area in 2020 and 2021. The numbers, anyway, are so peculiar that rankings and comparisons relating to, or involving, these two years should not be looked at as particularly relevant (by way of example, Las Palmas and Tenerife reached the first and second place among European cruise ports in 2020).
The 50 European and Mediterranean cruise ports in the following table are therefore listed on the basis of their 2019 volumes, plus data for 2020 and 2021.
To underscore how challenging the 2021 was for the cruise industry, just three ports (Southampton, Civitavecchia and Barcelona) managed more than 500,000 cruise passenger movements while in 2019 34 ports reached that mark. Overall, the sum of traffic in these 50 ports fell from about 42 million in 2019 (for 17,000 calls) to 2.8 million in 2020 and 7.9 million in 2021 (thanks to, respectively, 1,800 and 6,200 calls). In two years, there was a loss of 81% of passenger movements and 64% of calls. Differently, 2022 should be marked by a consistent recovery, as will be detailed in the next paragraph of this chapter.

Tab 2.1 Top50 cruise ports in Europe and the Mediterranean, cruise passengers and calls 2019-2020-2021, variation 2021/2019

	2019		2020		2021		Variation% 2021/2019	
Port	Pax mov.	Calls	Pax mov.	Calls	Pax mov.	Calls	Pax mov.	Calls
Barcelona	3,137,918	800	203,855	71	520,854	272	-83%	-66%
Civitavecchia	2,652,156	800	206,967	85	519,060	274	-80%	-66%
Palma de Mallorca	2,207,804	819	156,757	39	344,569	227	-84%	-72%
Marseille	1,865,918	497	123,604	36	351,887	161	-81%	-68%
Southampton	1,807,000	n.a.	80,331	n.a.	608,951	239	-66%	-
Venice	1,603,516	497	5,653	10	29,115	33	-98%	-93%
Las Palmas	1,486,281	560	517,241	234	446,170	450	-70%	-20%
Naples	1,356,320	457	28,176	27	251,821	154	-81%	-66%
Genoa	1,349,370	281	131,121	48	416,386	142	-69%	-49%
Piraeus	1,098,091	622	16,640	76	202,012	272	-82%	-56%
S. Cruz De Tenerife	1,067,440	511	345,093	277	304,408	506	-71%	-1%
Santorini	980,771	592	131	3	104,074	191	-89%	-68%
Copenhagen	940,000	348	0	0	30,000	46	-97%	-87%
Valletta	902,425	372	59,018	32	141,917	107	-84%	-71%
Livorno	832,121	379	56,338	14	56,338	58	-93%	-85%
Hamburg	810,000	210	76,000	106	112,000	108	-86%	-49%
Corfu	807,197	420	10,448	13	234,699	200	-71%	-52%
Kiel	803,000	174	n.a.	29	288,217	132	-64%	-24%
Mykonos	787,490	550	914	17	201,821	252	-74%	-54%
Dubrovnik	768,924	486	3,460	35	110,130	139	-86%	-71%
Bari	674,675	234	6,141	11	210,785	112	-69%	-52%
Savona	669,477	154	75,568	25	175,640	66	-74%	-57%
St. Petersburg	666,235	341	0	0	0	0	-	-
Stockholm	656,433	279	19,785	28	231,722	96	-65%	-66%
Tallinn	656,087	338	0	0	63,164	45	-90%	-87%
Rostock	634,000	196	200	1	94,000	47	-85%	-76%
Kotor	614,747	464	3,009	36	9,139	64	-99%	-86%
Helsinki	603,500	303	0	0	10,917	14	-98%	-95%
La Spezia	601,441	143	53,996	23	107,820	59	-82%	-59%
Funchal	591,763	291	152,448	70	114,767	113	-81%	-61%
Bergen	576,000	327	0	0	0	0	-	-
Lisbon	575,763	310	50,064	33	115,984	97	-80%	-69%
Arrecife	520,791	243	149,450	72	143,599	153	-72%	-37%
Palermo	501,281	160	75,235	34	104,250	84	-79%	-48%
Cadiz	477,392	315	40,690	32	133,292	162	-72%	-49%
Málaga	476,943	288	40,172	41	118,330	119	-75%	-59%
Stavanger	464,000	234	6,077	6	20,025	36	-96%	-85%
Cannes	447,330	346	0	0	27,469	37	-94%	-89%
Valencia	435,616	203	26,286	12	130,869	95	-70%	-53%
Messina	422,732	170	19,537	19	156,322	71	-63%	-58%

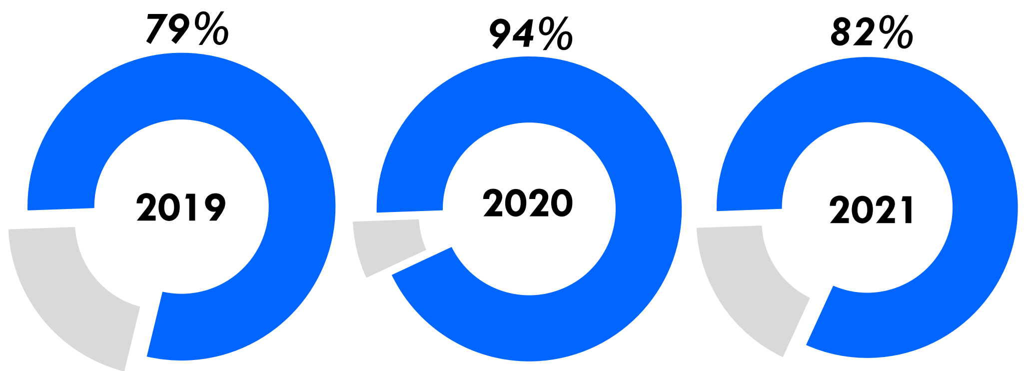
	2019		2020		2021		Variation% 2021/2019	
Port	**Pax mov.**	**Calls**	**Pax mov.**	**Calls**	**Pax mov.**	**Calls**	**Pax mov.**	**Calls**
Pyrgos	413,716	199	7,589	10	123,509	126	-70%	-37%
Geirangerfjord	402,335	217	467	3	21,766	25	-95%	-88%
Ajaccio	387,917	171	12,475	24	24,877	56	-94%	-67%
Split	369,955	282	503	11	89,148	105	-76%	-63%
Zeebrugge	357,600	149	n.a.	5	70,000	23	-80%	-85%
Le Havre	353,700	131	4,700	4	40,320	37	-89%	-72%
Ålesund	336,580	189	3,250	5	24,000	37	-93%	-80%
Gibraltar	328,057	197	10,002	5	22,225	44	-93%	-78%
Rhodes	308,194	258	8,334	14	130,516	195	-58%	-24%
Heraklion	307,043	204	19,998	24	119,930	118	-61%	-42%
TOP50	**42,095,045**	**17,011**	**2,807,723**	**1,865**	**7,908,814**	**6,199**	**-81%**	**-64%**

Source: Risposte Turismo elaboration based on information directly provided by cruise ports and Associations (CruiseBaltic, CruiseEurope, CruiseNorway, Cruise Iceland, MedCruise, Greek Cruise Cluster, Wonderful Copenhagen). Note: Rankings are based on 2019 cruise traffic.

Even in a context that sees the quantity and variety of ports as one of the main strengths in cruising in the European and Mediterranean area, concentration of traffic is most marked. It can be seen that in 2019 the top50 ports saw 79% of total traffic (a value that further increases also in the 2020-2021 two-year period).

More than 400 European and Mediterranean ports handled over 53 million cruise passengers in 2019, with most of them not involved in cruise operations in 2020, with a slight increase in 2021 having a higher number of cruise ships operating in the EuroMed area, as well as more countries opened to cruise traffic and more possible itineraries.

Graph 2.1 **Top50 EuroMed cruise ports share of total cruise traffic in 2019, 2020, 2021**



Source: Risposte Turismo elaboration and esteem based on information provided by cruise ports, Associations (CruiseBaltic, CruiseEurope, CruiseNorway, Cruise Iceland, MedCruise, Greek Cruise Cluster, Wonderful Copenhagen) and National Statistics Bureau (EUROSTAT, Puertos del Estado, Hellenic Statistical Authority, Government of UK, TrafikAnalys Sweden, Statistics Estonia, Central Statistics Office Ireland, Montenegro Statistical Office, Statistics Portugal, Croatian Bureau of Statistics, Statistics Finland, Atout France, Statistics Belgium, Ministère de la Transition Ecologique, Malta National Statistics Office, Statistics Netherlands) , 2022. Note: The cruise data of the following countries are an esteem by Risposte Turismo: Germany (2021), France (2021), United Kingdom (2021), Netherlands (2020, 2021), Belgium (2019, 2020, 2021), Israel (2021), Turkey (2021), Morocco (2021), Latvia (2020, 2021), Lithuania (2020, 2021), Ukraine (2020, 2021), Tunisia (2020, 2021), Romania (2020, 2021), Bulgaria (2020, 2021)

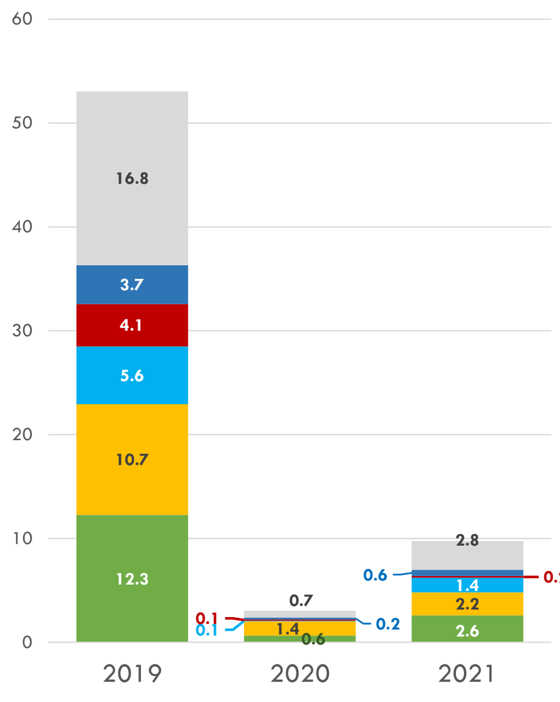
The following table shows the top5 European countries for passenger movements recorded in 2019, 2020 and 2021, according to a breakdown by country. The following graph deals also with the top5 countries, presented as per their shares of total European traffic. To be noted that, if Norway was the fourth European country for cruise traffic in 2019, in 2020 it was overtaken by France, Germany, United Kingdom and Portugal, thus being excluded from the top5 ranking.

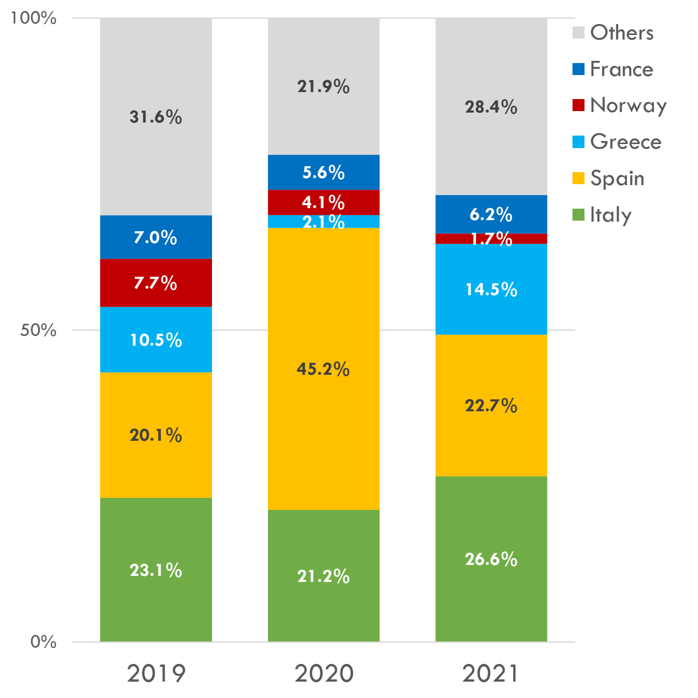
Tab 2.2 Cruise passenger movements in top EuroMed countries, 2019-2020-2021

	2019	2020	2021
Italy	12.3	0.6	2.6
Spain	10.7	1.4	2.2
Greece	5.6	0.1	1.4
Norway	4.1	0.1	0.2
France	3.7	0.2	0.6
Others	16.8	0.7	2.8
Total (Million)	**53.2**	**3.1**	**9.8**

Source: Risposte Turismo elaboration and esteem based on information provided by cruise ports, Associations (CruiseBaltic, CruiseEurope, CruiseNorway, Cruise Iceland, MedCruise, Greek Cruise Cluster, Wonderful Copenhagen) and National Statistics Bureau (EUROSTAT, Puertos del Estado, Hellenic Statistical Authority, Government of UK, TrafikAnalys Sweden, Statistics Estonia, Central Statistics Office Ireland, Montenegro Statistical Office, Statistics Portugal, Croatian Bureau of Statistics, Statistics Finland, Atout France, Statistics Belgium, Ministère de la Transition Ecologique, Malta National Statistics Office, Statistics Netherlands) , 2022.Note: All notes of graph 2.1 apply; due to rounding, some totals may not correspond with the sum of the separate figures.

Graph 2.2 Cruise passenger movements in top EuroMed countries, absolute values and shares on total 2019-2020-2021





Source: Risposte Turismo elaboration and esteem based on information provided by by cruise ports representing >90% of cruise traffic, Associations (CruiseBaltic, CruiseEurope, CruiseNorway, Cruise Iceland, MedCruise, Greek Cruise Cluster, Wonderful Copenhagen) and National Statistics Bureau (EUROSTAT, Puertos del Estado, Hellenic Statistical Authority, Government of UK, TrafikAnalys Sweden, Statistics Estonia, Central Statistics Office Ireland, Montenegro Statistical Office, Statistics Portugal, Croatian Bureau of Statistics, Statistics Finland, Atout France, Statistics Belgium, Ministère de la Transition Ecologique, Malta National Statistics Office, Statistics Netherlands) , 2022.Note: All notes of graph 2.1 apply; due to rounding, some totals may not correspond with the sum of the separate figures.

The following table highlights the breakdown of cruise traffic by region. The first three lines refer to the Mediterranean, which is flanked by North Europe and the Atlantic region with the latter also including the Canary Islands and the Azores. The data for the Western Mediterranean stand out, with the only exception of 2020, followed by Northern Europe. The values for East Med, Adriatic and Atlantic are more modest and rather similar, although these three areas have experienced varying trends in the last two years. The Adriatic, above all, lost significant shares of traffic.

Tab 2.3 Cruise traffic distribution for EuroMed areas, 2019-2020-2021

	2019		2020		2021	
	Absolute value	%	Absolute value	%	Absolute value	%
West Med	21.5	40%	1.3	44%	4	41%
East Med	5.3	10%	0.1	2%	1.3	13%
Adriatic	5.6	11%	0.1	2%	0.9	10%
North Europe	14.9	28%	0.4	14%	2.2	22%
Atlantic	5.9	11%	1.2	38%	1.4	14%
Total (Million)	**53.2**	**100%**	**3.1**	**100%**	**9.8**	**100%**

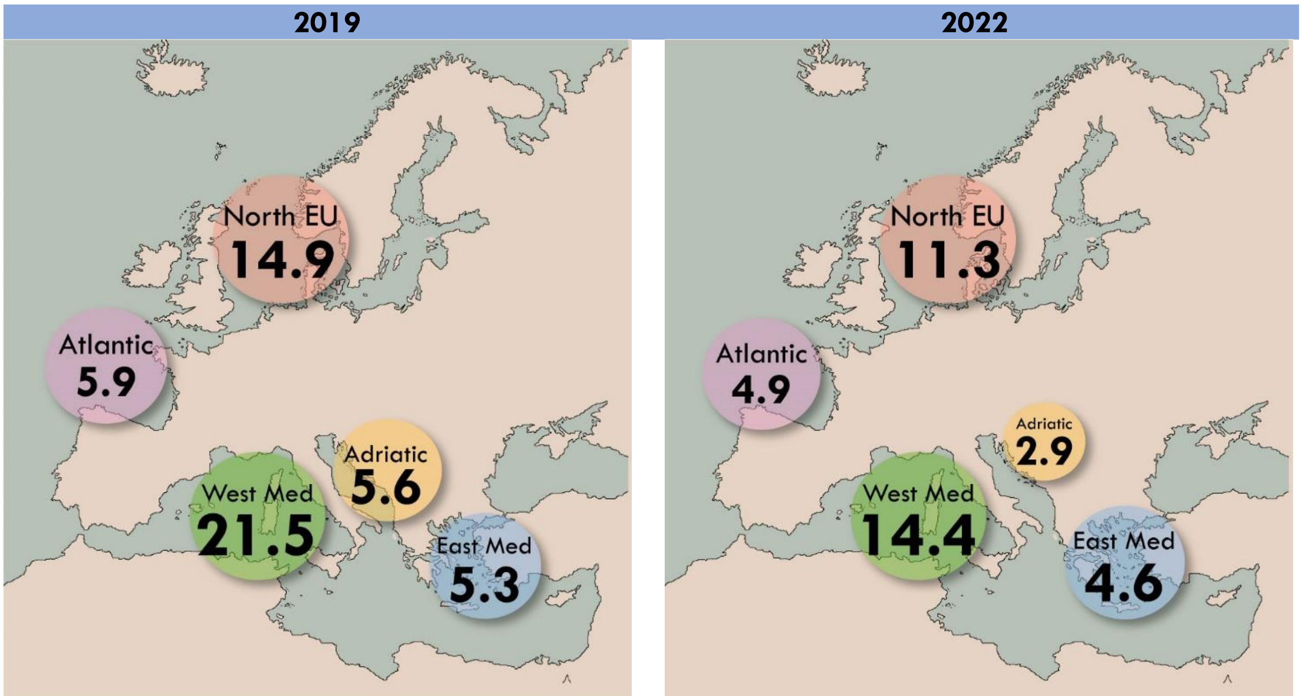
Source: Risposte Turismo elaboration and esteem based on information provided by cruise ports, Associations (CruiseBaltic, CruiseEurope, CruiseNorway, Cruise Iceland, MedCruise, Greek Cruise Cluster, Wonderful Copenhagen) and National Statistics Bureau (EUROSTAT, Puertos del Estado, Hellenic Statistical Authority, Government of UK, TrafikAnalys Sweden, Statistics Estonia, Central Statistics Office Ireland, Montenegro Statistical Office, Statistics Portugal, Croatian Bureau of Statistics, Statistics Finland, Atout France, Statistics Belgium, Ministère de la Transition Ecologique, Malta National Statistics Office, Statistics Netherlands) , 2022. Note: All notes of graph 2.1 apply; due to rounding, some totals may not correspond with the sum of the separate figures.

2.2 *Forecast and challenges for 2022 and 2023*

This section of the report presents the cruise traffic forecasts for this year in the ports of the EuroMed area. This year, almost 40 million cruise passenger movements are expected in European and Mediterranean ports (38.6M, +300% vs 2021). Cruise tourism is rebounding but still low, -28% compared to the record values of 2019 in which EuroMed cruise ports welcomed 53.2M cruise passenger movements.
This analysis aggregates and compares the values for macro areas, countries, and single cruise ports. The section is completed by some forecasts and further reflections on the main challenges that the cruise industry faces as we proceed toward 2023.

The double map that follows and the next table illustrate a comparison between the peak year of 2019 and expectations for the current year. The traffic variations are all negative, as expected, but various other trends are also highlighted. The Atlantic and the Eastern Mediterranean are holding up better than the Adriatic. Between these variations rank the West Med and the North Europe. Among the key reasons for these dynamics, we may certainly note proximity to the main customer bases and catchment areas which facilitates tourists (cruising with fewer flights, in a situation with still reduced long-haul airlift levels).

Fig 2.1 Cruise passenger movements in European macro areas, 2019 and 2022 forecast



Source: Risposte Turismo, 2022. Note: Atlantic area includes Azores, Canarias and Madeira islands.

Tab 2.4 Cruise passenger movements in European macro areas, variation 2022/2019

	West Med	East Med	Adriatic	Atlantic	North EU
Var% 2022/2019	-33%	-12%	-49%	-16%	-22%

Source: Risposte Turismo, 2022. Note: Atlantic area includes Azores, Canarias and Madeira islands.

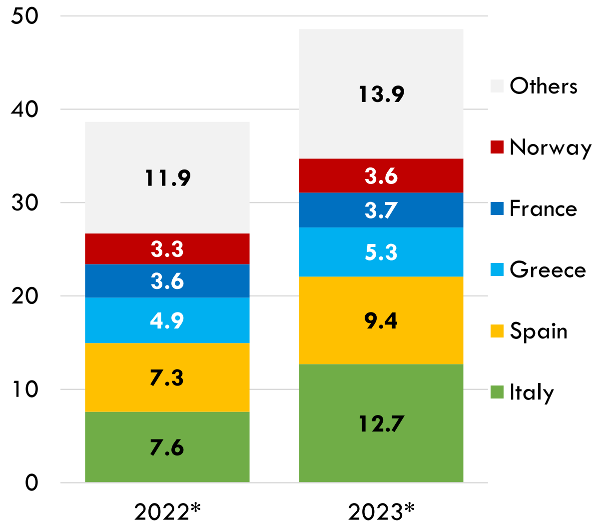
Compared to 2019, the 2022 top50 ranking for cruise ports will see some ports leaving and others entering it: the threshold that is expected to be necessary to enter the ranking in 2022 will be approximately 250.000 passenger movements, when it was 310.000 in 2019.
In addition to St. Petersburg, for geopolitical reasons, either Kotor or Venice (two of the historical key cruise ports of the Adriatic) will not be among the top50 ports for 2022.

Fig 2.2 Cruise ports entering and exiting the top50 chart for the EuroMed area, 2022

Source: Risposte Turismo elaboration based on information provided by a wide range of European cruise ports, 2022.

To develop a projection for expected traffic in 2023, we exchanged information with representatives of all top50 EuroMed cruise ports, with a further focus on Italian cruise ports. The feedback and info gathered were then matched with expected cruise ship deployment as per published itineraries and cruise schedules. Moreover, as another step in the methodology, for 2023 the occupation rates of cruise ships were estimated as in line with the pre-pandemic period. The graph to the right shows the expected traffic in the ports of the European and Mediterranean area for 2022 and 2023. Overall, almost 50 million passenger movements are expected in 2023 (48.6M, +26% vs 2022), of which over 22 million in Italian and Spanish ports. Cruise traffic will return to high levels in almost all European and Mediterranean countries.

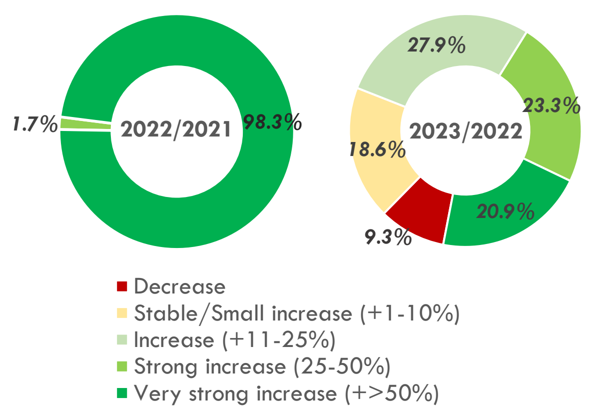
Graph2.4 Cruise passenger movements in top EuroMed countries, 2023forecast



Source: Risposte Turismo elaboration based on information provided by cruise ports representing >90% of cruise traffic in EuroMed area, 2022.

While between 2022 and 2021 positive variations markedly prevail, for 2023 compared to 2022 the variations are more heterogeneous. The 2023/2022 graph shows a few ports (1 out 10) that may welcome a little less traffic next year. As in other historical periods and due to geopolitical issues, some countries and ports have seen impediments to cruise traffic, with the current situation affecting the Black Sea and the Russian ports.

Graph2.3 Cruise passenger movements, expected variation 2022/2021 and 2023/2022



Source: Risposte Turismo elaboration based on information provided by cruise ports representing >90% of cruise traffic in EuroMed area, 2022.

The table below details the main ports analysed aggregating them by range. It shows how in 2023 the number of cruise ports with over 1 million passengers handled will rise from 6 to 11 (returning to the 2019 values). The entry of Kiel will replace the exit of Venice from the top50 EuroMed cruise ports while in the Canary Islands the cruise port of Las Palmas will be replaced by Tenerife. As mentioned, the main challenge for these predictions to become true will be cruise companies' ability to bring ships back to full occupation, also relying on greater airlift and an easier international mobility to support global source markets for navigating European and Mediterranean itineraries. In this framework, market competition for cruise demand is expected to intensify in the upcoming months.

Interesting to note how, in comparison to 2019, there's a smaller number of cruise ports welcoming 500,000 passengers or more in 2022. Besides Venice traffic reduction, it is worth highlighting the consolidation of 100-400,000 passenger movements range, which includes some 2019 top ports as Split, Kotor, Tallinn and Funchal.

Tab 2.5 Top EuroMed cruise ports by class of passenger movements

	2019	2022	2023
>1.5 pax	Barcelona, Civitavecchia, Marseille, Palma de Mallorca, Southampton, Venice	Barcelona, Civitavecchia, Marseille, Southampton	Barcelona, Civitavecchia, Marseille, Palma de Mallorca, Southampton
1.0 – 1.49	Genoa, Las Palmas, Naples, Piraeus, S. Cruz de Tenerife	Kiel, Palma de Mallorca	Naples, Genoa, Kiel, Piraeus, S. Cruz de Tenerife, Santorini
0.50-0.99	Arrecife, Bari, Bergen, Copenhagen, Corfu, Dubrovnik, Funchal, Hamburg, Helsinki, Kiel, Kotor, La Spezia, Lisbon, Livorno, Mykonos, Palermo, Rostock, Savona, Santorini, Stockholm, St. Petersburg, Tallinn, Valletta	Ålesund, Cadiz, Copenhagen, Corfu, Genoa, Helsinki, Las Palmas, Mykonos, Naples, Piraeus, S. Cruz de Tenerife, Santorini, Stockholm, Valencia, Valletta	Ålesund, Arrecife, Bergen, Cadiz, Copenhagen, Corfu, Dubrovnik, Haifa, Hamburg, Helsinki, Lisbon, La Spezia, Las Palmas, Livorno, Málaga, Messina, Mykonos, Palermo, Rostock, Savona, Stockholm, Valencia, Valletta
N. of ports	**34**	**21**	**32**

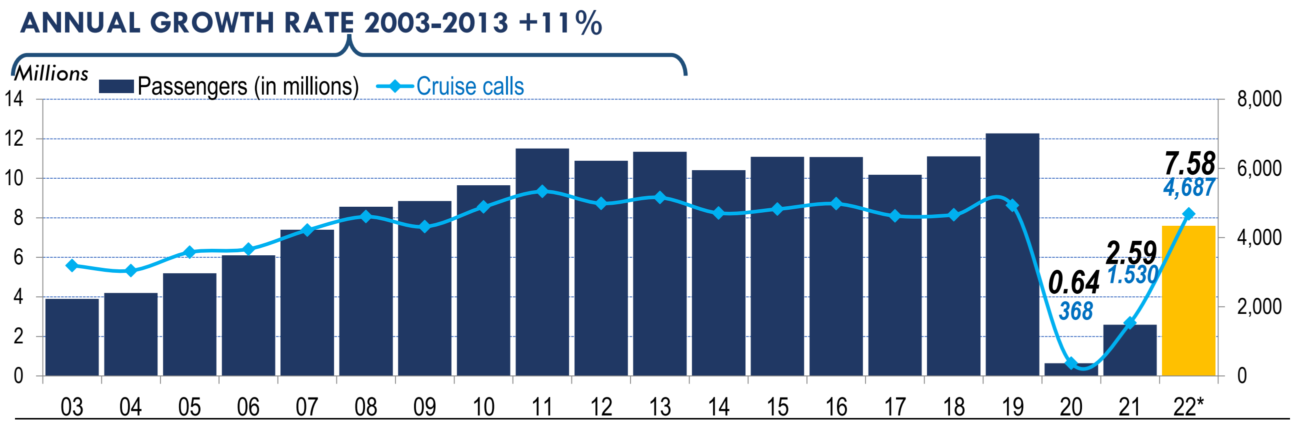
Source: Risposte Turismo elaboration based on information provided by cruise ports representing >90% of cruise traffic in Europe area, Associations (CruiseBaltic, CruiseEurope, CruiseNorway, Cruise Iceland, MedCruise, Wonderful Copenhagen) and National Statistics Bureau (EUROSTAT, Puertos del Estado, Hellenic, Government of UK, TrafikAnalys Sweden, Statistics Estonia, Central Statistics Office Ireland, Montenegro Statistical Office Statistics Portugal, Croatian Bureau of Statistics, Statistics Finland,Atout France, Statistics Belgium), 2022. Note: the table only shows ports that welcomed or are expected to welcome at least 500.000 cruise passengers.

3 CRUISE TRAFFIC IN ITALY

3.1 *Cruise traffic in Italy 2022: ports, regions, and macro areas*

This chapter is dedicated to the cruise traffic in Italy with trends, rankings and other highlights emerging mainly from 2019 vs 2022 comparisons. In some of the graphs such as the one below, a broader range of years is considered in order to highlight long-term trends. The first graph shows three different phases in the recent history of cruise traffic in Italy: unstoppable growth up to 2011, the fluctuations of the last decade, with the 2019 peak record of cruise passenger movements in Italian cruise ports (while for cruise calls, the record year was 2011), and the recovery years 2021 and 2022, after 2020 in which cruise traffic plunged to 600,000 (-72% 2020/2019) despite being one of the first Mediterranean countries to resume cruise itineraries in respect of safety protocols, along with Malta and France. Other countries, such as Croatia, Montenegro and continental Spain would not allow cruise calls until 2021. The forecast for 2022 is to welcome 7.6 million passengers to Italian ports with 4,687 cruise calls: if the number of calls returns to normal (-4.9% 2022/2019), the estimated passenger traffic (-38% 2022/2019) will still be influenced by reduced occupancy this year that, in any case, should grow month by month.

Graph 3.1 **Cruise traffic trend for Italy 2003-2021 and 2022 forecast**



Source: Risposte Turismo estimate and elaboration. Note: (*) 2022 data is based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

The ranking of Italian ports based on the 2022 forecast is presented in the table below. The upper part of the ranking is almost unchanged in comparison to 2019, except for Venice, which lost the podium and now ranks out of the top10, an effect of the new Italian government ban on cruise ships larger than 25,000 GRT (or greater than 180 meters and taller than 35 meters) navigating the St. Mark basin and the Giudecca Canal.

Tab 3.1 Cruise traffic in Italian ports, 2022 forecast and comparison to 2019

	2022 forecast		2019		Var. 2022/2019	
Port	Passenger movements	Cruise Calls	Passenger movements	Cruise Calls	Passenger movements	Cruise Calls
Civitavecchia	1,500,000	840	2,652,533	800	-43.5%	5.0%
Genoa	900,000	460	1,349,370	281	-33.3%	63.7%
Naples	900,000	315	1,356,320	457	-33.6%	-31.1%
La Spezia	480,000	176	601,441	143	-20.2%	23.1%
Savona	400,000	162	669,477	154	-40.3%	5.2%
Palermo	480,000	238	501,281	160	-4.2%	48.8%
Livorno	350,000	263	832,121	379	-57.9%	-30.6%
Bari	350,000	188	674,675	234	-48.1%	-19.7%
Messina	340,000	211	422,732	170	-19.6%	24.1%
Trieste	296,044	231	177,212	64	67.1%	260.9%
Top10 ports	**5,996,044**	**3,084**	**9,237,162**	**2,842**	**-35.1%**	**8.5%**
Cagliari	176,566	124	290,334	101	-39.2%	22.8%
Catania	145,783	94	208,509	113	-30.1%	-16.8%
Ravenna	160,000	100	15,281	33	947.1%	203.0%
Venezia	140,000	130	1,603,516	497	-91.3%	-73.8%
Siracusa	140,000	92	15,134	103	825.1%	-10.7%
Taranto	138,315	54	9,205	7	1402.6%	671.4%
Portofino	95,108	93	78,401	105	21.3%	-11.4%
Olbia	90,000	47	128,762	70	-30.1%	-32.9%
Brindisi	80,000	70	86,096	42	-7.1%	66.7%
Monfalcone	70,000	24	0	0	-	-
Top20 ports	**7,231,816**	**3,912**	**11,672,400**	**3,913**	**-38.0%**	**0.0%**
Other 29 ports*	**348,203**	**775**	**594,883**	**1,018**	**-41.5%**	**-23.9%**
ITALY	**7,580,019**	**4,687**	**12,267,283**	**4,931**	**-38.2%**	**-4.9%**

Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, 2022. Note: (*): Other 29 ports include Salerno, Ancona, S.M. Ligure, M. di Carrara, Trapani, Sorrento, Crotone, Portoferraio, Lipari, Amalfi, Porto Venere, Ponza, Giardini Naxos, Alghero, Monopoli, Arbatax, Porto Torres, Porto Ercole and Porto S. Stefano, Otranto, Gaeta, Piombino, Capri, Porto Cervo, Porto Empedocle, Ortona, Pesaro, Oristano, Golfo Aranci, Manfredonia.

There is a partial redistribution of the traffic historically achieved by Venice among other ports in the Northern Adriatic area such as Trieste, Ravenna and the new-entry Monfalcone in addition to Venice itself. Overall, the sum is still far below the 1.8 million passenger movements achieved by the port of Venice in its record year.
The lower part of the table shows other emerging cruise ports in Italy, such as Siracusa, Taranto and the cited Monfalcone. The first two ports were chosen by cruise companies in 2021 as part of alternative itineraries calling new ports. Only two ports among the top20 –Siracusa and Portofino – are not under the jurisdiction of any Italian Port Authority.
In 2022, 49 cruise ports will welcome traffic. In 2019 the operating ports were 66, 27 in 2020. In 2022 95% of passengers and 89% of cruise calls will be managed by Italian Port Network Authorities, while the share in 2020 was 99.9% and 97.3%, respectively.

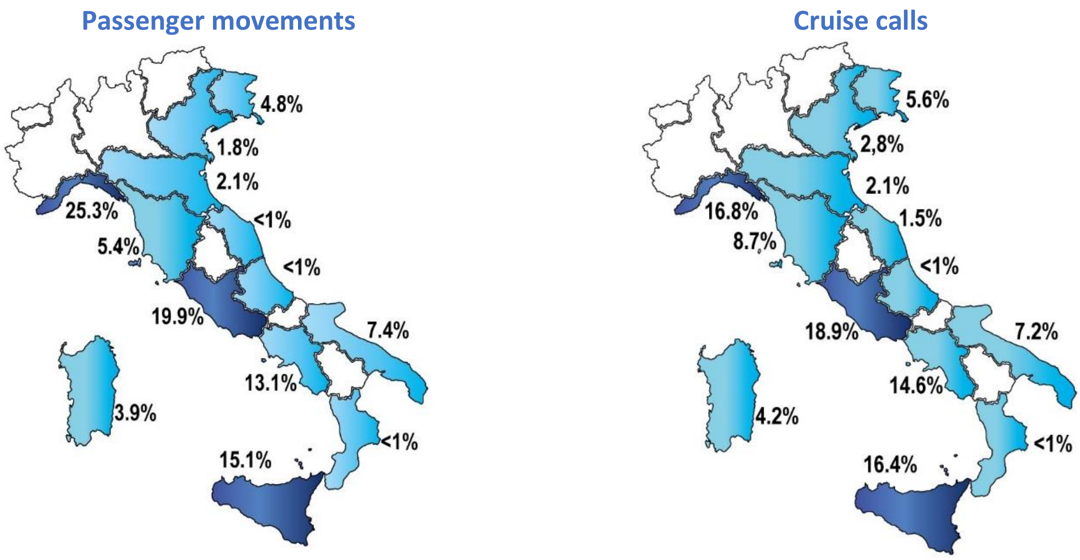
The 2022 traffic will still be far below the record figure of 2019 in terms of passengers handled in Italian cruise ports (-39.5%) while the value of the ship calls is closer to the 2019 data (-5%) thanks to almost full deployment of the cruise companies normally sailing and cruising Italian itineraries. Estimates by Risposte Turismo consider a ramp-up of occupation that will gradually increase during the year.
Except for Basilicata and Molise, all the Italian regions will welcome cruise traffic. Liguria is the first region for passenger traffic, with three of its ports which will welcome at least 400,000 passengers in 2022. 99% of cruise vessels in Lazio call at the Civitavecchia cruise port. It is worth noting the revamping of the Calabria region and the port of Crotone, which will welcome 23,000 passengers with 32 calls during this season.

Tab 3.2 Cruise traffic in Italian regions, 2022 forecast and comparison to 2019

	2022			% share		Var. % 2022/2019	
Region	**Ports**	**Pax. Mov.**	**Cruise calls**	**Pax. Mov.**	**Cruise calls**	**Pax. Mov.**	**Cruise calls**
Liguria	7	1,918,632	789	25.3%	16.8%	-30%	7%
Lazio	3	1,505,700	884	19.9%	18.9%	-43%	5%
Sicily	8	1,148,271	769	15.1%	16.4%	-7%	-3%
Campania	5	995,730	684	13.1%	14.6%	-36%	-9%
Apulia	5	563,620	336	7.4%	7.2%	-27%	0%
Tuscany	5	412,000	407	5.4%	8.7%	-55%	-21%
Friuli Venezia Giulia	3	366,224	261	4.8%	5.6%	106%	235%
Sardinia	7	293,309	198	3.9%	4.2%	-40%	-19%
Emilia Romagna	1	160,000	100	2.1%	2.1%	911%	203%
Veneto	1	140,000	130	1.8%	2.8%	-91%	-74%
Marche	2	53,450	68	0.7%	1.5%	-47%	-7%
Calabria	1	22,633	31	0.3%	0.7%	147%	121%
Abruzzo	1	450	30	0.0%	0.6%	-54%	50%
ITALY	**49**	**7,580,019**	**4.687**	**100%**	**100%**	**-38.2%**	**-4.9%**

Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules. Note: due to rounding, some totals may not correspond with the sum of the separate figures.

Fig 3.1 Italian regions shares of cruise traffic, 2022 forecast



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

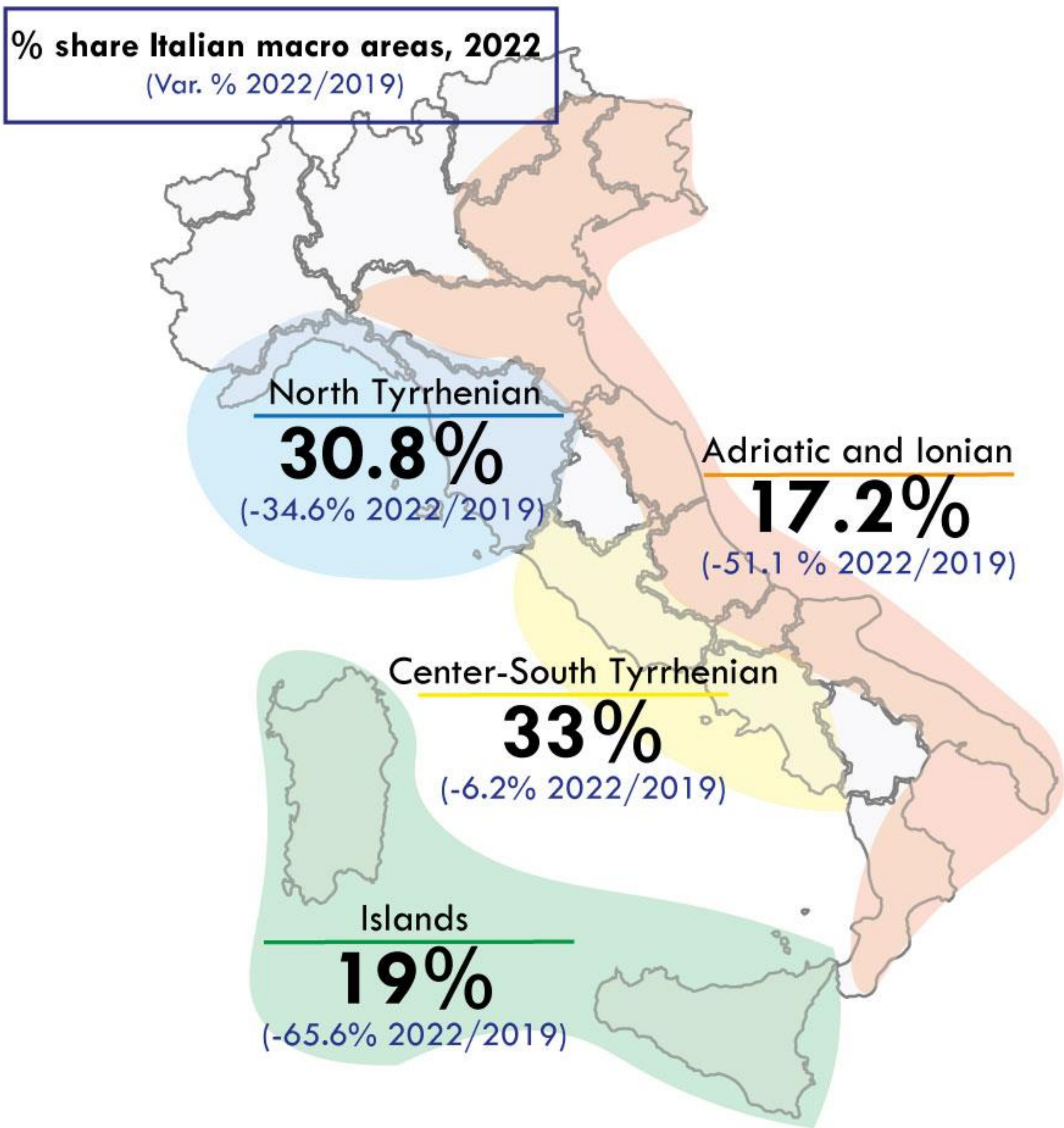
Using a different variable, the division of cruise traffic into macro areas highlights the share of Tyrrhenian areas, the Adriatic and the Ionian as well as the Islands.
In 2020 and 2021 the Italian Adriatic flank suffered limitations for calling extra-Schengen countries, while in 2022 all ports of the area came back into operation. The Italian ports in the Adriatic and Ionian area usually welcome a small-medium volume of cruise passenger movements, on comparison with the Tyrrhenian, which welcomes 65% of the cruise traffic. The biggest port of the Adriatic (which, overall, produces less traffic than Civitavecchia alone) is probably Bari, that is forecasted to manage almost 350,000 passenger movements in 2022.

Tab 3.3 Italian macro areas shares of cruise traffic, 2022

2022	Passenger movements	Cruise calls
Center-South Tyrrhenian	2,501,430	1,568
North Tyrrhenian	2,330,632	1,196
Islands	1,441,580	967
Adriatic and Ionian	1,306,377	956
ITALY	**7,580,019**	**4,687**

Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

Fig 3.2 **Italian macro areas shares of cruise passenger movements, 2022 forecast and var. 2022/2019**



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

Again, on Italian macro areas, the table below presents more info. The Adriatic and Ionian area is that which should present a greater fall in the pax/call ratio, as a result of both the kind of ships deployed in that area and the occupancy rate forecasted for 2022 as a whole. It can also be seen that in the above-mentioned area in 2022 all ports are back in operation, with a new entry, the cruise port of Monfalcone, which began welcoming cruisers in 2021.

The high number of non-operating ports in the Center-south Tyrrhenian area in 2022 is mostly due to non-confirmed restart in some smaller ports, often the ones not part of Italian Port Authorities Network (e.g. Agropoli, Pozzuoli, etc).

Tab 3.4 Italian macro areas: ratio pax/call, operating ports and companies, 2019 and 2022 forecast

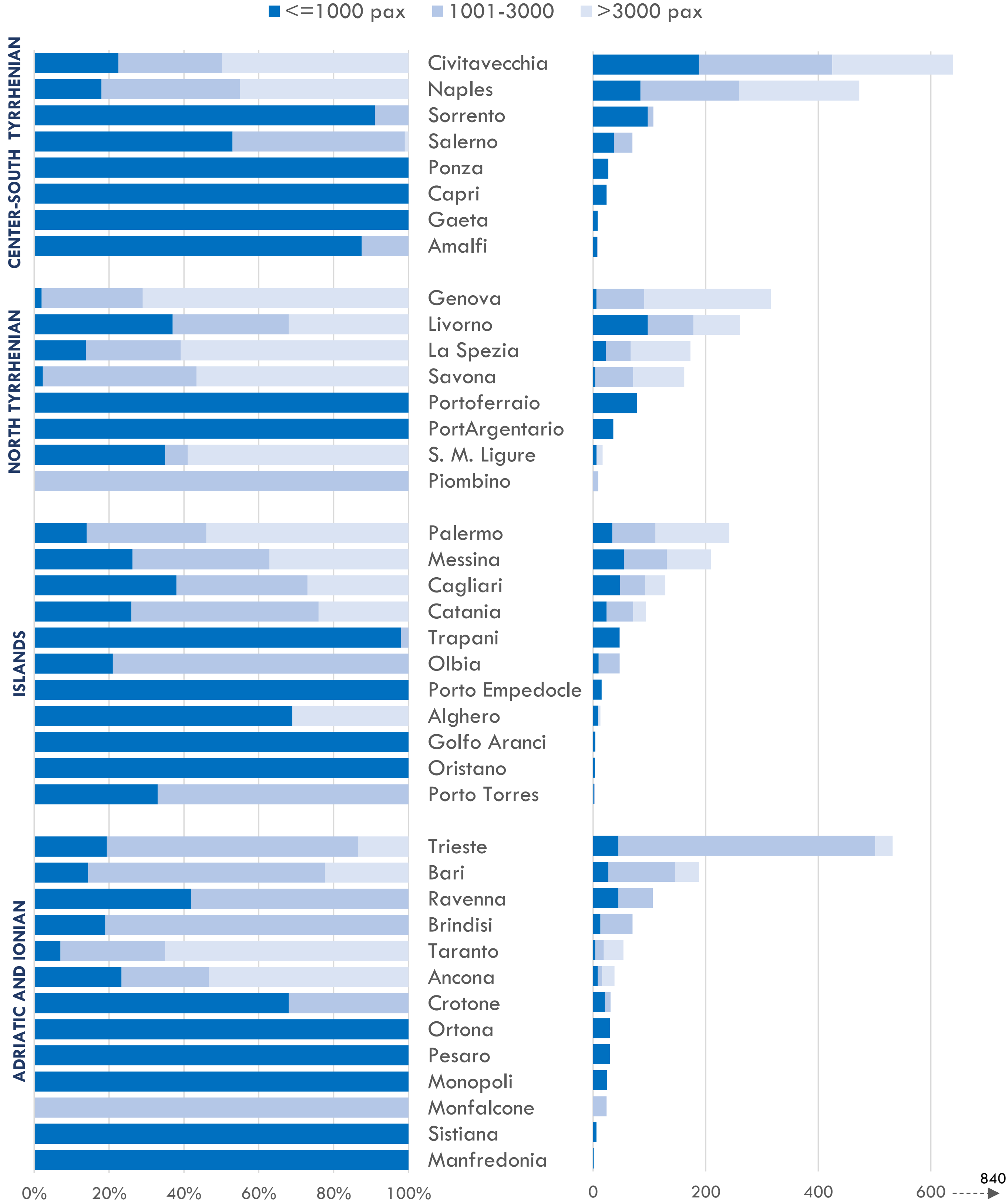
	Ratio pax/call		Operating ports		% of operating companies	
Macro area	**2019**	**2022**	**2019**	**2022**	**2019**	**2022**
Center-South Tyrrhenian	2,619	1,595	13	8	78.2%	97.6%
North Tyrrhenian	2,932	1,949	13	12	74.5%	100%
Islands	1,659	1,491	17	15	72.7%	100%
Adriatic and Ionian	2,577	1,366	13	14	78.2%	76.2%

Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

As already briefly mentioned, Italy welcomes cruise traffic in many ports. Though cruisers and calls are mainly concentrated in the top ports such as Civitavecchia, Genoa or Naples, Italian cruise geography factors in many small ports that welcome a modest amount of cruise traffic (modest since they are not well-known destinations or not located in a strategic position for the itineraries, or presenting with natural and geographical limitations to harbour access –e.g. small islands).

In 2019, the Italian cruise ports that welcomed more than 100.000 cruisers were 15 out of 56, while in 2022 they will probably be 16 out of 48. The following graph clarifies how the majority of cruise ports in Italy mainly welcome small/medium-sized vessels, while an important share of the big vessels (>3000 passengers) primarily calls at ports located in the North Tyrrhenian area.

Graph 3.2 **Cruise ships size distinction based on passenger capacity, calling at Italian cruise ports, 2022**

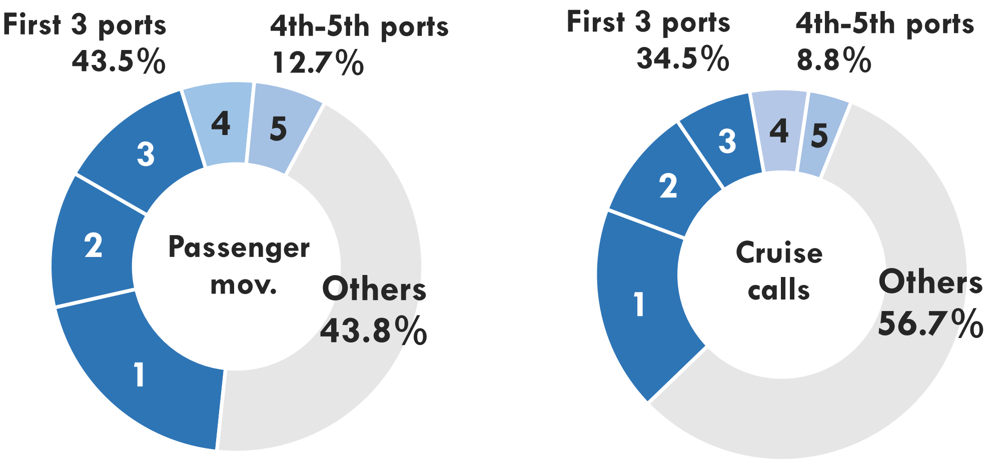


Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules (and/or published on websites and catalogues), 2022.

3.2 Trends in traffic: concentration, seasonality, and type of operation

The concentration of passengers in Italian top ports is quite high, while the share of cruise calls is lower, as smaller ports tend to welcome several vessels although with a limited tonnage and pax capacity. The top3 Italian ports concentrate 44.3% of passenger movements and 34.5% of cruise calls. When taking into consideration the top5 ports, the percentage share of traffic increases to more than a half of the national cruise traffic (57%) and around 43% of cruise calls.

Graph 3.3 Cruise traffic share for Italian top ports, 2022 forecast

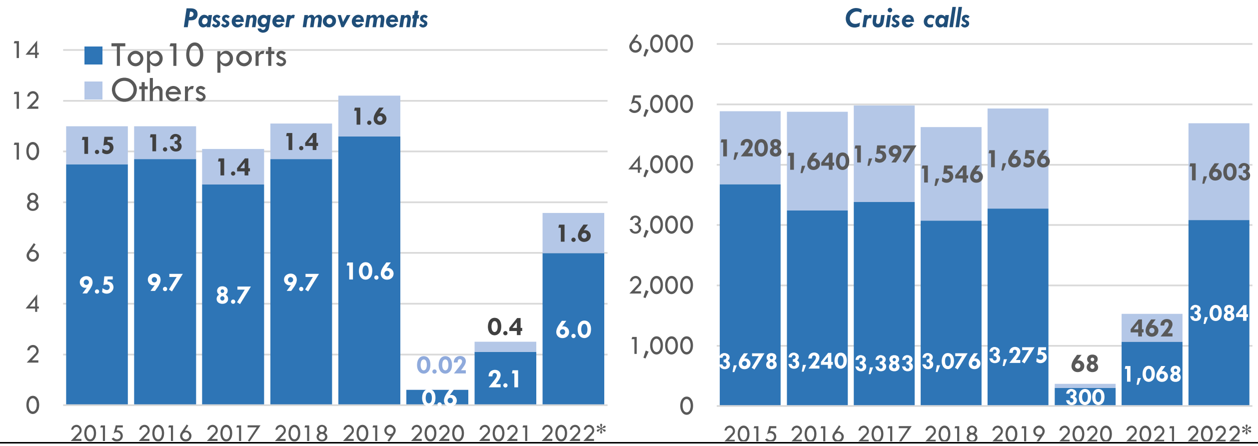


Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

The traffic concentration in the top10 ports increased slightly from 2019 to 2022, moving from around 75% to around 79%. The weight of individual ports also changed, with a decrease for Civitavecchia, Genoa, Livorno and Bari.

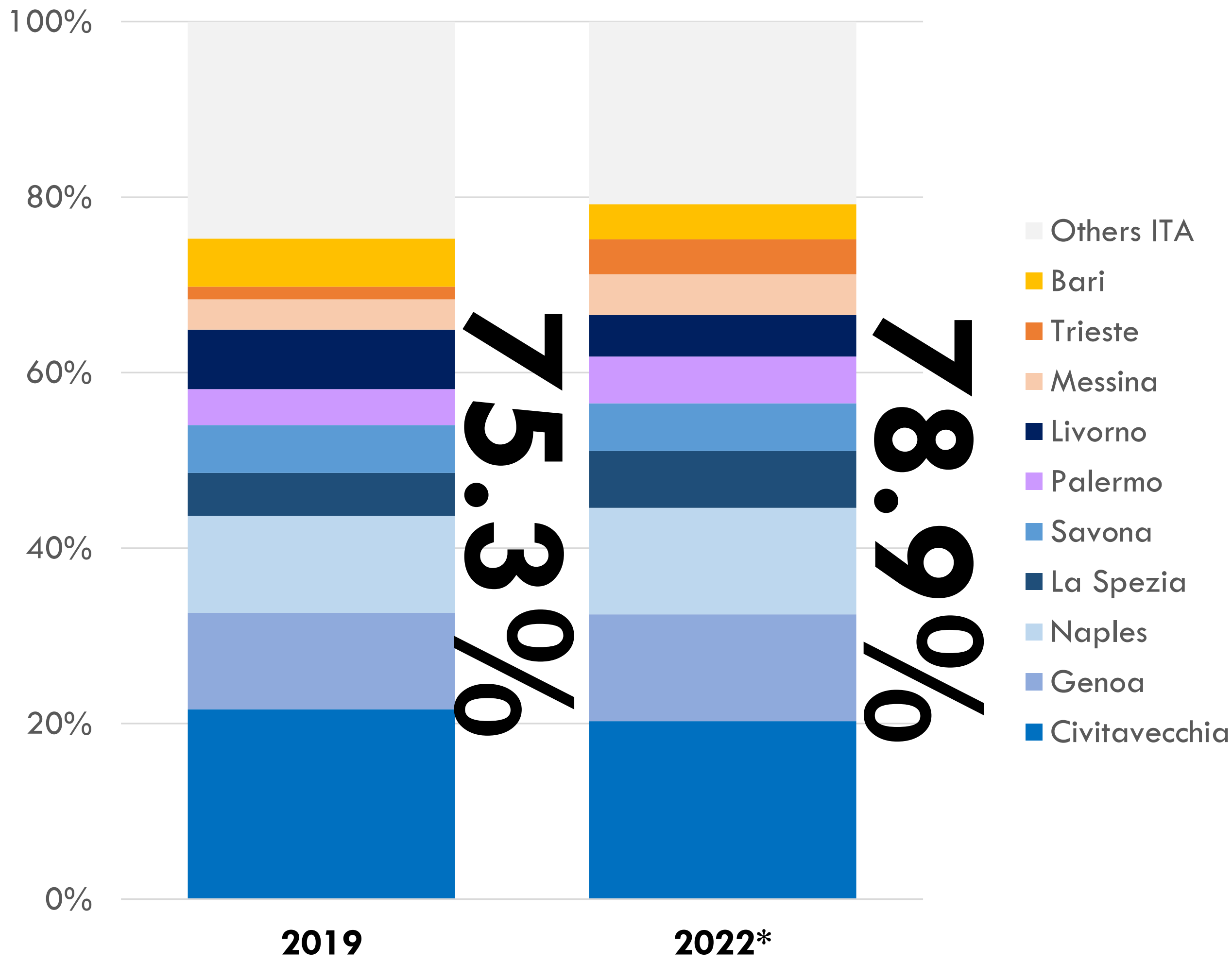
On the contrary, Trieste increased its share. The graphs 3.4 and 3.5 show passengers' traffic and cruise calls gathered by top10 Italian ports, with data expressed in absolute values. As stated earlier, these ports (which will welcome more than 200,000 cruisers in 2022), will contribute 79% of Italian cruise traffic.

Graph 3.4 Cruise traffic: top10 vs other cruise ports, 2015-2021 and 2022 forecast



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules. Note: (*) Risposte Turismo estimate.

Graph 3.5 **Cruise passenger movements share for Italian top ports, 2019 and 2022 forecast**

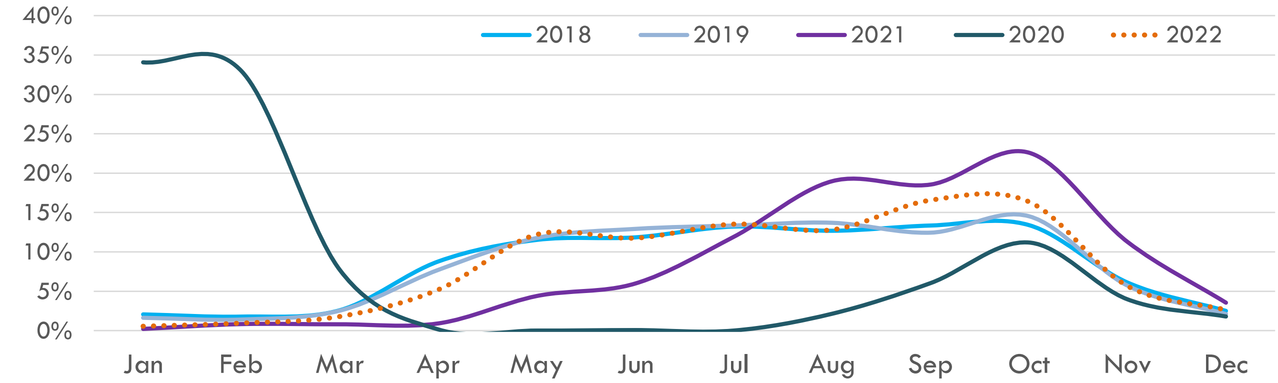


Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules. Note: (*) Risposte Turismo estimate.

Considering a five-year trend from 2018 to 2022 (estimates), the seasonality of cruise traffic develops in different ways according to the year taken into consideration. 2018 and 2019 show a rather constant development of the cruise season, starting in March with peaks in May, July and October thus confirming the role and contribution of cruise tourism to the destinations, providing flow of tourism even in low season. Due to the exceptional situation, 2020 highlighted its peak in February, before the cruising ban, and 2021 is characterized by a cruise season compressed into just 8 months.

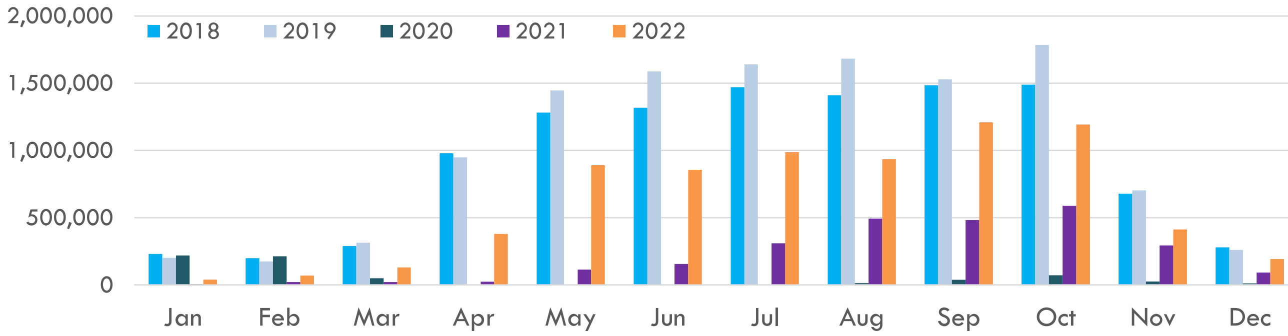
In 2022, a seasonality similar to 2018-2019 is forecasted, with the exception for a higher peak in late Summer-Fall due to the expected increase of passenger capacity onboard.
In 2022, cruise traffic volume is forecasted to more than double the 2021 data, especially from September on. 50% passenger capacity should be achieved already in late Spring/Summer, with an expected average of 70% at the beginning of Fall, in September-October.

Graph 3.6 Cruise traffic seasonality in Italy, 2018-2021 and 2022 forecast (percentage)



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

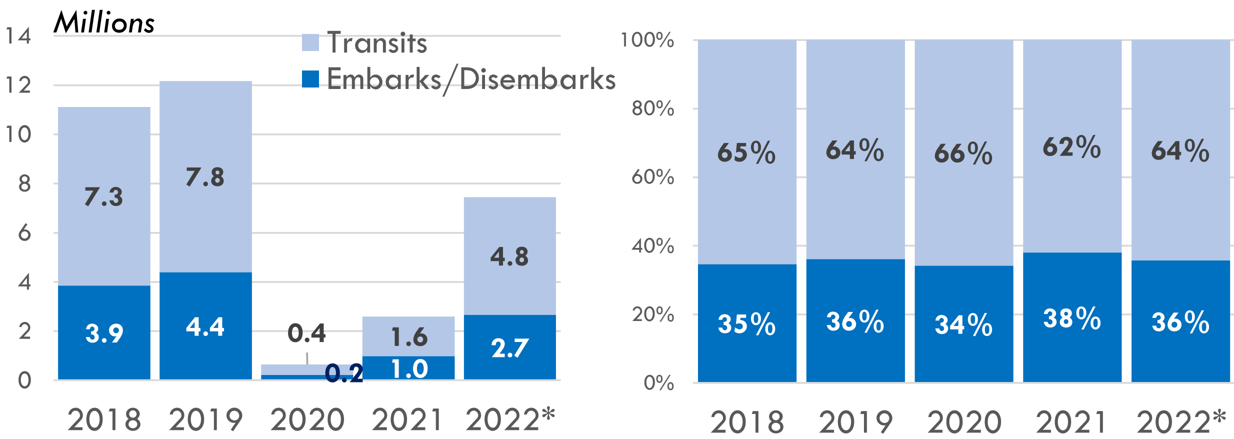
Graph 3.7 Cruise traffic seasonality in Italy, 2018-2021 and 2022 forecast (absolute value)



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

The graphs 3.6 and 3.7 show details of the absolute values and the share of cruise traffic among embarks/disembarks – that reached 4.4 million in 2019 – and transits. Even if the shares seem almost stable, it should be remembered how during the 2020 and 2021 seasons the need for cruise companies to ease conditions for the clientele, and reduce travel before and after the cruise, implied more cruise ports hosting embarking and disembarking operations.

Graph 3.8 Transits and embarking/disembarking cruise passenger movements, 2018-2021 and 2022 forecast



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules. Note: (*) Risposte Turismo estimate.

Italy has been, and still is, leader in regard to many aspects of the cruise industry, and one of them is traffic: leadership is evident considering the percentage share of Italy in the Mediterranean that in 2022 is expected to be around 35%. One in three cruise passenger movements in the Med will take place in an Italian port, a value that has been even higher during the pandemic biennium.

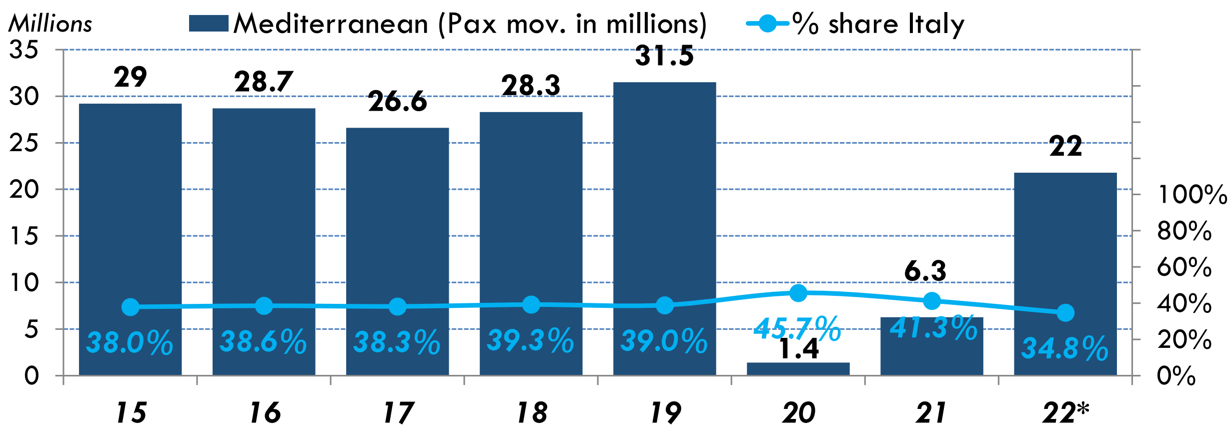
It is interesting to note that for 2022 the ratio of passengers per cruise call is lower for Italian ports compared to the Mediterranean average, probably due to a combination of reasons, one being the higher number of small ships calling at Italian ports, the other (which in any case may affect the entire Med area) being the fairly low occupancy rate recorded or forecasted for this year.

Tab 3.5 Italy share of Mediterranean traffic, 2022

	Passenger movements	Cruise calls	Passengers/cruise call
Mediterranean	21,790,866	11,875	1,835
Italy	7,580,019	4,687	1,602
% share Italy	35%	40%	

Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules.

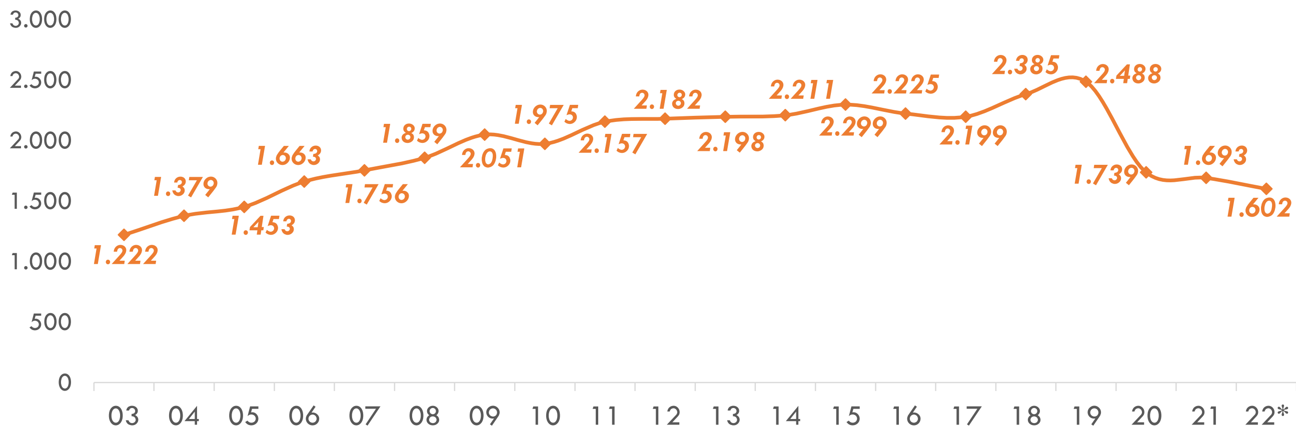
Graph 3.9 Italy share of Mediterranean cruise passenger movements, 2015-2022



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules. Note: (*) Risposte Turismo estimate.

Graph 3.10 closes this paragraph, showing the average number of passenger movements per cruise call, singly considered, over the years, also with a forecast for 2022.
The 2-decades range shows a year-by-year increase until 2019 when the peak was reached for passenger movements per cruise call. The 2019 ratio of 2,488 passengers on average, more than doubled the 2003 value (1,222).
In 2019, major cruise homeports presented an average value of 4.000 passenger movements per call. In 2020 the passengers/cruise calls ratio fell off, ascribed to a number of factors regarding both supply and demand. Namely, cruise vessels unable to sail with total capacity on board, global concerns relating to travelling (when not an actual inability to leave one's own country), and only partial resumption of cruise ships operations, month by month.
A ratio that is still low during this year, as the ship occupancy is under the recent average, being around 50- 60%. The expectation for the latter part of the year is to reach at least 80% occupancy for the summer.

Graph3.10 Cruise passenger movements/cruise calls ratio, 2003-2021 and 2022 forecast

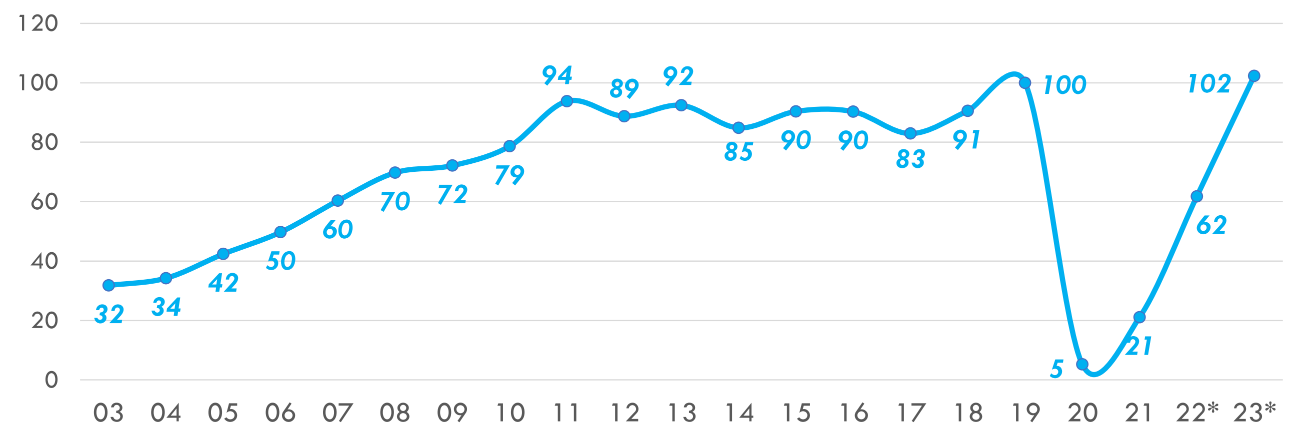


Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules. Note: (*) Risposte Turismo estimate.

3.3 *Forecast and challenges for 2023*

The graph shows the rebound in traffic volumes that in 2023 should bring Italy back to more or less the same levels that were recorded in 2019. An indexed graph (with 2019 as the reference year with value 100) enables us to more easily grasp how the traffic constantly grew until 2011, it remained almost stable over the following seven years, to peak in 2019 before collapsing due to the pandemic. The expected forecasts for 2022 and 2023 are based on the hypothesis that ships will return to work with an occupancy rate close to 100% by the end of 2022– a standard that the cruise industry was accustomed to – and considering, especially for 2023, a higher number of beds available for the itineraries that reach Italian ports. All this leads us to believe that the bar of 13 million passenger movements is at hand or is in any case within reach.

Graph 3.11 Indexed values (2019=100) for cruise passengers' traffic in Italy 2003-2021, 2022 and 2023 forecast



Source: Risposte Turismo elaboration based on estimates on occupation rates and information provided by cruise ports, port agents and cruise companies' schedules. Note: (*) Risposte Turismo estimate.

Certainly, we will have to deal with demand and how it will behave with respect to purchase of this specific product. Despite pandemic containment (at least in some areas of the world), demand has not always been as operators desired. The possible reasons include still high perception of risk, lower economic availability (with the urge to save money as a precautionary measure), travelling hesitancy, which results in a very slow return to previous travel behaviours.

This is not only valid for cruising but for many sectors of tourism too – a tourism which understandably is sustained by varying dynamics, and which has enabled some components and segments to easily find the way back to recovery. We need only think of proximity trips, mountain destinations, seaside destinations, and active and outdoor tourism. In other cases, in which organization of the holiday is more complex and perhaps even more expensive, a certain resistance has continued to manifest itself. Therefore, in order to regain certain volumes of demand, we must commit forcefully in many phases of the production process, with ports and cruise companies having to guarantee increasingly ideal conditions for holiday enjoyment. Companies in particular will have to select and use the right levers to better promote the product and to again make the product decidedly attractive for demand.

A demand that, in any case, already in these remaining months of 2022 seems to be starting to react positively, perhaps favouring last minute purchases to avoid situations of uncertainty. If this trend consolidates in the coming weeks – considering that historically the second half of the

year is more important than the first in generating traffic – we may find ourselves at the end of the year with a final balance even significantly higher than that forecasted for this study. This possibility must undoubtedly be contemplated also in the light of this historical moment, which for various reasons is making deployment of ships in other areas of the world a complex if not impossible task, making the Mediterranean an area of even greater core significance to cruise geography.
However, ports and cruise companies can't be considered on their own. Other elements of the supply side will also be needed. Particular reference is to be made to air traffic and therefore to this service component for cruise holidays, which, for an important part of the demand, is essential for arrival from place of residence at the port of embarkation. To date, air traffic has recovered much of its production capacity after an almost total stop, but in most airports – not only in Italy but also in Europe and worldwide – the daily schedule is still significantly hampered vis-à-vis the pre-pandemic period.

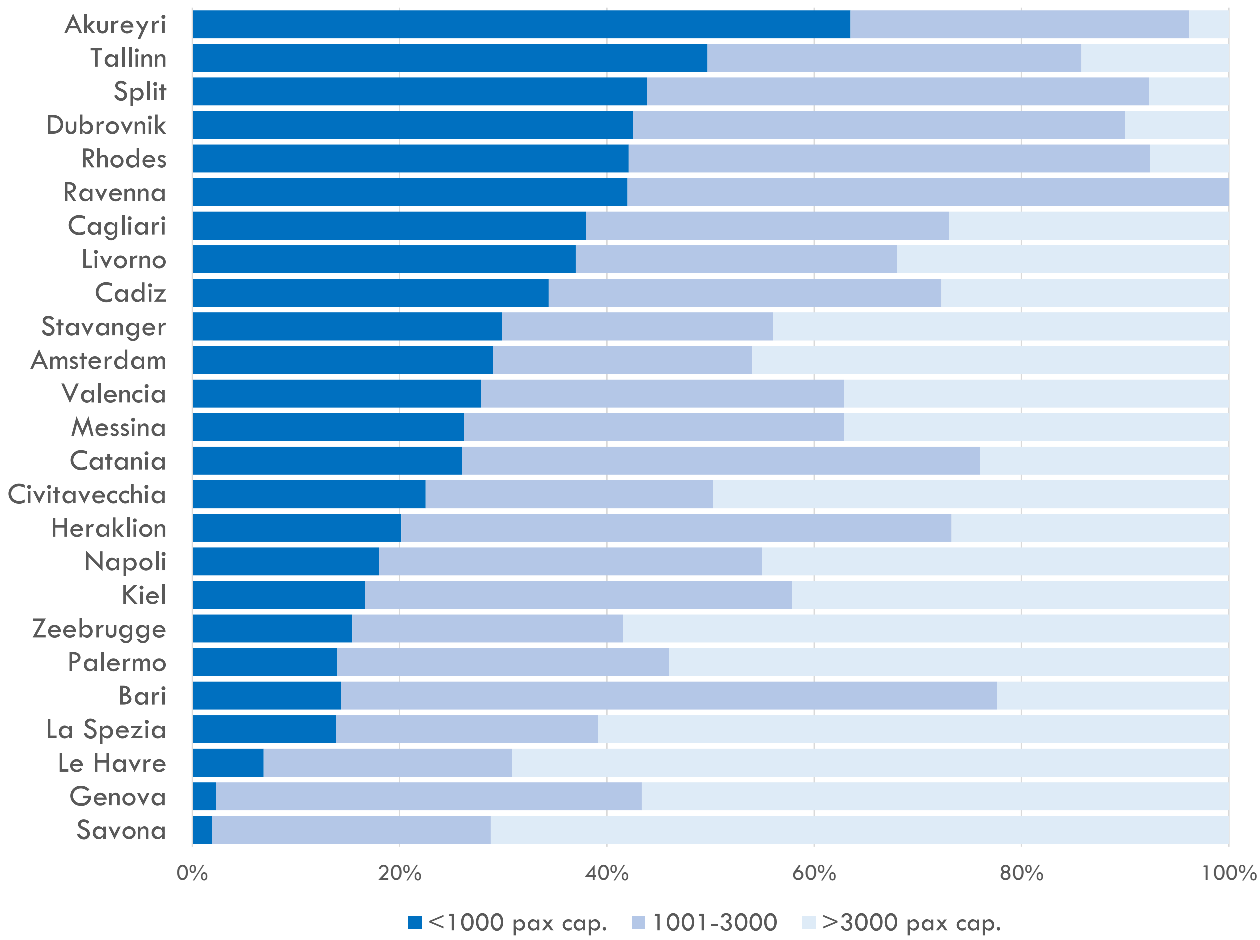
Therefore, when tourism industry as a whole regains the conditions to operate in full capacity –and hopefully also in full efficiency – all the potential will be released to attract and serve the amount of demand that had manifested itself up to three years ago. But it will be necessary – despite the great sacrifices made in recent months – to prepare for a period of uncertainty in which the growth of tourist demand may still be conditioned by elements of various kinds, which, in spite of ourselves, we have had to become accustomed to over recent years. We will also have to deal with limited spending capacity or availability of spending on the part of tourists. Consequently, from the points of view of the value of the market and economic impacts, it is worth remembering that the 13 million, or almost, of forecasted passenger movements for 2023 in Italian ports will not correspond – economically – to the same volumes recorded in 2019. For this type of recovery, it will be necessary to take a longer timeframe into account.

4 CRUISING IN THE EUROMED AREA: INNOVATIONS FROM COMPANIES AND PORTS

4.1 *Cruise companies calling in the EuroMed area*

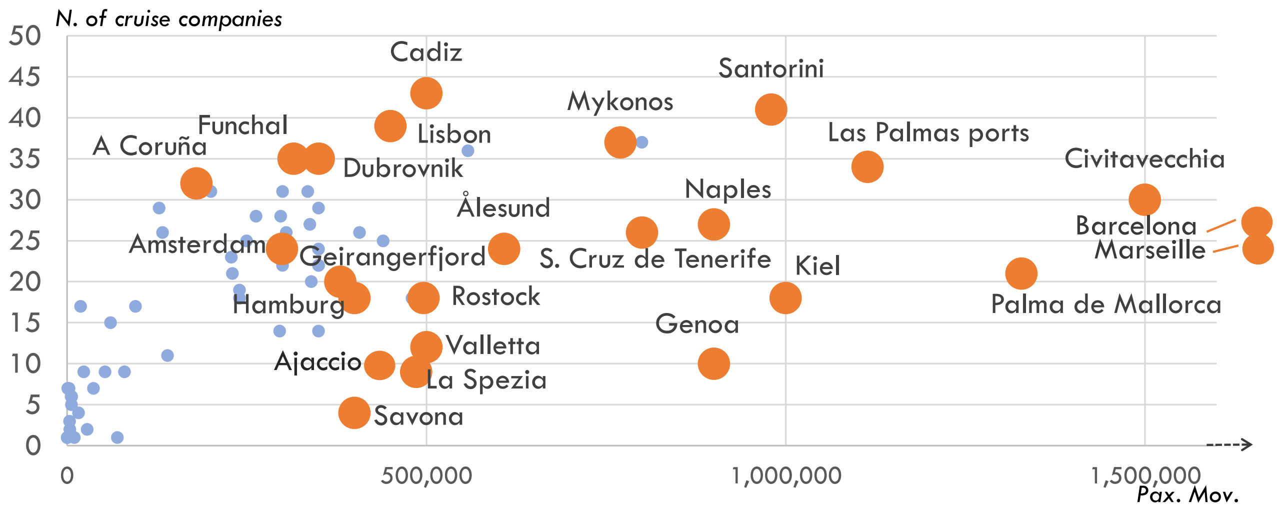
To better understand cruise dynamics in the area, we may consider, also in greater depth, further aspects not limited to overall traffic.
One of the easier aspects to consider is cruise ship size. The graph on the next page presents a comparison of passenger capacity for cruise vessels calling at a selection of European ports in 2022.
It is evident that these ports welcome different types of cruise ships in 2022, with remarkable differences among nearby ports or in the same area. As an example, taking into consideration two Adriatic ports, Bari welcomes a higher number of vessels with 1,000-3,000 passenger capacity, while Split expects to welcome smaller vessels.
On the Tyrrhenian flank, La Spezia and Savona both welcome a higher percentage of large-scale vessels (more than 3,000 passenger capacity) – 60.8% and 56.6%, respectively. In this selection, the port of Le Havre will welcome 7 out of 10 cruise ships with onboard up to more than 3,000 cruise passengers. This year, 40% of the cruise ships calling at Dubrovnik will carry less than 1,000 passengers on board. These are the consequences of decisions taken by the ports about their investments for infrastructures and services, but even more, they reflect choices made by cruise companies about their ships' deployment, mostly driven by commercial evaluations. Another indicative parameter is the number of cruise companies calling at a specific port, and graph 4.2 shows this ratio for a selection of European and Mediterranean ports, with a correlation with expected passenger traffic in 2022.
With a sample of around 80 ports, graph 4.2 shows that the average number of cruise companies calling at European ports comes to between 20 and 30 this year. It can be affirmed that there isn't a direct correlation between the number of cruise companies served and the volumes of traffic, although, with just a few exceptions, ports normally reach high levels of calls and passenger movements when working with more than 20 companies.

Graph 4.1 Cruise ships size distinction based on passenger capacity, calling at a selection of EuroMed cruise ports, 2022



Source: Risposte Turismo elaboration based on information provided by cruise ports, cruise companies (and/or published on websites and catalogues), 2022.

Graph 4.2 Number of cruise lines calling at a selection of cruise ports, and passenger movements, 2022



Source: Risposte Turismo elaboration based on information provided by a wide range of cruise ports, 2022. Note: passenger movements are estimates Risposte Turismo 2022.

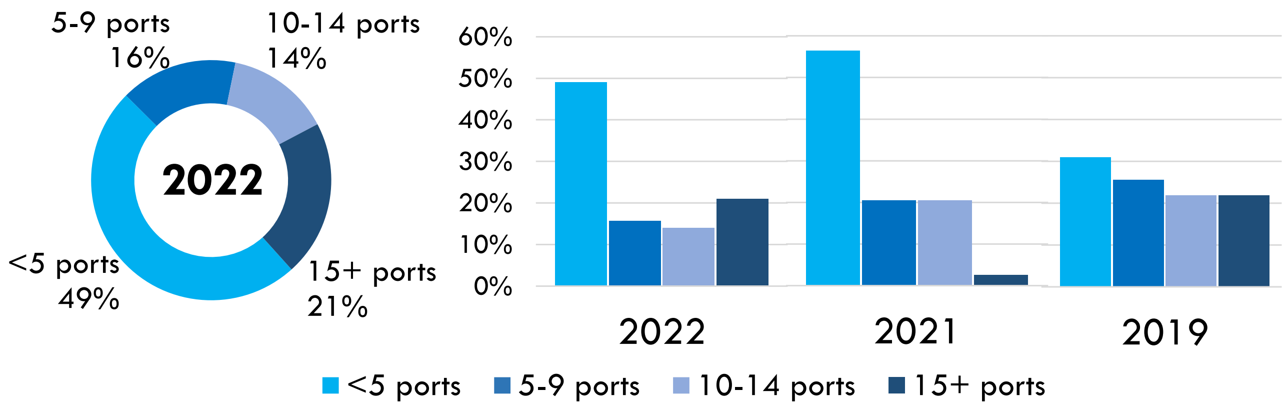
Tab 4.1 Cruise companies variety for a selection of EuroMed ports in 2022

Percentage of cruise companies on overall number of cruise companies operating in the EuroMed area	
50-40%	Cadiz, Copenhagen, Corfu, Dubrovnik, Funchal, Lisbon, Mykonos, Santorini
39-30%	A' Coruña, Akureyri, Arrecife, Barcelona, Cartagena, Civitavecchia, Gibraltar, Haifa, Helsinki, Kotor, Las Palmas ports, Malaga, Marseille, Naples, Piraeus, Rhodes, Split, Tallinn, Valencia
29-20%	Ålesund, Amsterdam, Cannes, Catania, Chania, Flam, Geirangerfjord, Hamburg, Heraklion, Kiel, Le Havre, Livorno, Oslo, Palermo, Palma de Mallorca, Portofino, Pyrgos, Rostock, Southampton, Stavanger, Zeebrugge
19-10%	Ajaccio, Ancona, Bari, Brindisi, Crotone, Genoa, La Spezia, Olbia, Salerno, Siracusa, Sorrento, Trapani, Trieste, Valletta, Venice
9-5%	Alghero, Amalfi, Capri, Monopoli, Porto Empedocle, Porto Venere, Santa Maria Ligure, Taranto
<5%	Arbatax, Gaeta, Golfo Aranci, Marina di Carrara, Monfalcone, Pesaro, Piombino, Ponza, Porto Torres, Ravenna, Savona, Sistiana

Source: Risposte Turismo elaboration based on information provided by a wide range of cruise ports, cruise companies (and/or published on websites and catalogues), 2022. Note: ports are listed in alphabetical order.

In Italy, this year, half of the cruise companies reaching the country (49%) will call at a minimum 5 ports. However, at the same time, with an increase in the number of deployed ships, an increase may be noted also in the number of companies calling at more than 15 ports (21%) vs the 2021 value (3%), returning to a more homogenous distribution as in 2019. As the cruise industry gradually recovers from the pandemic, smaller ports are getting back into operation after one or two years of inactivity, e.g. Marina di Carrara, S. Margherita Ligure, and Golfo Aranci.

Graph 4.3 Share of cruise companies per number of Italian ports called, 2022 and 2022-2021-2019 (comparison)

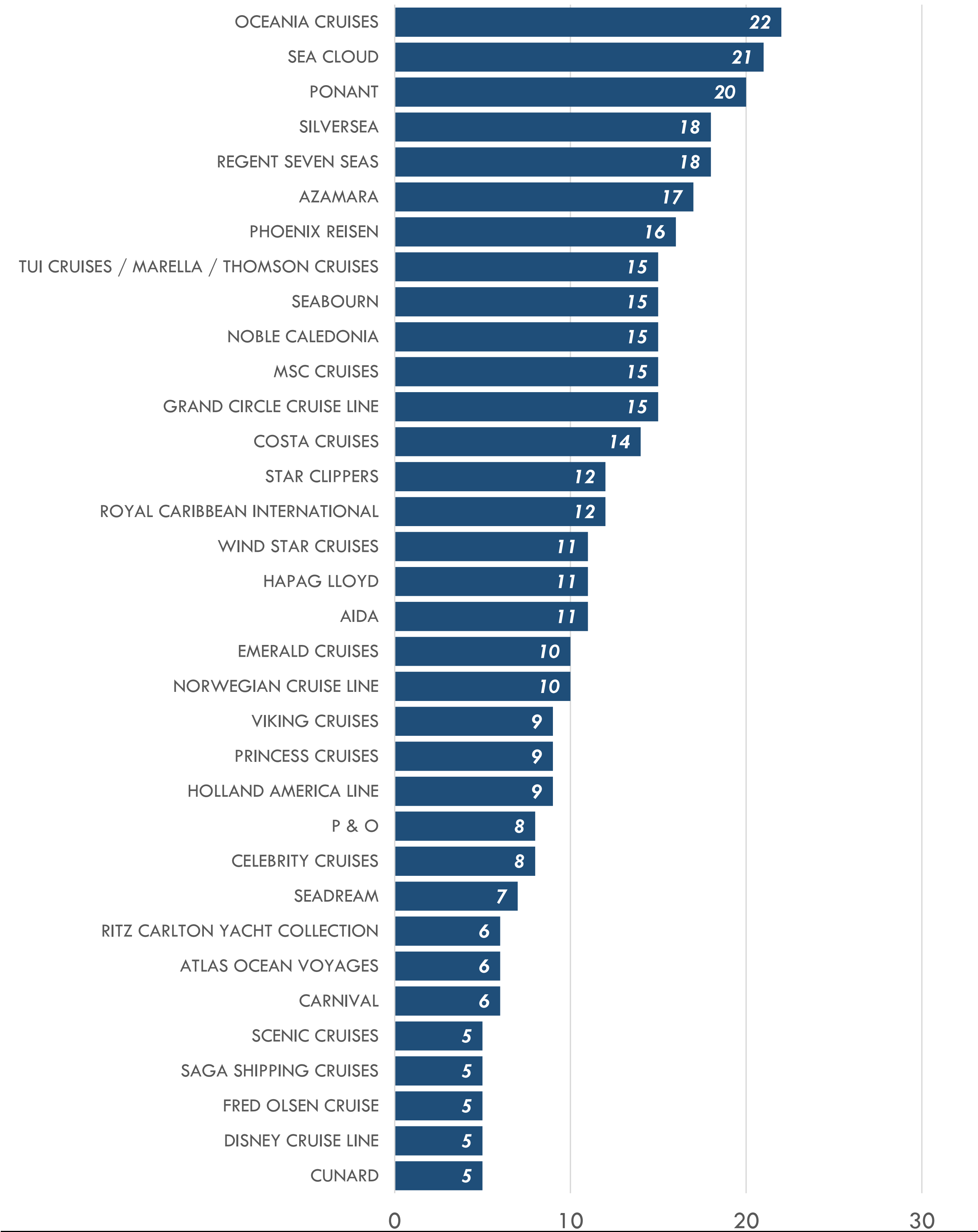


Source: Risposte Turismo elaboration based on information provided by cruise ports, 2022.

The graph on the next page shows the cruise companies that in 2022 are calling at the greatest number of Italian cruise ports.
Sea Cloud and Oceania Cruises lead this standing with more than 20 ports (a 50% share of the 49 cruise ports that will welcome cruise ships this year), both proposing itineraries taking in every Italian macro area (North Tyrrhenian, Center-South Tyrrhenian, Adriatic and Ionian, and Islands).

Just to name a few new cruise companies entering the business, Ritz-Carlton Yacht Collection and Virgin Voyages are operating in Italy in 2022, with 6 and 4 ports, respectively (14% and 9% share). The brand-new vessel *Emerald Azzurra* operated by Emerald Cruises, is expected to visit 10 ports. Disney Cruise Line is once more operating in Italy after a two-year stop, while other companies have been increasing their presence vs last year, such as Princess Cruises, P&O and Fred Olsen.

Graph 4.4 Number of Italian ports involved in the itineraries provided by the listed cruise company, 2022



Source: Risposte Turismo elaboration based on information provided by a wide range of cruise ports, cruise companies (and/or published on websites and catalogues), 2022. Note: the graph only includes cruise companies that visit at least 5 ports (10% of overall active cruise ports).

Tab. 4.2 Number of Italian ports involved in the itineraries provided by cruise

>20	Oceania Cruises, Ponant, Sea Cloud
15-20	Azamara, MSC Cruises, Noble Caledonia, Phoenix Reisen, Regent Seven Seas, Seabourn, Silversea, Thomson TUI Marella
10-14	AIDA, Costa Cruises, Emerald Cruises, Grand Circle Cruise Line, Hapag Lloyd, Norwegian Cruise Line, Princess Cruises, Royal Caribbean Int, Star Clippers, Wind Star
5-9	Atlas Ocean Voyages, Carnival Cruise Line, Celebrity Cruises, Club Med, Cunard, Disney Cruise Line, Fred Olsen, Holland America Line, P&O, Ritz Carlton Yacht Collection, Saga Shipping Cruises, Sea Dream Yacht, Star Clippers, Viking Cruises
<5	Aegean Experience, Cruise&Maritime Voyages, CroisiEurope, Crystal Cruises, Elegant Cruises, Hurtigruten, Majestic Cruise Line, Mano Maritime Ltd, Mystic Cruises, Peace Boat, Premier Cruises, Quark Expedition, Residensea/The World, Salen Ship Management, Scenic Cruises, Semester At Sea, Tradewind Voyages, Variety Cruises, Virgin Voyages, Voyages To Antiquity, Zenith Cruise Line

Source: Risposte Turismo elaboration based on information provided by cruise ports, cruise companies (and/or published on websites and catalogues), 2022. Note: cruise companies are listed in alphabetical order.

In 2022 six ports welcome more than 50% of cruise companies that call in Italy, and four of these are forecasted to be among the top10 ports this year in terms of traffic. But this doesn't mean that the condition of marking up high volumes of traffic will depend on the number of cruise companies served. This is the case, for example, of the Ligurian ports of Genoa and Savona, both in the top10 Italian ports in 2022 not thanks to the number of cruise companies they work with but because each is a relevant home port for the two companies that navigate most extensively along Italian coastlines.

Tab. 4.3 Cruise companies variety for Italian cruise ports in 2022

Percentage of cruise companies on overall number of cruise companies operating in Italy, 2022	
>50%	Cagliari, Catania, Civitavecchia, Livorno, Messina, Naples
45-50%	Palermo
40-45%	Portoferraio, Portofino, Trapani
35-40%	Olbia, Salerno
30-35%	Bari, Trieste
25-30%	Genoa, La Spezia, Siracusa, Venice
20-25%	Ancona, Brindisi, Crotone, Porto Ercole + Porto S. Stefano, Sorrento, Taranto
15-20%	Amalfi, Capri, Monopoli, Porto Empedocle, Santa Maria Ligure, Taranto
10-15%	Alghero, Porto Venere, Ravenna
5-10%	Gaeta, Marina di Carrara, Oristano, Ponza, Porto Torres, Savona
<5%	Arbatax, Golfo Aranci, Manfredonia, Monfalcone, Pesaro, Piombino, Sistiana

Source: Risposte Turismo elaboration based on information provided by cruise ports, cruise companies (and/or published on websites and catalogues), 2022. Note: ports are listed in alphabetical order.

4.2 New cruise passenger terminals: a five-year perspective for the EuroMed area

This section aims to provide a five-year overview of the new terminals, built or to be built, dedicated to cruise traffic in the Mediterranean and Europe, with a focus on the Italian area. In most cases, these are new cruise terminals designed ex-novo and built on new areas or to replace old cruise terminals. In small part, they are renovations of existing cruise terminals.

The following table provides an overview of the ports that have seen or will see construction of new cruise terminals from 2021 onwards (with focus until 2027).

Last year, nine ports inaugurated new terminals dedicated to cruise traffic: in alphabetical order Crotone (Italy), Funchal (Portugal), Istanbul (Turkey), Manfredonia, Monopoli and Barletta (Italy), Rostock (Germany), Southampton (UK) and Tallinn (Estonia). Refurbishment of Trapani cruise terminal (Italy) should also be noted.

This year, refurbishment of the historical *Stazione Marittima* of Palermo (Italy) has been completed in May, and completion of the new cruise terminal in Porto Empedocle (Italy) is expected in November.

Construction of the new check point in Cagliari (Italy) and the new cruise terminals in Catania and Taranto (Italy), as well as in Tarragona (Spain), should be completed next year, while expansion of the cruise terminal at the former Hennebique building should be completed in Genoa (Italy).

Cruise terminals in Hamburg (Germany), Barcelona (Spain), Bari, Messina and Ravenna (Italy), Geirangerfjord (Norway) and Split (Croatia) are expected to be completed in 2024.

After 2024, new cruise terminals should be built in Souda-Chania (Greece), Civitavecchia, La Spezia, Reggio Calabria (Italy), Le Havre (France), Liverpool (UK) and Valencia (Spain). Expansion of the Piraeus cruise terminal, which initially should have been completed at the end of this year, has been temporarily paused, and it has been estimated that this will not take place before 2024.

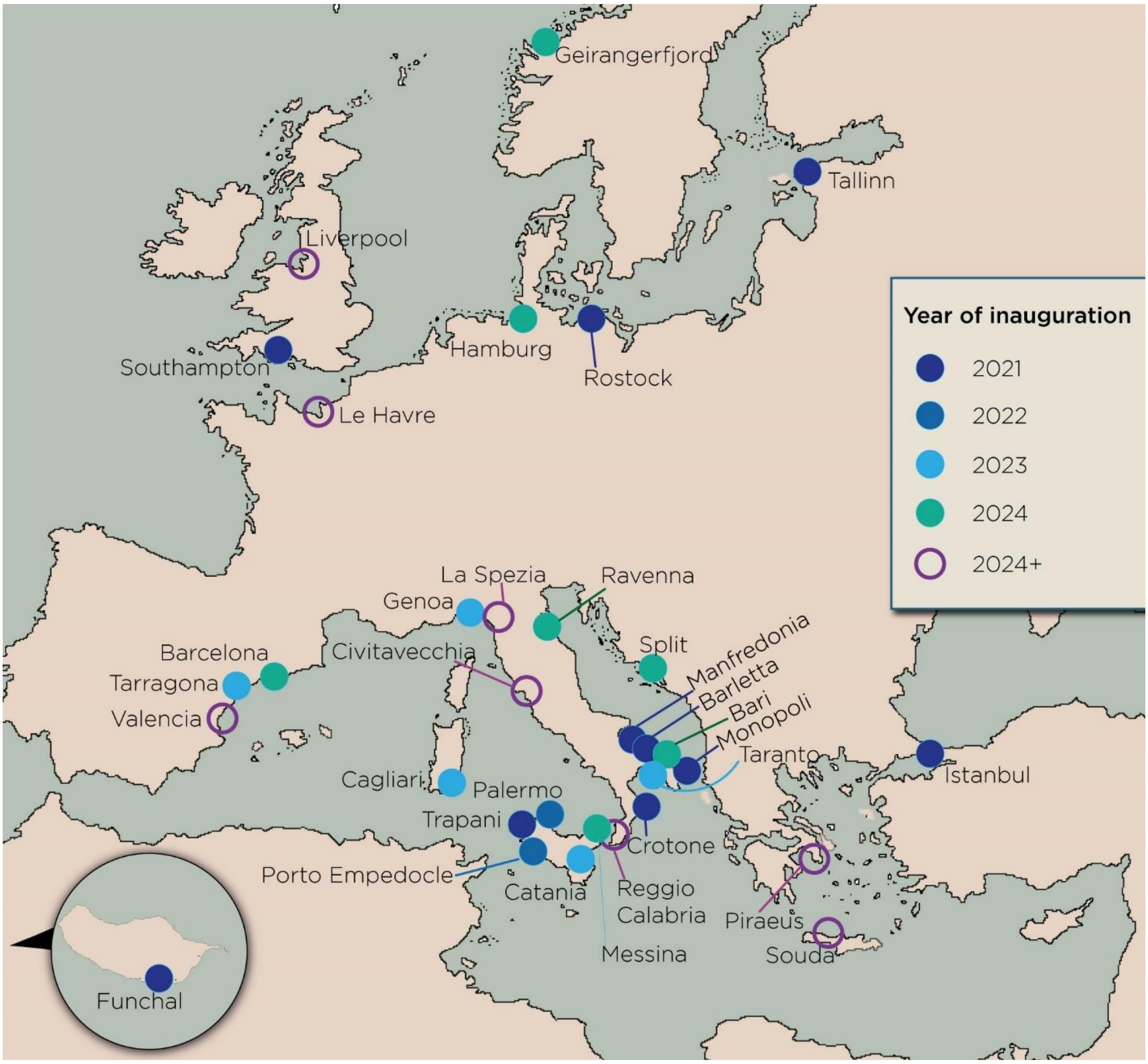
Tab 4.4 Cruise passenger terminals completed and in progress, from 2021 onwards

	2021	2022	2023	2024	2024+
New terminals	Crotone Funchal Istanbul Manfredonia, Monopoli and Barletta Rostock Southampton Tallinn	Porto Empedocle	Cagliari Catania Taranto Tarragona	Hamburg Barcelona Bari Geirangerfjord Messina Ravenna Split	Chania-Souda Civitavecchia Le Havre La Spezia Liverpool Reggio Calabria Valencia
Refurbishments	Trapani	Palermo	Genova		Piraeus *

Source: Risposte Turismo, 2022.Note: (*) The renovation works of Piraeus cruise terminal, which began in December 2020, were suspended starting from March 2022. For this reason, it is not possible to establish with certainty the date of completion: ports are listed in alphabetical order.

The following figure shows the geographical locations of the cruise terminals in the EuroMed area recently completed (in 2021) or which are being completed within the next three years, divided by year of completion.

Fig 4.1 Cruise passenger terminals in EuroMed area, from 2021 onwards



Source: Risposte Turismo, 2022.

More specifically, further information on the recently completed cruise terminals is provided below.

In Istanbul, Galataport was inaugurated in October last year, which transformed the historic port into a world-class cruise port as well as a commercial, catering, cultural and artistic centre with a variety of services and attractions both for cruisers and citizens at large. An exemplary element of innovation is its being the first underground cruise terminal in the world, thanks to its special hatch system that separates the customs and security (ISPS) areas when there is no ship berthed at the port, creating a temporary customs area and keeping the promenade (which had been closed to public access for a long time) open to public.

In September 2021, the new Horizon Cruise Terminal – the fifth of the port of Southampton – located at Berth 102 at Western Docks, was inaugurated. This multi-user cruise facility was built by ABP –

Associated British Ports, using green and renewable materials. It benefits from 2,000 roof-mounted solar power panels and also clean energy shore connectivity installed for cruise ships, as it is possible to see in the following paragraph. The project received support from the LEP – *Solent Local Enterprise Partnership* – through the Government's Getting Building Fund, which secured an 8-million-pound grant.

In Rostock, another terminal building was built at berth P8 in the Warnemünde area, in addition to the existing old terminal building located at berth P7. After two years of construction, the Warnemünde Cruise Center 8 opened for cruise passenger traffic in July 2021: two new buildings have been erected to replace the temporary terminal tent. While one is dedicated entirely to handling cruise passengers, the other "service" building houses the port administration, the tourism centre, and customs.

Also in the Old City Harbour of the Estonian capital Tallinn, a new multifunctional cruise terminal was built in July 2021. Conceived to meet the needs not only of cruise passengers but also of the public at large, the building can be either used for events, concerts or conferences. Furthermore, it is considered an environmentally friendly cruise terminal. Both the interior and exterior architectural solutions have focussed on best environmental performance of materials and equipment. The facility is heated by sea power, and energy requirements come from solar panels tailored to suit the Nordic climate. Furthermore, a new 850-meters-long promenade has opened, connecting cruise guests from the terminal to the "*culture kilometre*" – a direct walkway between the port area and various new leisure areas.

Trapani cruise terminal, located at the T-shaped pier, underwent major refurbishment for 18 months. Returning operational in December 2021, internal and external restyling of the existing maritime station was carried out.

In Funchal, the capital of the Portuguese archipelago of Madeira, a new cruise terminal was built at Pier 6 during the pandemic period. It opened in October 2021. Located at the North Pier of Funchal Port, it joins the main cruise terminal located at the South Pier of Funchal Port.

In the small ports of Monopoli, Manfredonia and Barletta near Bari in Apulia, three small cruise terminals were built and inaugurated at the end of last year, thanks to the EU-funded *Interreg Greece-Italy Themis* project. The aim of this intervention is to support development of minor ports in order to direct cruise traffic, even in the luxury segment, towards areas still barely visited by tourists.

In Crotone last year, the local Port Authority built a new small cruise terminal at Riva quay. Thanks to this terminal, the town can now count on a new structure that will not be dedicated exclusively to welcoming cruise passengers, but also to conferences and events for the public at large. However, this is a temporary structure that should be replaced by the final cruise terminal in the coming years, with an investment of around 3 million euros.

Tab 4.5 A selection of recently (2021) completed cruise terminals

City	Country	Status	Dimension	Buildings	Floors	Max pax	Max ships	Value of investment (Million €)
Istanbul	Turkey	New	29,000 m²	1	2	15,000	3	1,600[1]
Southampton	UK	New	11,700 m²	1	2	n.a.	2	65
Rostock	Germany	New	3,000 m²	2	1+2	4,000	1	17
Tallinn	Estonia	New	4,000 m²	1	3	2,000	5	13.7
Trapani	Italy	Refurbishment	3,000 m²	1	2	3,000	2	4.4
Funchal	Portugal	New	372 m²	1	1	2,900	1	1
Manfredonia, Monopoli and Barletta	Italy	New	195 m²	1	1	50	1	0.7 overall
		New	195 m²	1	1	50	1	
		New	195 m²	1	1	50	1	
Crotone	Italy	New	720 m²	1	1	4,000	2	0.3

Source: Risposte Turismo, 2022. Note: (1) This value is related to the construction of the entire Galataport, not only the cruise terminal; ports are listed according to the value of the investment, from the highest to the lowest.

The cruise terminals under completion are described below, which are expected to become operational between 2022 and 2024. They are first listed in chronological order of date of completion presumed and sorted on the basis of the investment value.

This year, on 4 May, the new Palermo Cruise Terminal (whose structure was built in 1950) was inaugurated at the Vittorio Veneto quay. Even though the terminal's appearance is unchanged, the interiors underwent extensive re-functionalization and a reorganisation of spaces. Moreover, starting from summer 2023, behind the cruise terminal other works shall be constructed (club houses, waterfront restaurants, docks for luxury yachts and convention centres).
At Porto Empedocle, in November 2022 the new maritime station will be completed at the western quay of Molo Crispi, to be able to welcome cruise passengers starting from 2023. These new interventions will enable immediate access to the old city centre thanks to redevelopment of the port area, which saw demolition of several dilapidated structures. The main objective is that of encouraging small & luxury cruise traffic, also thanks to the proximity of a number of major sites such as Agrigento and the Valley of Temples.
By the end of 2023, after work lasting between 12 and 16 months, refurbishment of the ex-Hennebique grain silos – centrally located in the old port of Genoa and abandoned for over 50 years – should be completed. The building, which covers a total area of 40,000 m², will be connected to the existing maritime station. In part (the first 2 floors of the Ponente wing), it will serve as an extension of the current maritime station, hosting new areas and services available also to cruise passengers. The new Hennebique will also house a four-star superior hotel, a research centre, a congress and exhibition space, several offices, student residences, catering and shops.
Once the new Falanto Port Service Center in Molo San Cataldo in the port of Taranto has been completed, the planning works on the new maritime station dedicated to cruise passengers should begin (it is to end by 2023). It will rise next to it and will be directly connected to the FalantoCenter, so that cruise passengers can also benefit from all the services offered by this innovative structure. The new maritime station will be added to the temporary structure currently in operation, thus increasing overall reception capacity. The FalantoCenter represents a multifunctional structure that will provide new meeting spaces also for the public at large (commercial and restaurant businesses, exhibition centre, spaces for events and conferences). Also, the new Museo del Mare and the Open Port Exhibition Center, conceived as a cultural space to present the port context to visitors.
In Catania, by 2023, replacement of the current cruise terminal with a more modern and functional structure in the Molo Sporgente Centrale is expected. A prefabricated modular building will be built, so that it can, in the event, be expanded in the future. The project envisages use of recycled materials, as well as installation of solar panels for domestic production of electricity. The works are expected to start in Fall 2022 and will last about 6 months.
With completion by 2023, the new checkpoint at the Molo Sabaudo in the port of Cagliari should be noted (construction works being slated for completion two years ago but due to Covid postponed and resuming this year). The new structure will be able to respond to the increases in passenger numbers expected, thanks to the upcoming calls on the *Costa Smeralda* ship. It will enable a better welcome for cruise passengers through provision of basic services not provided by the current building.
The new sustainably innovative cruise terminal at Balears Wharf in Tarragona (Spain) should also be inaugurated in 2023. The facility will utilise solar power to ensure sustainable provision of the terminal's energy needs. It will also provide cruise passengers with an improved port experience, including retail and f&b services and new parking facilities. Furthermore, the innovative modular design will provide maximum flexibility to adapt the terminal to meet future capacity needs and to provide an events space for citizens.

Moving on to 2024, the new HafenCity Cruise Center shall likely be inaugurated in Hamburg, at southern "Überseequartier". The new terminal building will be integrated into a complex of buildings with underground bus station and car parking spaces, as well as a hotel and retail spaces.
In Barcelona, the building of the new MSC cruise terminal at Adossat Quay (by the renowned Catalan architect Ricardo Bofill) is expected to be completed by 2024. It will be the eighth cruise terminal of Barcelona, 100% owned by MSC Cruises, in addition to the current 7 cruise terminals operated by Creuers of Port de Barcelona (5) and Barcelona Cruise Terminal (2). On the sustainability front, the new cruise terminal will feature shore power facilities and LNG bunkering.
In Ravenna, construction of the new maritime station in Porto Corsini will begin by the end of this year and should be finished in 2024. It will be built in compliance with the best international standards in terms of energy optimization, and it can also be used for events and exhibitions. To ensure environmental sustainability, an electrification system for the docks will also be created, which will allow ships to switch off their engines and run on electricity. The project also includes construction of a large public park, called *"Parco delle Dune"*, in the area behind the terminal, which can be used also by the public at large. The whole area, covering a total of 12 hectares, will present an

integrated landscape, with public parkland, cycle-pedestrian paths and entertainment areas for residents and tourists.
Expected in Summer 2024 is the inauguration of the second maritime station of Bari, which will be sited on quay 10. It will be a modern multifunctional structure. In addition to cruise passengers' services, it will host social functions: events, conferences and exhibitions, as well as an elegant café on the panoramic terrace *"Piazza del Mare"*. The most modern standards of energy efficiency and environmental sustainability have been applied in the project: the materials and techniques selected will respect the standards of bioclimatic architecture.
In 2024, also planned are the inauguration of the new Geirangerfjord cruise terminal in Norway, and the first maritime station in Split in Croatia. The new Messina maritime station should also be ready, replacing the functions of the current terminal on the Colapesce quay. However, the old terminal will be refurbished and will function as an extension of the new one. To provide a meeting point for the public at large, the new maritime station will also include shops and restaurants, and a city lobby that can be used for exhibitions and other events.

Tab 4.6 A selection of cruise terminals being completed from 2022 to 2024

	City	Country	Status	Dimension	Buildings	Floors	Max pax	Max ships	Value of investment (million €)
2022	**Palermo**	Italy	Refurbishment	6,950 m^2	1	6	6,000	2	44
	P. Empedocle	Italy	New	1,000 m^2	1	2	1,000	2	4
2023	**Genova**	Italy	Refurbishment	6,000 m^2	1	2	n.a.	n.a.	130 [1]
	Taranto	Italy	New	3,500 m^2	2	2+2	n.a.	3	6.6
	Tarragona	Spain	New	5,900 m^2	1	1	8,000	4	5.5
	Catania	Italy	New	1,200 m^2	1	1	8,000	2	2
2024	**Hamburg**	Germany	New	3,500 m^2	1	3	3,600	2	20
	Barcelona	Spain	New	11,670 m^2	1	3	6,000	1	33
	Ravenna	Italy	New	10,000 m^2	1	2	7,000	2	27.7
	Geirangerfjord	Norway	New	n.a.	n.a.	n.a.	5,000	1	19
	Bari	Italy	New	3,000 m^2	1	2	500	1	11.5
	Split	Croatia	New	2,800 m^2	1	2	500	3	8.5
	Messina	Italy	New	1,840 m^2	1	1	7,000	2	6.7

Source: Risposte Turismo, 2022. Note: (1) 130 million euros is the investment related to the refurbishment of the entire Hennebique building, not only the new cruise terminal; ports are listed according to the value of the investment, from the highest to the lowest.

As for 2025 onwards, In Le Havre, France, construction of three new cruise terminals is planned between 2023 and 2025, to be rendered operational from 2026: the terminal to the north – the most important from an architectural point of view (listed as a World Heritage site by Unesco) – will be built to replace old warehouses. The other two buildings, to the south, will be obtained from refurbishment of two existing hangars. The development project also includes parking spaces, a landscaped promenade and onshore power systems on each quay.
In the port of Liverpool, plans have been in the pipeline for several years to build a bigger terminal capable of handling the world's biggest vessels. The project was originally due for completion in 2022; but, in 2021, it was announced that at least 2 years would have been necessary for the authority to be in a position to decide for a final design and location for the new cruise terminal. In this regard, fears are growing that long standing plans to build a new cruise terminal on Liverpool's waterfront could be shelved amid uncertainty around the health of the post-pandemic cruise sector, and conflict with the city's commitment to a net zero carbon future. The plans also include a hotel at Princes Dock Liverpool Waters. Once completed, the terminal is to replace the existing facility.
In La Spezia port, the second maritime station is being planned at the new electrified CalataPaita quay. It will be made up of two multifunctional buildings, joined by a *"pergola-urbana"*, which will have public functions related to recreation, sport and commerce. Nevertheless, it is foreseen that construction work will start in 2024, rendering the terminal operational as from 2027.
In Valencia a new passenger terminal dedicated both to cruise and ferry traffic (and also to ro-ro traffic) will

be built, in the area between *Muelle de Poniente* and *Muelle del Espigón del Turia* (previously occupied by the shipyard Unión Naval de Valencia). The project plans are for construction of an eco-friendly accessible terminal, respectful of the history of the old buildings, capable of generating clean energy thanks to solar panels located over the roof, and endowed with shore power electricity for cruise ships. The terminal will also feature other services such as a commercial area and restaurants, a space for cultural activities, car parking and much more.

By 2025, the new "Bramante" cruise terminal in Civitavecchia port should be completed. It will replace the current one and will be added to the Vespucci terminal inaugurated in 2018. Even in this case, the structure will be used as multifunctional space.

Among other cruise terminals still at an initial stage, there is the new Reggio Calabria terminal at the Levante quay, for which the planning stage is imminent.

At least two years will be required to complete planning, as well as approvals, as well as the tender, the contract, realization and works.

In the port of Souda-Chania, in Crete (Greece), the new passenger terminal at Adrias Pier sees the international bidding procedure imminent for construction, and it is expected to be delivered in 2025-2026.

A particular situation emerges in Piraeus port, where the expansion works of the cruise terminal to the south had begun at early 2020. With an investment of 136 million euros, to be jointly funded by the *European Regional Development Fund* through the Regional *Operational Program Attica 2014-2020*, the works should have been completed in 32 months. However, in early 2022 Piraeus Port Authority temporarily paused the expansion project of its cruise terminal, following a ruling from the Greek Supreme Court over economic and environmental issues.

Tab 4.7 A selection of cruise terminals being completed from 2025 onwards

City	Country	Status	Year	Dimens.	Build.	Floors	Max pax	Max ships	Value of investment (Million €)
Valencia	Spain	New	2025	n.a.	n.a.	n.a.	n.a.	2	37
Civitavecchia	Italy	New	2025	3,000 m²	1	1	4,000	1	5
Le Havre	France	New and refurbishment	2026	n.a.	3	n.a.	4,000 + 6,000 + 1,000	3	90
La Spezia	Italy	New	2027	16,035 m²	2	3+4	6,000 + 6,000	2	41
Liverpool	UK	New	n.d.	9,290 m²[1]	1	2 [1]	5,000	1	59 [2]

Source: Risposte Turismo, 2022. (1) Not definitive: several design options are being considered; (2) Not definitive: build costs projected are being constantly considered. Note: ports are listed according to the year of completion of the cruise terminal.

In the following table, we compare the value of investments made last year, those in the present three-year period (2022-2024) and those scheduled from 2025 on, by the ports in the EuroMed area for construction of terminals dedicated to cruise traffic. The 9 ports that inaugurated a new cruise terminal in 2021 have invested a total of more than 100 million euros (this value does not include the 1.6 billion euros invested in construction of the new Galataport Istanbul in its entirety). In the period 2022-2024 the 13 ports focussed on have invested about 320 million euros. The 5 ports that will see completion of new cruise terminals starting from 2025 have allocated investments for about 232 million euros. Overall, ports seem increasingly inclined to invest in infrastructures and terminals dedicated to cruise ships, displaying much interest in developing and attracting this type of traffic.

Tab 4.8 Recently and soon to be built cruise passenger terminals

Year of construction	2021	2022-2024	2025 onwards
Number of projects	9 [1]	13	5
Overall investment (in million €)	102.1[1]	318.5	232

Source: Risposte Turismo, 2022. Note: (1) These values do not include the 1,6 billion euros' investment for the construction of the entire Galataport Istanbul.

The final table shows the companies that manage services for cruise passengers in a selection of the new cruise terminals that are analysed in this chapter. The ports are listed in alphabetical order.
In Barcelona, in 2021 MSC Cruises has been awarded a 31-year lease from the Barcelona Port Authority for construction and management of the new cruise terminal at Adossat Quay.
In Catania, the new cruise terminal will be managed by Catania Cruise Port, which sees Royal Caribbean Investments owning 32.9% of the company shares (Venezia Terminal Passeggeri 28.3%, Port Operation Holding Srl 28.8% and lastly Marinvest 10%).
Bramante cruise terminal in Civitavecchia port will be managed by Roma Cruise Terminal, a company composed by three companies with the same percentage shares each (33.3%): Costa Cruises, Marinvest and Royal Caribbean Investments.
In 2021, Global Ports Holding signed a 4-year renewable special agreement with the local Port Authority to manage services for cruise passengers in Crotone port. The new Crotone maritime station has been entrusted to Crotone Cruise Terminal, 100% owned by Port Operation Holding Srl.
In the port of Funchal, the new cruise terminal is managed directly by Madeira port Authority – Apram, S.A. which is a 100% public company.
In Hamburg, the new HafenCity Cruise Terminal will be managed by CGH Cruise Gate Hamburg, a company owned by Hamburg Port Authority.
Galataport Istanbul is a joint venture company of 2 leading Turkish conglomerates, Doğuş Group and Bilgili Holding. In 2013, Doğuş Group placed the highest bid for privatization of the Istanbul Salıpazarı Cruise Port, with a 702 million dollars bid, winning the right to operate the port area for 30 years. In January 2014, BLG Capital (the real estate private equity arm of Bilgili Holding) acquired 19% of the shares, leaving the remaining 81% with Doğuş Group. The company name changed to Galataport Istanbul Port Management and Investments Inc. in early 2018.
The second La Spezia cruise terminal will be managed by Spezia & Carrara Cruise Terminal, composed of Royal Caribbean Cruises (34%), Costa Cruises (33%) and MSC Cruises (33%). Le Havre Seine Métropole Urban Community and Haropa Port – Le Havre will manage (with the same percentage share) the three new terminals in Le Havre port.
In Liverpool, the new cruise terminal will be 100% managed by Liverpool City Council.
In Messina, the local Port Authority will build the new cruise terminal at its own expense. However, its management will subsequently be entrusted by special agreement to another entity, which has not yet been identified.
In 2021, the local Port Authority entrusted management of new cruise terminals in Palermo, Trapani and Porto Empedocle ports in concession for 30 years to West Sicily Gate, a newco made up of MSC Cruises and Costa Cruises.
The new Porto Corsini cruise terminal will be managed by Ravenna Civitas Cruise Port, a joint venture between RCL Cruises (a Royal Caribbean Group company) and VSL Ravenna. The contract, worth 221 million euros, was signed last December (2021).
The new Warnemünde Cruise Center 8 in Rostock Port is managed by Rostock Port GmbH, owned by the Hanseatic City of Rostock and the Federal State of Mecklenburg-Vorpommern.
In Southampton, the new Horizon cruise terminal will be 100% managed by Associated British Ports (APB), owned by CPP Investments (33.9%), Omers (30%), GIC (20%), Wren House Infrastructure (10%), and Hermes Infrastructure (6.1%).
The Port of Tallinn – TallinnaSadam, composed for 67% by Republic of Estonia and for 33% by investment funds, pension funds and retail investors, manages the new cruise passenger terminal.
In Taranto, Taranto Cruise Port company (composed of Port Operation Holding Srl and Global Ports Melita Ltd, controlled by Global Ports Holding Plc) was established as the grantee that will manage cruise passenger services in the state-owned areas at Molo San Cataldo for the next 20 years.
In the first part of 2022, the Tarragona Port Authority awarded Global Ports Holding a 12-year concession, with a 6-year extension option, to manage the services for cruise passengers in the port of Tarragona.
In Valencia, at the end of 2020, Baleària Group – a partner of Global Ports Holding (GPH) – was awarded a 35-year special agreement for the port and ferry operations of Valencia Cruise Port, with a 15-year extension option. As part of this agreement, Global Ports Holding will operate and manage the new cruise terminal throughout the period granted.

Tab 4.9 New cruise terminals managing companies

New cruise terminal location	New cruise terminal managed by	Corporate breakdown
Barcelona	MSC Cruises	MSC Cruises (100%)
Catania	Catania Cruise Port	Royal Caribbean Investments (32.9%); Port Operation Holding (28.8%); VTP (28.3%); Marinvest (10%)
Civitavecchia	Roma Cruise Terminal	Costa Crociere (33.3%); Marinvest (33.3%), RCI (33.3%)
Crotone	Crotone Cruise Terminal	Port Operation Holding (100%)
Funchal	Apram	Madeira Port Authority – Apram (100%)
Hamburg	CGH Cruise Gate Hamburg	Hamburg Port Authority (100%)
Istanbul	Galataport Istanbul Port Management and Investments	Doğuş Group (81%); BLG Capital (19%)
La Spezia	Spezia & Carrara Cruise Terminal	Royal Caribbean Cruises (34%) ; Costa Crociere (33%) ; MSC Cruises (33%)
Le Havre	Le Havre Seine Métropole Urban Community and Haropa Port – Le Havre	Le Havre Seine Métropole Urban Community (50%); Haropa Port – Le Havre (50%)
Liverpool	Liverpool City Council	Liverpool City Council (100%)
Palermo, Trapani, Porto Empedocle	West Sicily Gate	MSC Cruises (50%); Costa Crociere (50%)
Ravenna	Ravenna Civitas Cruise Port	RLC Cruises (51%); VLS Ravenna (49%)
Rostock	Rostock Port	Hanseatic City of Rostock (74.9%); Federal State of Mecklenburg-Vorpommern (25.1%)
Southampton	ABP – Associated British Ports	CPP Investments (33.9%); Omers (30%); GIC (20%); Wren House Infrastructure (10%); Hermes Infrastructure (6.1%)
Tallinn	Port of Tallinn – TallinnaSadam	Republic of Estonia (67%); Investment funds, pension funds, retail investors (33%)
Taranto	Taranto Cruise Port	Port Operation Holding (50%); Global Ports Melita (50%)
Tarragona	Global Ports Holding	Global Ports Holding (100%)
Valencia	Global Ports Holding	Global Ports Holding (100%)

Source: Risposte Turismo, 2022.

4.3 *LNG and SSE in EuroMed: the state-of-the-art*

For many years, there has been talk about alternatives for powering cruise ships using more sustainable fuels. It is appropriate to underline that it is not just a question related to equipment that enables new solutions for supplying ships, but regarding a more extensive process relating to sustainability of energy sources from the outset. In the cruise industry, there is no doubt that some regulations and restrictions (ranging from controlled emission zones to the IMO's goal of zero emissions by 2050) have accelerated these processes, and that cruise lines are constantly working to revamp, regarding energy supplies, to reduce their impacts (and perhaps also costs). Innovation is conducted by cruise lines already, with ships that sail the Mediterranean and that are prepared for new technologies. However, also onshore, more attention has been required.

While there has been talk about cold ironing for a long time, the LNG solution has come to the fore in recent times, since it currently represents one of the most sustainable solutions that can be implemented in the short term. Cruise executives have also affirmed that LNG is an important short-term and long-term solution and currently the most future-proof technology available. It exceeds all requirements currently in place regarding air emissions, and plays a significant part in reducing carbon emissions while facilitating the introduction of alternative fuels, as technological developments will permit. While there are alternative fuels that could provide potential solutions in the future and for the next generation of ships, LNG is an environmentally friendly fuel and currently the only scalable option available that offers significant emission reductions.

Liquefied Natural Gas has been the new frontier in ship supplies for some years, prior to the hydrogen solution. LNG almost completely eliminates emissions of sulphur oxides and particulate matter, and significantly reduces emissions of nitrogen oxide, as well as up to a fifth of the carbon dioxide produced.

In addition to LNG, among the alternative sources for the sector we have ammonia, which is expected to become more widely used as from 2035, then to become - according to some estimates - the main fuel for ships in 2045. Adoption of lithium batteries by cruise lines is also beginning to find room for itself. We cite the case of AIDA (in collaboration with Corvus Energy), which already in 2019 announced its intention to mount a lithium battery system on *AIDAperla* to enhance ship efficiency and reduce fossil fuel consumption.

Among the solutions that are most widely adopted at this time – above all in Italy – we have electrification of docks, with cold ironing. This is a core element of the NRRP (*National Recovery and Resilience Plan*), i.e. the plan approved in 2021 by Italy to relaunch its economy after the COVID-19 pandemic, and enable the country's green and digital development, via investments for all Italian ports. Although the new procedure may favour a reduction in emissions, issues concerning production of this energy should not be overlooked. The hope is that this transition will in turn lead to energy generated from sustainable sources. However, it should be emphasized that large-scale application (and benefits) of alternative sources will only materialize in the long term. What emerges in current discussions on the subject is that the future will not be characterized by a single solution but by a combination of these, in order to attain greater efficiency, depending on the circumstances (e.g. when the ship is moored or when it is navigating).

In 2015, Carnival Corporation developed the world's first LNG powered cruise ship. *AIDAsol*, operated by AIDA Cruises, was powered while in the port by an LNG hybrid barge. Since then, the company has made headway in the development of *AIDAprima* and *AIDAperla*, two ships supplied directly with LNG, thanks to their dual fuel powered engines. The ships can be powered by LNG while at ports, drawing the green fuel directly from trucks alongside the ships. The first LNG ship started sailing in the Mediterranean in 2019: *AIDAnova* was the first cruise ship to be LNG-powered both when in the port and at sea. After two years, in 2021, the number of LNG-powered units in the world's cruise fleet reached 9. In addition to the AIDA fleet, other cruise companies have been building their own LNG class, such as the recently delivered MSC *World Class Europa* or others like Holland America Line *Rotterdam* (capable of calling at the fjords, despite its tonnage) and Costa CrociereCosta *Smeralda* and

Costa Toscana, or Ponant *Le Commandant Charcot*. Other LNG cruise ships, such as P&O *Iona*, Carnival *Mardi Gras* or Princess Cruises *Discovery Princess*, are currently calling in other continents (the number is bound to rise considerably over the next few years). 16 other ships will be added to the current supply-side by 2025, via investments made primarily by groups such as MSC, Carnival and Royal Caribbean. Overall, it is estimated that the LNG market will grow by 10% per year until 2040. According to CLIA, by 2027 16% of global fleet will be LNG-powered.

Tab 4.10 LNG-powered ships launched or about to be launched, 2019-2024

Group	Fleet	Ship	Tonnage	Beds	Year of launch
Carnival	AIDA Cruises	AIDAnova	183,900	5,200	2019
Carnival	Costa Crociere	Costa Smeralda	185,700	6,500	2020
Carnival	P&O Cruises (UK)	Iona	184,100	5,200	2020
Carnival	Carnival Cruise Line	Mardi Gras	180,000	5,200	2021
Carnival	AIDA Cruises	AIDAcosma	184,000	5,200	2021
Carnival	Costa Crociere	Costa Toscana	186,400	6,300	2021
Carnival	Holland America Line	Rotterdam	99,500	2,660	2021
Carnival	Princess Cruises	Discovery Princess	143,700	3,560	2021
Le Ponant	Ponant	Le Commandant Charcot	30,000	270	2021
Disney	Disney Cruise Line	Disney Wish	140,000	2,500	2022
Carnival	Carnival Cruise Line	Celebration	183,900	5,200	2022
Carnival	P&O Cruises (UK)	Arvia	183,900	5,200	2022
MSC	MSC Cruises	World Europa	205,700	5,400	2022
MSC	MSC Cruises	Euribia	177,000	4,888	2023
Royal Caribbean	Silversea	Silver Nova	54,700	728	2023
Royal Caribbean	Royal Caribbean International	Icon	200,000	5,600	2023
Carnival	Carnival Cruise Line	Jubilee	183,900	5,400	2023
Carnival	Princess Cruises	Unnamed	175,000	4,300	2023
Royal Caribbean	Silversea	Unnamed	54,700	728	2024
Royal Caribbean	Royal Caribbean International	Utopia	231,000	5,714	2024
Storylines	Storylines	Narrative	62,000	1,250	2024
Thomson Tui Marella	TUI Cruises	Unnamed	161,000	4,100	2024
MSC	MSC Cruises	Unnamed	205,700	5,400	2024
Disney	Disney Cruise Line	Unnamed	140,000	2,500	2024
Ritz-Carlton	Ritz-Carlton	Ilma	37,000	456	2024

Source: Risposte Turismo, 2022.

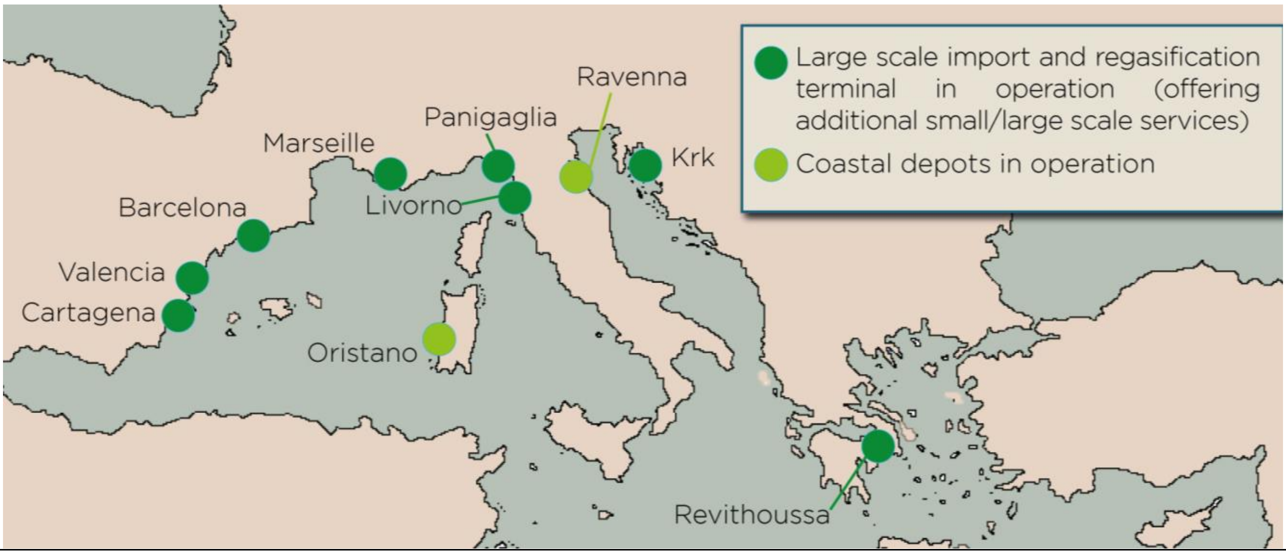
It might be assumed that LNG technology can only be applied to very large cruise ships with a high tonnage. But, as shown in the previous table, size does not seem to be an absolute limit, since even some small cruise ships, such as Ponant's *Le Commandant Charcot* (inaugurated last year) or the Ritz-Carlton *Ilma* (planned for delivery in 2024) are powered using LNG fuel. However, in most cases, since LNG has a lower fuel density compared to gas and diesel, LNG cruise ships need a larger tank to stock the fuel and therefore much more space to host it. Therefore, the trend for new LNG vessels under construction is for them to be larger, heavier (>120,000 GRT) and with a deeper draught. This means ports intending to accommodate LNG-powered ships must comply with specific requirements, from adequate draught to inclusion of other specific equipment.

In addition, LNG needs to be available in locations not too far from each other and in quantities above a certain threshold, with adequate infrastructures and logistics, so that LNG ships can easily complete their itineraries. For example, for the current itineraries offered by Carnival, the requirement is approximately 3,000 m^3 every two weeks.

The following map and table show a selection of ports in Italy and in Mediterranean Europe that supply shore side LNG to ships. The large-scale LNG import and regasification terminals currently in operation – able to handle more than 1 MTPA (million tonnes per annum) LNG, and offering additional small-scale and large-scale services –

include ENAGAS in Barcelona and Cartagena, SAGGAS in Sagunto (in the Valencia area), FOS Energy in the Marseille area, the Krk island's facility in Croatia and the one in Revithoussa (Greece). In Italy there are two terminals: Panigaglia SNAM (in the La Spezia area) and OLT Offshore Toscana (in the Livorno area). Coastal depots currently operating include one (Edison) in Ravenna and one (Higas) in Oristano. Moreover, Venice LNG depot, operated by Edison, has received authorization and will be built in the near future. Furthermore, two mini regasification plants are planned to be built in Portovesme and Porto Torres, both in Sardinia. LNG facilities are being planned or developed also in other ports such as Brindisi, Messina, Augusta, Catania, Palermo, Naples and Civitavecchia.

Fig 4.2 Large scale LNG import and regasification terminals with shore side services and coastal depots in operation in the Mediterranean Europe, 2022



Source: Risposte Turismo elaboration on various sources (MedCruise, MBS Consulting, GIE – Gas Infrastructure Europe), 2022.

Tab 4.11 Large scale LNG import and regasification terminals in operation with shore side services in the Mediterranean Europe, 2022

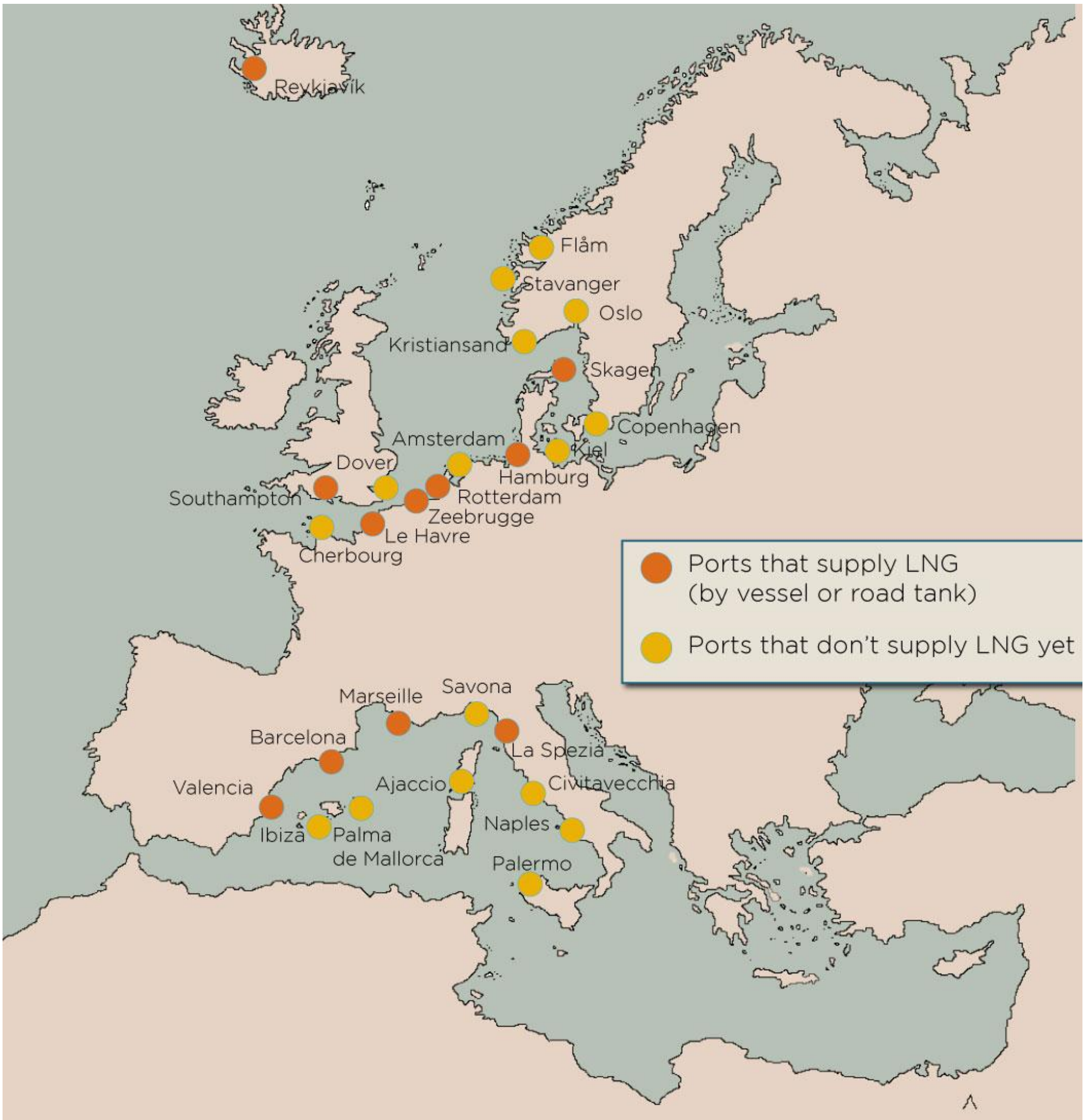
Country	Location	LNG System operator	LNG storage capacity	Minimum sea depth alongside	Terminal type
Croatia	KRK island	LNG Group	140,000 m^3	16 m	FSRU*
France	Marseille	FOS TonkingElengy	80,000 m^3	12 m	Onshore
France	Marseille	FOS CavaouFosmax	330,000 m^3	15 m	Onshore
Greece	Revithoussa	DESFA	225,000 m^3	13.5 m	Onshore
Italy	Livorno	OLT Offshore Toscana	137,500 m^3	113 m	FSRU*
Italy	Panigaglia	SNAM	100,000 m^3	10 m	Onshore
Spain	Barcelona	ENAGAS	760,000 m^3	15 m	Onshore
Spain	Valencia	Sagunto SAGGAS	600,000 m^3	-	Onshore
Spain	Cartagena	ENAGAS	587,000 m^3	15 m	Onshore

Source: Risposte Turismo elaboration on MBS Consulting for Venice LNG and GIE – Gas Infrastructure Europe data, 2022.
Note: the table does not include Ravenna EDISON and Oristano HIGAS because they are coastal depots; (*) FSRU means *Floating Storage and Regasification Unit*. The regasification terminals can be located on the land (onshore), on the high seas (offshore) or on particular vessels defined as floating storage and regasification unit (FSRU).

The Panigaglia LNG terminal, located in La Spezia gulf, is the first LNG import and regasification facility in Italy, as well as one of the first to be built worldwide. The terminal is currently able to receive gas tankers up to a capacity of 65,000 m^3, for LNG storage in two tanks with a total capacity of 100,000 m^3. The other Italian LNG terminal in operation, OLT Offshore LNG Toscana, is located about 22 km

off the coast between Livorno and Pisa. The plant can receive LNG from gas tankers with a capacity of between 65,000 and 180,000 m^3, with a storage capacity of 137,500 m^3.
In Italy, two coastal depots are also currently in operation. The first small-scale LNG Italian depot in the Adriatic Sea was inaugurated in October 2021 in the port of Ravenna, following investment of 100 million euros supported by Depositi Italiani GNL (51% owned by PIR – *Petrolifera Italo Rumena*, 30% by Edison and 19% by Scale Gas, a subsidiary of Enagas). The other plant, the first Italian small-scale LNG depot in the Mediterranean Sea, was built in the port of Oristano by Higas and was inaugurated in May 2021.
After these first two depots, which went into operation last year, two other LNG coastal depots shall probably be built within a couple of years. One in Venice has been assigned to Venice LNG (Decal group), and will require an investment of 100 million euros (of which 18.5 from European funds); the other shall probably be built in Oristano by Ivi Petrolifera. The two depots are expected to become operational by the end of 2024.
It should be noted that the port of Venice, together with the port of Livorno, participated at the GAINN4SEA project, i.e. the last phase (of physical implementation) of the Italian initiative called GAINN_IT promoted by the Italian *Ministero dei Trasporti e delle Infrastrutture* for the development of the National Strategy for liquified natural gas. It was located under European Directive 2014/94 which establishes the deadline of 31 December 2025 for development of port infrastructures for LNG and logistic solutions for distribution and supply, to enable navigation of LNG-powered ships.
The possible manners of LNG refuelling are three: ship to ship bunkering, truck to ship bunkering and shore to ship bunkering. In Italy the first LNG refuelling was carried out in La Spezia at the end of 2020, with a ship-to-ship operation organized by the Italian *Guardia Costiera*. The *Costa Smeralda*, the first Italian LNG-powered ship, was refuelled at Molo Garibaldi through the CoralMethane tanker.
After carrying out a recap of LNG ships and ports, the link between the two topics (ports and ships) consists in the itineraries themselves.
In fact, it is reasonable to ask whether there are enough ports today capable of supplying LNG to ships or, on the contrary, whether supply exceeds demand. Currently, the increase in the number of LNG-powered ships, as well as new projects of terminals for LNG supply in European ports, would seem to indicate that the entire sector is moving towards an overall strengthening and uniform growth in both regards.
Several LNG cruise ships sail in Northern Europe but also in the Mediterranean Sea, where the ports can supply LNG fuel through tanks or vessels. As shown in the map, there are six ports that currently supply LNG in Northern Europe (Southampton, Le Havre, Zeebrugge, Rotterdam, Hamburg and Skagen). In the Med there are four (La Spezia, Marseille, Barcelona and Valencia).

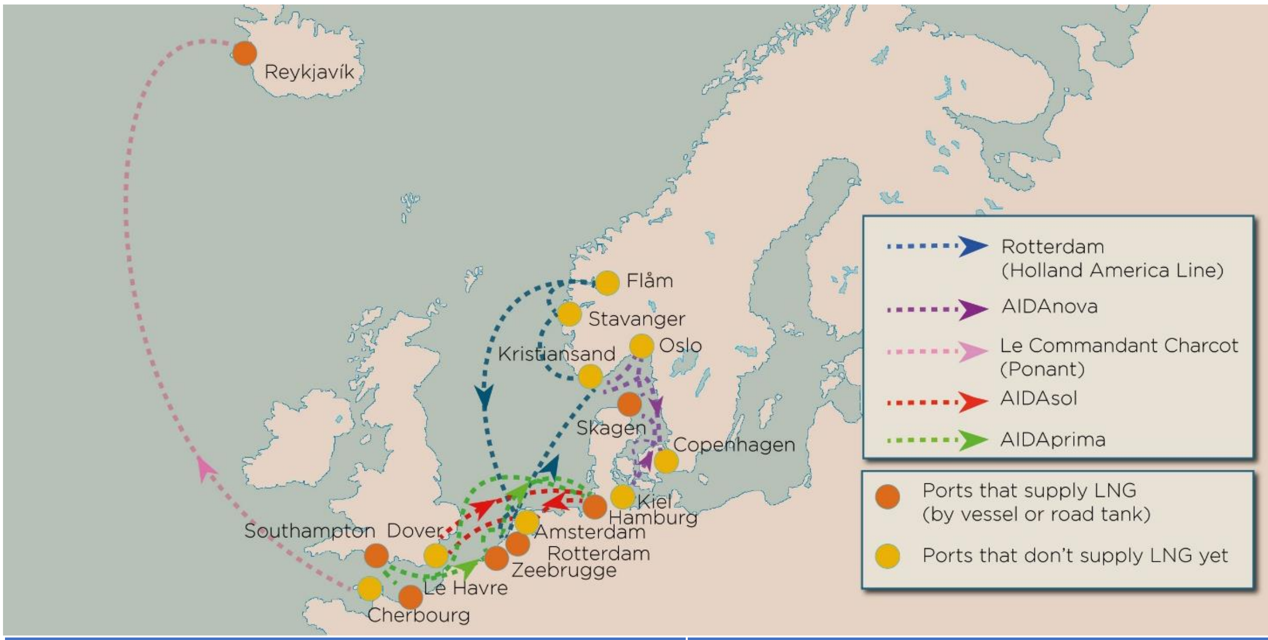
Fig 4.3 **European ports involved in LNG-powered cruise ship itineraries in 2022**



Source: Risposte Turismo elaboration based on information published by cruise companies, 2022.

The figure below presents various itineraries both of fully LNG cruise ships and hybrid vessels in Summer-Fall 2022 in the Northern Europe area. Of course, all the itineraries examined include at least one call at a port that supplies LNG fuel: *Rotterdam* at Rotterdam port, *AIDAnova* at Skagen, *Le Commandant Charcot* at Reykjavik, *AIDAsol* at Hamburg, *AIDAperla* at Hamburg and *AIDAprima* at all ports called (from Southampton to Hamburg).

Fig 4.4 LNG-powered cruise ship itineraries in 2022: focus on North Europe



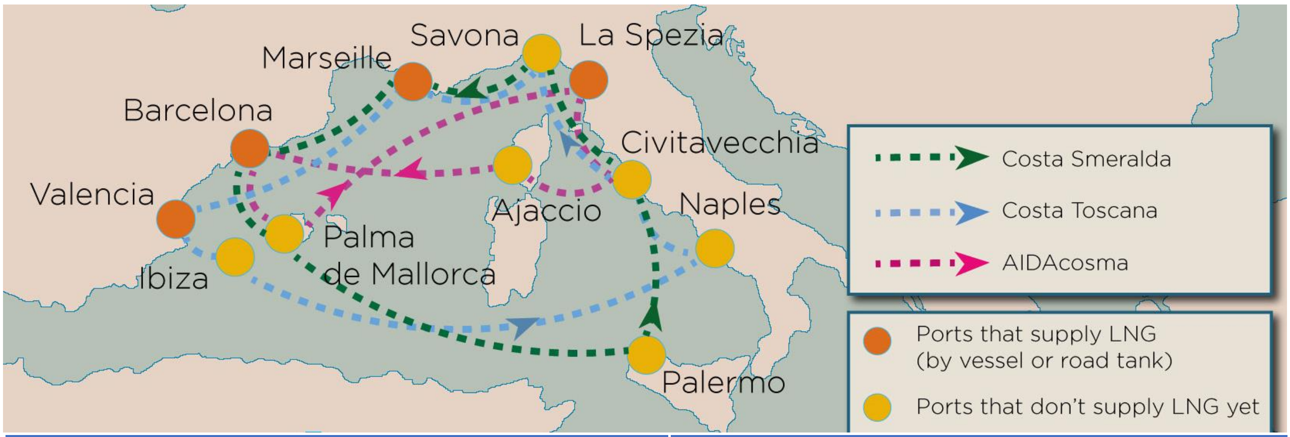
Rotterdam	Holland America Line
Amsterdam, Rotterdam, Kristiansand, Stavanger, Flåm	
AIDAnova	**Aida Cruises**
Kiel, Skagen, Oslo, Kristiansand, Copenhagen	
Le Commandant Charcot	**Ponant**
Cherbourg, Reykjavik	
AIDAsol	**Aida Cruises**
Hamburg, Amsterdam, Dover	
AIDAprima	**Aida Cruises**
Southampton, Le Havre, Zeebrugge, Rotterdam, Hamburg	
AIDAperla	**Aida Cruises**
Hamburg, Oslo	

Source: Risposte Turismo elaboration based on information published by cruise companies, 2022.

In Mediterranean Europe, most of the top cruise ports of the West Med will welcome LNG-fuelled vessels in Summer-Fall 2022. During the same period, these ships won't call Adriatic ports, since the single available facility has only been recently opened in Ravenna.

Although LNG has burgeoned recently as a solution, since it is currently the most sustainable one that can be implemented in the short term, discussion cannot avoid mention of the theme of cold ironing (also known as SSE – *Shore Side Electricity*), which has been talked about for a very long time. With cold ironing, ships are powered from the land: when at berth, they are able to turn off their main engines, used for propulsion, and also their auxiliary engines, used to generate power needed for accommodation and other power needs of crew and passengers.

Fig 4.5 LNG-powered cruise ship itineraries in 2022: focus on South Europe

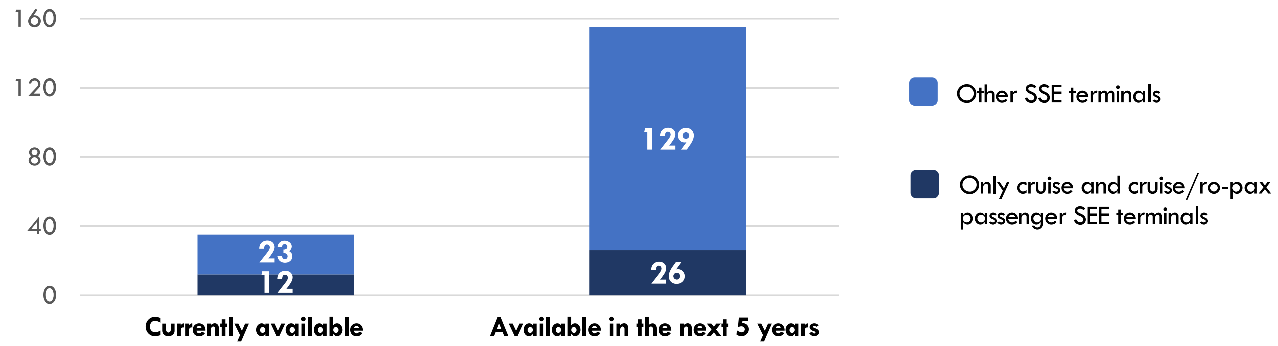


Costa Smeralda	Costa Crociere
Savona, Marseille, Barcelona, Palma de Mallorca, Palermo, Civitavecchia	
Costa Toscana	**Costa Crociere**
Savona, Marseille, Valencia, Ibiza, Naples, Civitavecchia	
AIDAcosma	**Aida Cruises**
Civitavecchia, Ajaccio, Barcelona, Palma de Mallorca, La Spezia	

Source: Risposte Turismo elaboration based on information published by cruise companies, 2022.

Above all in Italy, this theme has come to the fore in (or, rather, has returned to) the Italian ports' agenda due to Ministerial acceleration as from the end of 2021 with the first part of the Fund attributed to 13 Port System Authorities (over 794 million euros) for financing investments and infrastructural development of the country, and subsequent provisions of the *National Recovery and Resilience Plan* (NRRP).
As is widely known, shore side electricity (SSE) supply can reduce noise, vibration and atmospheric emissions. In particular, this last aspect (attributable to air quality according to the labels applied by ESPO – *European Sea Ports Organization*) has been at the top of port agendas for several years. Moreover, this facilitates attainment of the European *"Green Deal"* objectives – in this case, implementation of the Directive on alternative fuels (DAFI 94/2014), which aims at creating "core" ports for supplying SSE to ships by the end of 2025.
Although the new procedure may foster a reduction of emissions, the issues concerning production of this energy should not be neglected: the hope is that the transition will lead this energy to be generated using sustainable sources instead of fossil fuel.
In this regard, we should mention the *"Beleolico"* project: the first offshore marine wind farm in Italy and the Mediterranean, inaugurated in April 2022 in the Port of Taranto, which aims to produce renewable energy using photovoltaic and wind systems that exploit wave movement. Developed by the Renexia company, this structure is composed of 10 turbines for a total capacity of 30MW, which at full capacity will be able to ensure a production of over 58,000MWh.
Within the European framework, we should mention the *"NorthH2"* project, which aims to build wind farms on Dutch coasts able to generate 3-4 GW of wind energy by 2030, that can be used both directly (for energy supply on the quay) and to produce hydrogen (to be dedicated to further supplies).
In the following graph it is possible to see that not only the cruise sector but also the shipping industry as a whole is advancing on the SSE front.
A questionnaire presented at the *"EALING mid-term event"* in April 2022 (*EALING – European flagship action for cold ironing in ports* is a project focused on electrification of the docks in 16 ports of 7 European countries) surveyed 54 ports from 15 EU Member States and shows that currently 35 terminals are already equipped with SSE facilities, and 155 terminals are planning to implement SSE facilities over the next 5 years (+343%). More specifically, of the 35 terminals in which SSE is available, currently about half are dedicated to cruise and cruise/ro-pax passenger traffic. But, according to a specific analysis of Risposte Turismo only 6 ports - all located in Northern Europe and Atlantic as detailed in the next page - currently provide specific SSE for cruise ships. Interesting to notice that, according to the EALING project, it is expected that in 5 years the number of terminals will increase to 26.

Graph 4.5 Number of terminals where SSE is currently available or will be available in the next 5 years (54 EU ports surveyed, 2022)



Source: EALING mid-term event, April 2022. Note: the questionnaire surveyed 54 ports from 15 EU Member States.

In the table below, a qualitative analysis is presented of the existing national/port regulations directly or indirectly related to shore side electricity supply. We can see that Spain presents with the highest maturity level, deployment of measures, compliance with international standards, and articulacy and readiness levels, followed by Greece, Italy and Slovenia.

Tab 4.12 National, regional and local regulatory framework for SSE in Ealing project ports

MAIN CHARACTERISTICS OF NATIONAL REGULATIONS RELATED TO OPS	SPAIN	GREECE	ITALY	ROMANIA	BULGARIA	SLOVENIA	IRELAND	PORTUGAL
Maturity Level (by covering all regulation aspects)	High	Medium	Medium	Medium	Medium	Medium	Low	Medium
Complexity Level (also including Regional & Local Regulations)	Medium	Low	Medium	Medium	Low	Low	Low	High
Deployment of measures carried out in relation to the EU Directives transposed	High	Medium	Medium	Medium	Medium	Medium	Low	Medium
Compliance with International Electro-technical Standards	High	High	High	Low	Low	High	Low	Low
Articulacy Level (ease of understanding and level of clarity)	High	High	High	Medium	High	High	Medium	Medium
Readiness Level (concerning regulations that have not been issued and are planned to be legislated)	High	Medium	Medium	Medium	Medium	Medium	Medium	Medium

Source: EALING mid-term event, April 2022.

In a survey conducted for *Italian Cruise Watch 2021* – the research report by Risposte Turismo with traffic data, market trends and other relevant information for the cruise industry in Italy – ports were requested to indicate the availability of shore power supplies for hosting future cruise ships powered by electricity. More than half of the ports (53.7%) declared that they have not planned for preparation of their facilities yet, while just under one third affirmed that availability will not be ready before 2024 (31.5%). However, about 15% of respondents declared that they would prepare electricity supplies in their port by 2023. Most of the ports that plan to equip themselves by 2023 cited a power of 10 MW. Among these are Genoa, Savona, La Spezia, Salerno, Piombino, Portoferraio, Messina and Catania.

In April 2022 the Italian *Ministry of Infrastructure and Sustainable Mobility* announced simplification of the bureaucratic procedures for approving electrification of the docks, a project financed by the Government with 700 million euros for Italian ports. Today, Genoa and Savona are the two leading ports in Italy for this technology, with systems already installed in *Rimorchiatori Riuniti Genova* docks, ship repairs in Genoa, shipyards in Sestri Ponente and other commercial terminals. The interventions for electrification of the docks of the cruise terminal of Savona and of the passenger, cruise and ferry port of Genoa are in progress.

To set up cold ironing technology, a number of infrastructures must be present both on land and on the ship. In the port some equipment must be installed to connect to the ship, transmit electricity and ensure the right power (e.g. transformer stations, switchgear devices, frequency converters and other cables/accessories such as safety grounding equipment, electrical vaults, plugs, power and communications receptacles, varying from ship to ship, for total investments of up to 15 million euros). The ships must be adapted, with installation of an electrical panel and a transformer, as well as adaptation of the on-board software (total investment up to 2 million euros). It should also be considered that ships, and particularly high-tonnage cruise ships that navigate routes across the ocean, are equipped with electrical systems that require a significant amount of energy. 83% of cruise ships are equipped with 60Hz systems (higher than the European standard level: 50Hz), and ships longer than 300 meters generally require at least 10MW of energy. Data from the Carnival cruise company confirm the above. The company's ships (except two) have a 60Hz system. Moreover, the demand for electricity required is 5-12MW, entailing a voltage of about 11kV and 6.6kV.

The number of cruise ships adopting this technology is on the rise, although it only corresponds to a part of the global fleet. In 2015, it was estimated that the number of ships prepared to receive energy from land corresponded to about 40 units, i.e. 10% of the total world fleet. In 2020, CLIA stated that 32% of the global fleet capacity were already SSE capable (+2% vs 2019). 25% of existing capacity will be retrofitted for SSE use. Furthermore, 58% of new capacity is committed to SSE compatibility. By 2027, it is expected that 174 cruise ships will be equipped with shoreside power connectivity (66% of the global capacity, considering the CLIA ocean-going cruise line member-fleet). Among the companies that are investing most in this technology, we have Princess Cruises (which has already converted 10 out of 14 units), Holland America Line (which has been converting its fleet since 2018) and Disney Cruise Line.

In Europe and Mediterranean area, six ports currently provide SSE for cruise ships, these are Hamburg and Kristiansand (active already as from 2020), Rostock and Kiel (operational as from 2021), and Bergen and Southampton (operational as from this year). However, the SSE technology in these ports has not yet been implemented and is not available in the entire port, but only at some berths (e.g. in Rostock-Warnemünde port only at berths P7 and P8) or terminals (e.g. in Southampton port only at Mayflower Cruise Terminal or at the new Horizon Cruise Terminal).

Also in the Italian area more and more ports are taking action with investments in cold ironing, through new funds provided thanks to the new Italian *Recovery and Resilience Plan* (NRRP). Among these ports are Savona, Genoa, La Spezia, Palermo, Catania, Messina, Taranto, Brindisi, Bari, Ravenna, Venice and Trieste.

Among the priorities of the port of La Spezia, in addition to boosting the use of LNG, for the next three years there is construction of a new pier at the first port basin for cold ironing use. With investment of 5.5 million euros by the Sea Port Authority, interventions are already underway to make the quay operational with approximately 10 MW of power available on the west side of the Garibaldi pier.

The same direction was taken by the ports of Genoa and Savona, which designed electrification of the docks for passenger traffic, for the sum of 19.2 million euros for the port of Genoa and 10.1 million euros for Savona.

With investment of 25.6 million euros, the Southern Adriatic Port Authority plans to implement a system of electrification of the docks on the *Punta delle Terrare* in the port of Brindisi and the area that includes berths 10 and 11 of the western dock in the port of Bari.

Cold ironing for the cruise terminal is also at the design stage in Ravenna, for a value of 28 million euros. The issue of sustainability is a priority for the local Sea Port Authority, which decided to significantly commit in the coming years to respect the environment. The ports of the Northern Tyrrhenian Sea – Livorno, Piombino and Portoferraio – have identified interventions aimed at developing energy production plants from renewable sources and the electrification of the docks.

The Port Authorities of the Northern Adriatic Sea and of the Eastern Adriatic Sea participate in projects dedicated to sustainability, among which we have the cited EALING project, focusing on electrification of docks. With a total budget of 7.3 million euros (of which 800,000 for Trieste and 850,000 for Venice), the aim is to conduct preparatory studies by 2023 for construction of the infrastructures necessary to start SSE supply to ships.

In the Eastern Adriatic Sea ports, thanks to the project EALING it will be possible to complete provision of cold ironing in all terminals in Trieste and Monfalcone, after similar studies were carried out for implementation of cold ironing on other Trieste piers (thanks to TalkNet, METRO and SUSPORT European projects), while in the Venetian ports, in addition to EALING, a project called *Channeling the Green Deal for Venice* was also approved, with allocation of 3.5 million euros.