CONTAINER THROUGHPUT & TERMINAL CAPACITY

In the Mediterranean

September 2012

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PREFACE

Container Volumes and Terminal Capacity in the Mediterranean

It is four years ago that the collapse of Lehman Bros turned financial turmoil into a worldwide economic crisis culminating in a global downturn of the container trades of proportions not seen before.

2009 headhaul container trade from the Far East to the Mediterranean as well to North Europe tumbled substantially, by between 14% to 15% to 4.0 million TEU to the Med and 7.5 million TEU to the north.

Container terminal capacity, which had become very tight in various regions, quickly turned into overcapacity across the world, in the Mediterranean as well. Terminal expansion plans became subject to demand and new projects were delayed or postponed, if not cancelled altogether. Valuations of port companies tumbled from their unimaginable heights of just a few years ago.

However, 2010 recovery not only started earlier than expected, but also exceeded both carriers’ and ports’ wildest expectations: +14% to 4.5 million TEU to the Med and even +19% to 9.0 million TEU to North Europe. Last year was one of divergent development between the Northern Old Continent and the European, Asian and African countries surrounding Mare Internum: while trade to the former declined by more than 3%, Mediterranean volumes continued growing by a very healthy 15%.

The 10-year 2002-2011 Far East-Mediterranean headhaul full container volume CAGR was 14.4% against 7.4% for Far East to North Europe. The similar US to the Med growth was 5.0% versus 2.4% US to North Europe.

It is not at least the sometimes volatile, but overall strongly developing economies of the Southern East European countries, the Levant and, not at least, Turkey responsible for such over average growth levels. On the other hand is the Arab Spring turmoil, having in particular heavily affected countries such Tunisia and Egypt, as well as Libya and Syria where Spring tuned into a nightmare with the deeply regrettable heavy loss of (always too many) lives. And not to forget, the Mediterranean European countries are subject to the well documented Euro crisis, which may well rage on for another few years, impacting other regions as well.

Ports and terminals serving such a lively market place can only brace for ongoing sharp ups and ditto downs in container handlings. For some of them this is further impacted by the effects of per definition footloose transhipment business: 13 of the 40 Far East and North America trade serving ports in this report are dominant hubs with a transhipment share of minimum 50% of their overall throughput. Some of the gateway ports are situated so close to each other that they must be competing for the same hinterland business.

The involvement of no less than 18 International and Global Terminal Operators in 55 terminals in 38 different ports with shareholdings of between 18% and 100% is definitely an endorsement of the viability of the Mediterranean ports and terminals industry!

Finally there is the issue, also in the Mediterranean, of ever larger ships built faster than the port and terminal industry that has to handle them. This also goes for the Ultra Large Container Ships of over 10,000 TEU, which have proven to be the most economical for the carriers to operate (if they are full). In August, exactly 100 ULCS were deployed in 10 of the 32 shipping services connecting Mediterranean ports with the Far East. In conformity with the general perception, most of them call at the large Gibraltar Straits and Suez Canal hubs, some at the major West (Europe) Med gateway ports.

However, it may come as a surprise to many that every week a 14,000 TEU ULCS sails all the way through the Dardanelles into the near inland Sea of Marmara to serve one terminal in the Istanbul/Ambarli area and another one at Izmıt Bay.

The present average capacity of all box vessels sailing between the Mediterranean and the Far East is 8,400 TEU - to/from North America it is a more manageable (for the average port facility) 4,100 TEU.
CONTAINER THROUGHPUT & TERMINAL CAPACITY in the Mediterranean is Dynamar’s latest publication all about the volume of container trade in (all countries bordering) the Mediterranean and the current status of actual and planned container terminal capacity there.

The report provides historic (2002-2011) throughput in all Mediterranean ports across six main regions that are the subject of calls by container services with the Far East and North America, as well as a 10-year (2012-2021) forecast, all per port and per region.

This is compared with the current container terminal capacity in the same ports and regions, and all planned and intended expansions and projects in those ports and some potential alternative or complementary outlets.

In this way, indicative answers are formulated to questions such as:
- How are container volumes, demand, forecast to grow over the next 10 years?
- How is box handling supply expected to develop in the same period?
- Where could space become tight; where will it remain ample?

Features of this publication include:
- Identical, compact profiles and overviews of around 90 existing terminals, 40 expansions, 30 new projects and 10 intentions in some 60 different ports across the Mediterranean
- Profiled data: Terminal name - operator - location - surface - quay length - depth alongside - number and outreach of Ship-to-Ship container gantries and mobile harbour cranes - TEU capacity and 2011 TEU handlings - notes - expansion plans, if any
- 2012-2021 status and annual development of terminal capacity
- 10-year TEU throughput of all Mediterranean ports: more than 50 million TEU in 2011!
- 2012-2021 forecast of port handled TEU development
- Overview of all Mediterranean-Far East and Transatlantic container services
- Full container volumes per Mediterranean country to/from the Far East and to/from the USA
- Mediterranean ports of call analysis for both trades
- Various extra’s, such as a complete overview of all facilities in such dynamic areas as Turkey and the Black Sea countries; historic and forecast GDP growth per country; transhipment shares of the large hubs, Global Terminal Operators’ Mediterranean presence, and so much more

Any and all information for this publication has been collected, researched and processed in the period June/August 2012. Terminals and associated project data have in as much as possible been checked with the relevant authorities/companies. Information on container shipping services and further content stems from a variety of sources, including Dynamar’s own databases. As different sources often offer diverging information on the same topics, we have endeavoured to provide the most accurate estimates.

Our website www.dynamar.com provides links to the websites of many ports, to all global terminal operators and to all liner operators mentioned in this report. Extensive information on the largest of the latter can be found in our annual publication Top 25 Container Liner Operators - Trading Profiles.

We trust that the reader will enjoy this publication, which has been compiled with the aim to provide a compact, yet comprehensive, assessment of the current status and near future of Mediterranean container terminal supply and box trade demand.

Alkmaar, Netherlands, September 2012

Willem Slendebroek
Senior Port and Shipping Consultant

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Managing Editor
Senior Liner Shipping Consultant
KEY TO TABLES AND OVERVIEWS

Ports and Terminals Selection

All ports branded F/A (or just A or F) in this report have in common that they handle full container services operating in the Mediterranean-Far East and/or the Mediterranean-North America trades. It is those ports which are the subject of the actual and forecast capacity and throughput analyses.

These two trades are the two major deepsea East-West routes connecting with the Mediterranean and responsible for around 20 million TEU of Mare Internum container handlings, including transhipment. As one-hundred (100) of the world’s largest container ships (ULCS) are deployed in services with the Far East, those operations exercise the highest demand on port and terminal capacity and capability.

Because of their geographic position, Mediterranean ports are frequently the subject of wayport calls by services from Asia to both North Europe and North America. The relevant ports are included in this study.

For the compilation of this study, the following structure, parameters and decision points have been considered:

Regions, Countries
The Mediterranean consists of two major basins: West Mediterranean and East Mediterranean (latter including the Black Sea). A more extensive definition of “the Mediterranean” with its various sub-regions and their many gulfs and seas is comprised under a separate heading on pages 17/18.

For the sake of this report, the two main basins have been divided in six sub-regions. Clockwise from Gibraltar, those and the relevant countries are:

West (Europe) Med: Spain, France, Italy, Malta
Adriatic: Italy, Slovenia, Croatia, Montenegro, Albania
Black Sea: Bulgaria, Rumania, Ukraine, Russia, Georgia, Turkey
Greece & Turkey: Greece, Turkey
Levant: Cyprus, Syria, Lebanon, Israel, Egypt
North Africa: Libya, Tunisia, Algeria, Morocco (Mediterranean)

Within the regions, countries are given in geographical order (clockwise from Gibraltar), within which ports have been listed alphabetically. Each sub-region and each country chapter starts with a short introduction.

Ports
Only those ports served directly by Mediterranean-Far East and North America operations are the subject of the throughput and capacity analyses in this report and it are the terminals in those ports (marked F/A or F or A, whichever is relevant) for which structurally terminal profiles are provided.

Occasionally, details of other ports, which may be of interest for (future) strategic reasons or otherwise are given, but those are not included in the throughput and capacity analyses.

Each port sub-chapter starts with a brief introduction, which will include its geographical position and water depth in the fairway(s).

Under each port, the terminals have been sorted alphabetically by terminal operator and then by terminal name (irrespective of the facility’s location within the port).

Terminal profiles
The terminal profiles have been identically structured for all facilities and contain the following information:

- Commercial Name of the Terminal (bold)
- Operator: Name of the terminal operator, details of ownership, if different
- Location: Further indication of the terminal location within the port and/or of the port itself
### Surface
Total terminal surface (quays, backyard, stacks, gates, unless stated otherwise) in hectares (ha, equal to 10,000 square metres)

### Quay length
Quay length in metres used for container operations

### Depth alongside
Water depth alongside the container quay in metres

### STS Cranes
Number of Ship-to-Shore container gantry cranes plus, if used for container operations, the number of mobile harbour cranes (MHC). STS gantry outreach, if available, is detailed as follows: P (Panamax, up to 12/13 boxes-wide), PP (PostPanamax, 13-16), Super and Ultra-PostPanamax (SPP, 17 upwards)

### Capacity
Annualised 2011 terminal handling capacity (TEU)

### Throughput
Total 2011 TEU handlings (to/from ocean-going vessels)

### Notes
Relevant notes, if any

### Expansion
Details about planned expansion of the terminal, if any. In the capacity analyses, the resulting additional capacity appears from the existing terminal forecast

In case of a totally new developments (either brownfield or greenfield), those have been accommodated in a separate Projects section under the subject port in the same format as existing facilities (if sufficient data on the project is known).

In each port chapter, the following tables are provided:
- Historic and forecast throughput over the period 2002-2021
- Overview and salient details of existing terminals and projects
  - surface, quay length, berths, STS (MHC and gantries), 2011 capacity (for projects the year[s] during which the relevant capacity would come available), 2011 TEU handlings, 2012 capacity
- Existing and projected capacity, throughput and occupancy forecast (based on 100% capacity)

### Notes on Terminal Capacity
As said, it is exclusively the capacity of the container terminals in ports served by Mediterranean-Far East and North America operations that is in this report. Because of the extensive use of MHC (mobile harbour cranes) in Mediterranean ports, those facilities have been included in the analyses as well, unless their predominant focus would be on breakbulk cargo.

At most container terminals, feeders (and sometimes inland barges too), are handled at the main container quay. In some cases, a separate quay at the facility or even a separate terminal in the port may be available. In order to compare port capacity like-with-like, the capacity of such separate facilities (in practice of all container terminals in the same port) has been considered in the calculations as well.

Usually, a new terminal is developed and commissioned in various phases. When the late 2008 downturn of the container trades started manifesting itself in full, terminal development phases (sometimes even the first commissioning date) became subject to (the progress of) demand. They are no longer planned according to a pre-determined fixed schedule.

To be able to visualise the effects of a probable capacity development, in such cases the year of implementation may have been estimated.

We have endeavoured to check all terminal and project data in this report including planned (wished) introduction data/periods with the relevant stevedores and/or port authorities. In most cases, those have been generously provided, in some cases parties chose to deny our request or not to react at all, which is regrettable.

### Notes on Container Volume Forecasts
The volume forecasts for the years 2012 through to 2021 are based on a number of variables, which include past performance in relation with country GDP (IMF) development for the years 2002/2011. The resulting outcome has been adjusted for particular events in the past and anticipated market progress in the period ahead, i.e. such items as:
- the explosion of trade following China’s accession into the WTO
- the sudden and fast penetration of box ships into the Black Sea
- expected GDP (until 2017) growth/decline
- effects of the Arab Spring and the Euro crisis
- anticipated container market and trade developments
- a one-year industrial cycle (not for all countries)
- Fingerspitzengefühl
and even then: forecasts are generated mostly to be wrong ...

As the forecasts are generated on a country basis, the resulting percentages are applied similarly for all ports within the country.

**PostPanamax STS gantry cranes - outreach definitions**

A Panamax gantry can handle ships of maximum 13 boxes-wide (i.e. boxes across deck), taking into account a maximum of six metres from (the Ship-to-Shore gantry crane’s) front rail to fender face with the vessel mooring directly alongside the quay. This translates into an outreach of 36.0/38.5 metres.

However, a PostPanamax gantry can basically be anything capable of handling fourteen containers across ship and wider. Denominations used seem to aim at impressing the (prospective) user, but say nothing about the actual outreach of such a crane at first sight. Moreover, there is no unambiguous assessment of when a PostPanamax gantry becomes a SuperPostPanamax gantry and when the latter turns into an UltraPostPanamax device.

Looking at the development of cellular containership-breadth, it can be argued that ships with a deck stow of 17 rows can be considered to mark the development beyond what used to be considered PostPanamax. Such ships can be found in capacity categories of between 5,500 TEU and 9,700 TEU. Its successor, the 18-row-ship covers vessels of between 7,500 TEU and even ULCS of up to 11,700 TEU. It is the larger ULCS, from around 12,500 TEU onwards with breadths of between 48 and (yet on order) 59 rows that require the ship-to-shore handling by cranes capable of handling 19 boxes to 23 boxes across, as detailed in this table:

**Cellular container ships by breadth and boxes-wide - Table 1**

<table>
<thead>
<tr>
<th>Ships number</th>
<th>Including on order</th>
<th>TEU Capacity smallest</th>
<th>TEU Capacity largest</th>
<th>Breadth smallest</th>
<th>Breadth largest</th>
<th>Outreach boxes-wide</th>
<th>STS type</th>
</tr>
</thead>
<tbody>
<tr>
<td>148</td>
<td>76</td>
<td>3,600</td>
<td>5,000</td>
<td>32.5</td>
<td>34.9</td>
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<td>PP</td>
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<td>7</td>
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<td>5,400</td>
<td>35.0</td>
<td>37.4</td>
<td>15</td>
<td>PP</td>
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<td>4,900</td>
<td>7,300</td>
<td>37.5</td>
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<td>27</td>
<td>5,500</td>
<td>9,700</td>
<td>40.0</td>
<td>42.4</td>
<td>17</td>
<td>SPP</td>
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<tr>
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<td>37</td>
<td>7,500</td>
<td>9,900</td>
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<td>18</td>
<td>SPP</td>
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<td>10,000</td>
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<td>45.6</td>
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<td>15,600</td>
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<td>56.4</td>
<td>56.4</td>
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<td>59.0</td>
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On the basis of the above findings, it was decided to categorise and denominate StS gantry cranes as follows in this report:

- **Panamax (P)** up to and including 13-wide
- **PostPanamax (PP)** 14-wide up to and including 16-wide
- **SuperPostPanamax (SPP)** 17-wide and 18-wide
- **UltraPostPanamax (UPP)** from 29-wide onwards

The number of boxes wide is simply added to the abbreviation (here above between brackets). In few those cases where the exact outreach is kept a strategic (or otherwise) secret by the terminal operator, only the abbreviation is given.
Ports served
Following ports, sorted by (clockwise from Gibraltar) Mediterranean main area and then sub-region, are served by Mediterranean-Far East and/or North America services. Hence, all existing container terminals and projects in those ports are included in the many analyses:

Ports in this publication served by Far East and North America services - Table 2

<table>
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<tr>
<th>Basin (main area)</th>
<th>Mediterranean Sub-Region</th>
<th>Country</th>
<th>Ports</th>
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Other ports on which, for a variety of reasons, terminal profiles of short notes are presented, but not part of the analyses include:

Ports in this publication NOT served by Far East and North America services - Table 3

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