1999 Global Cruise Ship Conversion and Repair Market

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Agenda

Answer two key questions:

- How much is the market worth?
  …. (plus, what is the value of key segments, and how have these segments changed from last year)
- Where is the work performed?
  …. (and who are key performers)

How Much is the Market Worth?

Event Type	Number of Events, 1999 (Worldwide)	Duration in Shipyard	1999 Typical Cost Range, Million US$	Estimated Market, Million US$
Scheduled Drydocking	73	10 days to 3 weeks	$1.6 to $9	$358
Refit & Overhaul	18	3 to 4 weeks	$5 to $30	$292
Major Conversion & Lengthening	2	Up to 4 months	$25 to $84	$109
Voyage Repair	10	Less than 1 week up to 8 weeks	$0.3 to $20	$50
Scheduled Wet Docking	17	Less than 1 week up to 2 weeks	Less than $1	$7
Total	**120**			**$815**

Source: Steller Carson Associates, www.stellercarson.com

A $1 Billion Market?

- The 1999 global cruise ship repair and conversion market was probably about $1billion US.
  - We estimate the reported repair and conversion events to total $815 million US
  - But, we rely on publicly available information, which under-reports the number and actual value of repairs and conversions
  - And, there are significant subcontractor and material costs incurred directly by ship owners that are typically not well-publicized
- The 1999 market was probably 15% smaller than the 1998 market
  - The overall number and size of scheduled repair events was about the same
  - However, there were more high-priced major conversions and lengthening jobs in 1998 – particularly NCL's program at Lloyds Werft, and Radisson's *Seven Seas Navigator* at T. Mariotti
  - The reduced conversion segment was offset by 1999's upswing in voyage repairs
- This is a large repair market, but a less significant portion of the overall cruise ship industry ($1 billion = 2 ½ new Panamax ships, and there are over 20 on order!)

Scheduled Drydocking

- In 1999, ***Scheduled Drydockings*** were the largest market segment, both by total dollar value and number of events
    - 73 dockings took place
    - Typical time in the shipyard was two weeks
    - Average total cost is estimated as $4.9 million, however subcontractors and material provided by the ship operator typically represent three-quarters of the project value, with the balance going to the shipyard
    - Shipyard dock space is often booked well in advance – often over 6 months prior to the event
    - Delivery of new ships also contributes to this segment through warranty dockings
- US yards are now trusted with scheduled dockings, and are preferred providers for ships home-ported in North America – a significant shift from a decade ago

Refit & Overhaul

- Scheduled ***Refits and Overhauls*** was the second largest segment of work in 1999, overtaking ***Major Conversion and Lengthening*** in 1998:
  - 18 ***Refits and Overhauls*** were performed
  - Typical period in yard is a month - twice as long as a ***Scheduled Drydocking***
  - Average total cost is estimated at $16 million, with value largely driven by extent of refurbishment to passenger accommodations and public spaces by non-shipyard joiner contractors, lighting specialists, and electronics suppliers
  - Shipyards become mission-critical support providers – crane services, debris removal, work coordinators – as well as industrial tradesmen
  - Key examples include Cunard's *Queen Elizabeth 2, Caronia,* and *Royal Viking Sun* at Lloyd Werft, in which block booking played an important role
- US shipyards play an increasing role in this segment
  - A 1999 example is Princess Cruise's *Regal Princess* at Cascade General

Major Conversion and Lengthening

- ***Major Conversion and Lengthening*** create new cruise ships from other vessel types, or significantly change the capacity of existing cruise ships, thereby providing a relatively quick and cost effective boost to the Owner's fleet.
    - An $84 million (budget) lengthening of Costa Crociere's *Costa Classica* at Cammell Laird was the largest new job in 1999
    - The conversion of *Columbia Queen* from a casino boat to a river cruise vessel started at Nichols Brothers, and has now shifted to Cascade General
- In 1999, ***Major Conversion and Lengthening*** was the third largest segment of the overall cruise ship repair and conversion market
    - Total value estimated at about $109 million
    - Probably about 10 –15% of the total market now, but higher in past years
    - More conversions and lengthening jobs may be booked in the near term

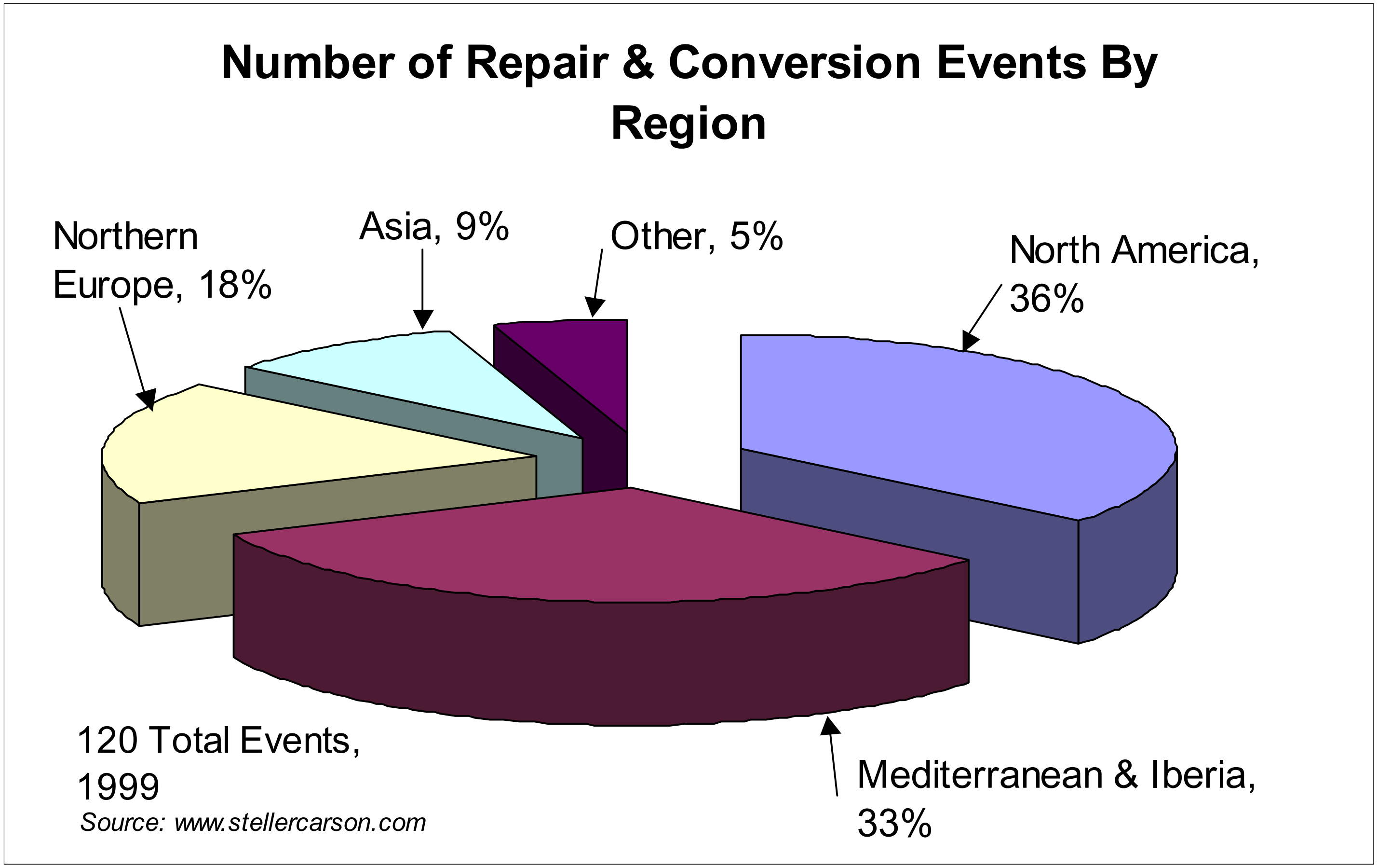
Voyage Repair

- ***Voyage Repair*** - the unplanned work that comes from mis-adventure – was a $50 million segment in the cruise ship industry in 1999 due to collisions, groundings, fires, and equipment failures. Some examples of ***Voyage Repair*** include:
  - Severe:
    - The year began with bottom damage during grounding of RCI's *Monarch of the Seas* and replacement of over 460 tonnes of steel during 45 days at Atlantic Marine's Mobile yard
    - Collision damage to NCL's *Norwegian Dream* in August required replacement of over 300 tonnes of steel during 40 days at Lloyd Werft
  - Moderate: Engine and fire damage to RCI's *Enchantment of the* Seas required almost 6 weeks at Norshipco
  - Minor: Ice damage to Princess Cruise's *Crown Princess* required drydocking and propeller repairs at Victoria Shipyards

Scheduled Wet Docking

- ***Wet Docking*** is cruise ship industry jargon for scheduled repairs and alterations performed alongside a pier.
    - Work doesn't require a drydock, and sometimes is not performed at a shipyard
    - Flying crews become an important service offered by shipyards, particularly when the ship owner manages the job and performs the work at a port along its scheduled itinerary
    - Typically ***Scheduled Drydocking*** is planned twice every 5 years, with a ***Wet Docking*** as an intermediate maintenance period between scheduled drydockings
- ***Wet Docking*** is typically the smallest dollar-value segment of the cruise ship repair and conversion market. 1999 ***Wet Docking*** statistics:
    - 17 events, estimated at a total value of $7 million US
    - Typical time in yard is 4 to 5 days, up to two weeks
    - An example is the scheduled post-delivery wet dock of Princess Cruise's *Sea Princess* at Port Everglades

Where is Work Performed?



Regional Ship Repair Centers

- One measure of the ship repair and conversion market is the ***number of events***
  - 120 total events were reported in the public press in 1999
  - This is only a 4% increase over 1998
  - These 120 events were performed by 42 shipyards throughout the world.
- North America is one of the most important regional cruise ship repair centers
  - Approximately one-third of global ship repair and conversion events take place in the United States and Canada
  - Work is equally divided between the Pacific, Atlantic and Gulf Coasts
  - Key ship repair firms include: Vancouver Shipyards, Cascade General, San Francisco Drydock, Atlantic Marine, Newport News, NorShipCo and Baltimore Marine Industries
  - Freeport Ship Care is a proposed new facility, to be operated by Lloyd Werft
  - These firms are located along seasonal repositioning routes or within three days sailing from normal cruising areas

Regional Ship Repair Centers

- The Mediterranean and Iberia provide another third of global repairs
  - Italy and Greece are key repair and conversion centers, particularly the yards of San Giorgio del Porto, T. Mariotti, Hellenic Shipyards, and the repair community in Piraeus
  - Malta, Spain, Portugal, France and Croatia also provide repairs to the cruise ship industry
  - This region is the low-cost provider among shipyards serving the cruise ship industry, while providing high quality and timely repairs and refurbishments
- Northern Europe specializes in conversion work, and provides a smaller number of repairs
  - Yards in the United Kingdom, Germany and Scandinavia account for 18% of the total ship repair and conversion events
  - 1999 saw significant changes in this region, as Cammell Laird continued to expand, pushing forward into major conversion work, and Lloyd Werft completed a large program of ship lengthening jobs for Norwegian Cruise Line

Regional Ship Repair Centers

- With the growth of cruising in the Far East, Asian ship repair yards are providing a growing number of dockings
  - Asian yards provide almost 10% of the global ship repair services
  - Singapore is the center for Asian ship repair, particularly Sembawang and ST Marine
  - Japan and Korea provide a small number of repairs for vessels home-ported there, with IHI Aioi and Hyundai Mipo as principal shipyards
- Cruise ship repairs are also undertaken in developing nations, using specialists and subcontractors from Europe
  - Approximately 5% of global ship repair is associated with world cruisers that dock close to their established itineraries
  - Examples include Globe Engineering in South Africa, Curacao Drydock in the Netherlands Antilles, and Astilleros Braswell in Panama

Appendix

- The enclosed report is extracted from Steller Carson Associate's database of worldwide ship repair and conversion events.
  - This database contains over 4200 events reported in the public press since February 1998; Steller Carson has not verified this data with shipyards or ship operators, and makes no warranty as to the accuracy of the data
  - All ship types are covered, however this Appendix results from a query for cruise ships only
  - Data in this report are grouped by shipyard, and sorted alphabetically by ship operator to provide insight into customer-provider relationships and repeat calls by individual ships