
CONTAINERSHIP OPERATORS INTRODUCE NEW VESSELS AND CARRIER ALLIANCES

Impact of the Next Generation Containership

During the next few years, U.S. ports again will be faced with the challenge of handling the next generation of containerships (megaships). The first of the large 6,000+TEU containerships, "Regina Maersk," was delivered in January 1996. Worldwide, containership operators will be taking delivery of 35 vessels in the 4,500 to 9,000 TEU range from 1997 through 1999¹⁵ (see Appendix H for details on the containership order book). These new vessels will serve high volume, long distance trades, with many operating as part of vessel sharing agreements or alliances. They will require sophisticated and efficient ports and terminal facilities with excellent landside intermodal connections.

The introduction of these vessels is in response to the changing dynamics in intermodal shipping caused by the reduction in international trade barriers, lower tariffs, and shifting centroids of global manufacturing and consumption. Many new trade gateways are developing which will alter market demand and future cargo forecasts. Trade worldwide is growing, with 55 percent of all general cargo in international liner trade moving in containers. Assuming that adequate port infrastructure is available, by 2010 nearly 33 percent of general cargo tonnage will be transported by ships carrying more than 4,000 TEUs.

Megaships are being constructed with carrying capacity exceeding 4,500 TEUs with fully-loaded design drafts of 40 to 46 feet. Most U.S. ports are currently unable to handle these ships. American ports face the challenge to improve their infrastructure to handle ships of this size. For a port to service these megaships, the entire port structure will have to get bigger and more productive. Each channel, berth, and turning basin must be at least 50 feet in depth, since 40 to 46 feet will be the maximum draft for the fully-loaded megaships. For U.S. ports serving megaships, the surrounding transportation system must be able to respond. For our Nation to preserve and enhance its competitive position in world trade, we must reduce the cost of transportation by eliminating inefficiencies.

Dredging is the paramount issue confronting U.S. ports ability to accommodate megaships. Ports will need to provide channels and berthing areas with minimum depths of 50 feet, in order to handle fully loaded megaships. Table 34 shows the channel and berth depths for the leading U.S. container ports. As shown in the table, only four of the top 10 U.S. container ports, which handle nearly 80 percent of the container traffic, have existing channel depths of 50 feet or more. Many of the leading ports, which lack adequate depths, have projects underway or in the planning stage to increase their channel depths. The crucial question is whether they can complete these projects in time given the problems experienced by many ports in seeking solutions to siltation, dredged material disposal, and contaminated sediments.

15

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While not all ports need the capability to handle these vessels, the failure to provide an adequate number of these channels in a timely manner will seriously impact the efficiency of our intermodal transport system and the competitiveness of our trade.

Table 34
Water Depth for Selected U.S. Container Ports

Port	Channel Depth	Berth Depth	Container Port Ranking ⁷ (1997)
Boston	40	45	23
New York/New Jersey ¹	40	35-45	3
Philadelphia	40	40	21
Baltimore	50	36-42	13
Hampton Roads	50	32-45	7
Wilmington (NC)	40	40	22
Charleston ¹	42	40	4
Savannah	42	42	11
Jacksonville ²	38	38	16
Everglades	47	37-44	12
Miami	42	42	8
Gulfport	36	36	18
New Orleans ³	36 & 45	35	14
Houston ⁴	40	38-40	9
Honolulu	45	40	26
Long Beach	76	35-50	1
Los Angeles ⁵	45	45	2
Oakland	42	35-42	6
Portland (OR)	40	40	15
Tacoma	40-50	40-50	10
Seattle	175	40-50	5
Notes:	3 - 36' refers to MRGO	5 - 50' project underway	
1 - 45' project authorized	45' refers to Miss. River	6 - 50' feasibility study	
2 - 40/44' feasibility study	4 - 45' project underway	7- Source: P.I.E.R.S.	
Source: AAPA and Containerisation International Yearbook			

The economics of these new vessels will mean fewer port calls for many ports and in some cases the elimination of port calls altogether. The situation is similar to the 1980s when carriers first introduced the 3,000 and 4,000 TEU vessels. For some ports, the pressure to

ensure that the required infrastructure is in place will increase. For those ports which stand to lose business, they will need to pursue other market opportunities, such as non-container cargoes, niche markets, or container feeder ports.

Another issue ports must address is the impact of these vessels on terminal facilities. The volume of cargo carried by new vessels will require new or improved terminals. This includes larger cranes, berths, storage yards, and information systems. Landside access will have to be improved to handle the higher peak volumes of rail and truck traffic. Today, congestion is a major problem at many container terminals where trucking delays at terminal gates are increasing. Major improvements will be required in this area before the new vessels enter into service. Many U.S. ports have begun a number of major expansion projects. Most major U.S. container ports are building, expanding, or planning new container facilities, including many with on-dock rail facilities. The cost of a new facility can reach several hundred million dollars. In 1977, the Port of Long Beach completed a 170-acre container terminal at a cost of \$277 million and neighboring Los Angeles opened a 230-acre container facility costing \$270 million. The Port of Charleston is starting to develop a new container terminal on Daniel Island with first phase costs projected at \$300 million and completion in 2004/05.

Appendix I describes the terminal characteristics for a nominal megaship terminal. This information was prepared as part of the background material developed for participants to the Department of Transportation's Megaship Conferences.

Megaship Conferences

In response to the growing attention over the introduction of the large containerships (megaships), the Department of Transportation conducted a series of four regional meetings to address transportation impacts caused by changes in ship design and shipping practices in the intermodal shipping industry. The meetings examined existing transportation infrastructure, market trends, and how transportation planning should consider freight distribution systems that must serve both domestic and global needs. The fundamental issue addressed in these conferences was how improving infrastructure links to ports is a critical prerequisite for transportation to function as a system. Information from the meetings shows that action should be taken now to craft policies to position the U.S. transportation industry to handle the significant increases in international freight movements and the infrastructure demands of the changing trade flows and port calls by larger and faster vessels.

The results of these conferences were published in a USDOT report entitled, *The Impacts of Changes in Ship Design on Transportation Infrastructure and Operations*¹⁶. The report

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This report is available on the internet at www.bts.gov/ntl/data/ShipDesign.PDF.

acknowledged two ongoing USDOT activities that will begin to assess the transportation system's ability to accommodate the projected increases in international intermodal freight. These activities are:

- o Marine Transportation System Initiative: This initiative, led by the Maritime Administration and the U.S. Coast Guard, will bring together the many agencies with responsibility for waterways management to coordinate and consolidate the delivery of all Federal services and promote port efficiency. The project will focus on policy coordination at the national level and action at the local port level. Adequate infrastructure, including channel and berth depths, locks, navigation information, port facilities, intermodal connections, and information management to accommodate all classes of marine vessels--from large containerships to inland river barges--are among the waterway issues encompassed within this initiative. (See page 76 for additional information.)
- o Assessment of the Conditions and Performance of National Highway System (NHS) Intermodal Connectors: This Federal Highway Administration initiative will compile information on the NHS connectors to major passenger and freight intermodal terminals, including 500 freight terminals. The FHWA will:
 - Evaluate the highway infrastructure condition of NHS connectors to major intermodal terminals.
 - Identify improvements that have been made or are being planned for intermodal connections and identify impediments to making improvements to them.
 - Identify other non-highway infrastructure, regulatory, institutional, and operational impediments to intermodal terminal access.

Impact of Global Shipping Alliances

The formation (September 1994) of the "Global Alliance" by American President Lines, Orient Overseas Container Line, MOL, and Nedlloyd changed the face of container shipping and led to the formation of several competing alliances. Today, global shipping alliances are a fact of life in world trade logistics as carriers seek to reduce costs and increase their return on investment. The economic benefits that have accrued to the early shipping alliance partners have accelerated competition in the shipping trades, resulting in new alliances being organized. As shown in Table 35, it is now common to see shipping alliance partners jump from one alliance coalition to another or form new alliances for purposes of expanding their market share and protecting their capital investments.

Table 35
International Shipping Alliances

1996-97	1998-???
Grand Alliance	Revised Grand Alliance
P&O	P&O/Nedlloyd
Hapag-Lloyd	Hapag-Lloyd
Nippon Yusen Kaisha (NYK)	NYK
Global Alliance	New Unnamed Alliance
Nedlloyd	Hyundai
MOL	MOL
APL	APL/NOL
OOCL	OOCL ?
Hyundai	"K" Line
"K" Line	Yangming
Yangming	
Hanjin	Hanjin
DSR-Senator	DSR-Senator
Cho Yang	Cho Yang
Maersk/Sea-Land	Maersk/Sea-Land

Source: American Shipper: December 1997

An alliance is a consortium or a sharing agreement among a group of shipping lines serving similar trade areas for their mutual economic benefit. Their common goal is to integrate their vessel operations, facilities, and equipment in order to reduce operating costs. At the same time, they maintain their own individual marketing capability to compete for containerized cargo in the marketplace. As a result alliance members can: 1) expand and improve service; 2) minimize investment costs and risk; and 3) reduce current competition among alliance partners and within the trade.

In addition to the benefits from vessel sharing, alliance members recognize that joint terminal usage is a potential area for significant savings. To date, there has been little in the way of actual terminal consolidation. Among the factors affecting the alliances' ability to move in this direction are the existing long-term leases held by many of the members and the reluctance of some members to lose control over terminal facilities and operations.

Shipping alliances pose a serious challenge for the U.S. public ports. Among the possible outcomes resulting from these carrier alliances are fewer port tenants and a downward pressure on port tariffs and fees. Carrier alliances are likely to have greater leverage with ports than a single carrier in negotiating favorable tariffs, fees, financing, and services. As alliances consolidate port operations, there will be winners and losers, especially among neighboring ports. For some, it will mean the loss of alliance business as a direct port call, because another port was selected to serve a particular coastal range or, at a minimum, a reduction in cargo and vessel calls. If water feeder networks develop around the ports selected to service alliances and/or megaships, neighboring ports may offset the loss of that business by becoming a feeder port.

There will be significant adjustments for ports selected as alliance load centers. Initially, carriers will be consolidating terminal operations within the port area, which may stretch the capabilities of some facilities. For example, one west coast port developed a \$90 million plan to accommodate alliance partners serving the port. The plan affected 10 carriers and five terminals. This plan was never executed because of changes within the alliance members. In time, there will be a need to expand existing facilities and/or construct new ones. The added business may lead to increases in landside congestion--highway and rail. While there are many factors, which will determine port selection, those ports with modern facilities, deep channels, good landside transportation access and large local markets will be in a stronger position to negotiate with the carrier alliances.