# DOMESTIC WATER TRANSPORTATION BEFORE AND AFTER DEREGULATION

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## I. Introduction

When the transportation sector was deregulated, most of the attention focussed on the deregulation of air, trucking and rail services. Deregulation of marine services received limited attention. Therefore, it is important to reflect on the accomplishments to date and identify current trends that are shaping the future. This paper provides an overview of domestic water transportation in Canada before and after deregulation. It begins by providing an overview of the structure of water transportation in section II. Section III is a brief description of marine freight transportation before and after deregulation. In section IV, regulations before and after deregulation are described. In section V, some major issues in marine freight transportation are noted. In section VI, the initiatives undertaken to deal with these issues and the future directions are provided. The paper ends with a few concluding remarks.

## II. An Overview of Water Transportation

*Sectors:* Statistic Canada summarizes data on water transportation using the following broad categories: passenger (ferry and cruise), freight, towing and charters. Financial magnitudes indicating the relative sizes of each of these categories are occasionally made available by Statistics Canada. Its 2001 Annual Survey of water carriers indicates that vessel operating revenues for the Canadian domiciled for-hire and government sectors was $2.96 billion. Own estimates of the private sector should bring the total to $3.06 billion. The

estimates of total water revenue attributable to each of the above broad categories are: $246m (9%), $1.4b (50%), $400m (14.2%), $486m (16.8%) with subsidies accounting for $229m (8.2%). [1] It includes both domestic and international services but does not include services of foreign domiciled carriers serving Canada. In 2007, the data from Statistics Canada indicate that the total revenue (for-hire and government) in the marine sector was $4.49 billion.

*Operations:* On the basis of operations they are usually classified into domestic, transborder and international operations. Domestic operations include water transport service in: Inland; Pacific; Atlantic; and Mackenzie River and Arctic (Western and Eastern). Their basis of operations may also be classified according to origin-destination points: between two Canadian ports; between a Canadian port and US (Great Lakes and other US ports); and between a Canadian port and other foreign ports.

*Ownership:* The industry can also be classified on the basis of ownership. In the 1980s, it reflected a mixture of private, for-hire and government ownership (federal government, crown corporations, provincial government and municipal). This also applies today in some subsectors.

## III. A Brief Description of Waterborne Transport

### *a) Sectors*

The major sectors in marine transportation for 1984-2007 are shown in the table 1.[2]

**Table 1: Operating Revenue of Water Transp. Carriers by Type of Operation 1984-2007** (m)

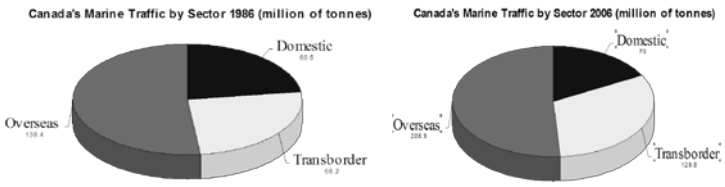
| | **1984** | **1995** | **2001*** | **Est 2001** | **2007** |
|---|---|---|---|---|---|
| **Water** | % of 1 | % of 1 | % of 1 | % of 1 | % of 1 |
| Commodities | 58.9 | 55.4 | 48.8 | 49.7 | NA |
| Passengers | 3.7 | 6.6 | 9.0 | 8.8 | NA |

| | | | | | |
|---|---|---|---|---|---|
| Towing | 12.1 | 10.2 | 14.7 | 14.2 | NA |
| Bareboat Charter | 1.8 | 1.3 | 0.06 | 0.057 | NA |
| Time & Voyage Charter | 11.8 | 15.5 | 16.7 | 16.8 | NA |
| Other Vessel | 0.07 | 4.3 | 1.7 | 1.7 | NA |
| Water Transport (S) | 10.9 | 6.6 | 8.4 | 8.2 | NA |
| **1. Revenues** | 2265.1 | 2706.3 | 2729.3 | 2804.7 | 4164 |
| TOTAL | 2489.3 | 3050.5 | 2962.6* | 3063.2 | 4495 |

One noticeable change is the significant drop in the share of revenue attributed to the private sector from 23.4% in 1984 to 3% in 1995.

***b) Area of Operation***

The flow of marine traffic by sector is shown in the following pie charts for domestic, transborder and overseas areas in terms of tonnes for the period 1986 and 2006. In terms of percent, they accounted for 22.6%, 25.5% and 51.8% in 1986 and 17.1%, 31.7% and 51.1% for 2006. It reveals the decline in domestic and increases the transborder shares. It is also worthwhile noting that the total traffic flows as a percent of total handled in the two periods were: 81.5% and 85.4%.




**c) *Commodities***

In the domestic sector: i) the inland waters (Great Lakes and St. Lawrence) account for about 60% of the total activity - coal grain, stone, iron ore, forest products and minor bulks are the major traffic flows; ii) Pacific waters account for 25% of the

total activity - forest products and lumber are the major traffic flows; iii) Atlantic waters account for about 10% of the total activity associated with flows of - gypsum and forest products; and iv) Mackenzie and Arctic account for about 5% of the total activity of - dry cargo and bulk petroleum traffic flows.

In the transborder and overseas sectors, the import and export trade for 1997 and 2008 of the most important commodities by value in 1997 were Gasoline and Fuel (52.4%), Coal (12.6%) and Iron Ore (11.2%). In sharp contrast by 2008, the major commodities had shifted significantly to Petro/Gasoline and Fuel (49.1%), Crude Petroleum (35.1%). By 2008, these two commodities accounted for 84.2% of the value.
Transport Canada data in Table 2 below indicates that the ports of Come-by-Chance, Port Hawkesbury, Newfoundland Offshore and Saint John are some of the major centre of the crude petroleum shipping traffic. It is noteworthy to observe that only Saint John is a Canadian Port Authority and the other ports are private sector entities.

**Table 2: 2008 Crude Petroleum Figures in '000 Tonnes**

| Port | Domestic | | International | | Total Handled |
|---|---|---|---|---|---|
| | Loaded | Unloaded | Loaded | Unloaded | |
| Come-By-Chance | 3,007.3 | 10,131.2 | 6,881.2 | 4,932.8 | 24,952.5 |
| Port Hawkesbury | 0 | 3,369.9 | 10,674.9 | 7,153.3 | 21,198.1 |
| Newfoundland Offshore | 14,949.1 | 0 | 1,919.3 | 0 | 16,868.3 |
| Saint John | 0 | 2,798.7 | 28.4 | 10,511.5 | 12,338.5 |
| Quebec | 0 | 0 | 0 | 9,631.8 | 9,631.8 |
| Port Metro Vancouver | 0 | 0 | 2,159.3 | 0 | 2,153.3 |

***d) Firms***

In the mid 1980's, the major shipping companies in domestic waters were: *Inland waters* - Canada Steamship Lines Inc. (CSL), ULS International Inc., Algoma Central Marine, Halco Inc. and Misener Ship Management Division with 30.6%, 22.1%, 15.9%,

9.5% and 8.8% of the dry bulk market. *Pacific Waters* - Kingcome Navigation Company Limited with 100% of the dry bulk market. Seaspan International Limited and Rivtow Industries accounted for 36% and 21.6% of the tugboat and offshore supply market. *Atlantic waters* - CSL, Groupe Degagnes Inc., and N.M Paterson & Sons Limited accounted for 33.4%, 28% and 15.1% of the dry bulk and cargo market.

In the tanker for-hire market, Societe Sofati and Halco Inc. accounted for 55.7% and 27.3% of the this market. Besides for-hire, there was also the private oil tanker market that was dominated by the major oil companies. Of the total tanker market (for-hire and private), the market share was split nearly equally between the two. *Mackenzie River and Arctic* - Northern Transportation Company Limited (NTCL) had 75% of the tug and offshore supply DWT and Arctic Transportation Limited (ATL) was the second largest carrier.
In Eastern Arctic, the major companies that operated were: ATL, Canarctic Shipping Company Ltd., North Water Navigation Ltd., Resolute Shipping Ltd., and Melville Shipping Ltd., etc.

In 2006, in the *inland waters* - the top three companies were Algoma Central Marine, Upper Lakes Group and CSL accounting for 90% of industry capacity. In the *Pacific waters* - Washington Marine Group (which purchased Seaspan International Ltd. and Kingcome Navigation Company Limited) and Smit Marine Canada (formerly Rivtow Marine Inc.) that are ranked as first and second dominate the industry. In the *Atlantic waters* - CSL and Groupe Degagnes Inc. two of the major companies continue to provide service. N.M. Paterson & Sons Limited sold it ships to Purvis Marine and CSL Marine Transport in 2002. Seaway Marine Transport (a partnership of Algoma Central Corporation and Upper Lakes Group Inc. formed in the 1990s) also provides service. In the

*Mackenzie River and Arctic* - Northern Transportation Company Limited (NTCL) continues to be the main marine operator.

**IV. The Regulatory and Deregulatory Era**

***a) Economic regulations in Water Transportation Before Deregulation***

Before deregulation, the Water Transport Committee (WTC) of the Canadian Transport Commission (CTC) was the regulatory body for water transport legislation under the jurisdiction of the Federal Government. The basic laws that were applicable to the sectors examined here were: The *National Transportation Act* (NTA), the *Canada Shipping Act* (CSA) - Part XV, *Transport Act* (TA) - excluding Part V, the *Inland Water Freight Rates Act* (IWFRA) and the *Shipping Conferences Exemption Act* (SCEA) 1979. In addition, there were other acts such as the *Pilotage Act* (PA) and the *St. Lawrence Seaway Authority Act* (SLSAA).

**Domestic Waters:** The major facets of economic regulation were: entry control (through licencing and nature of service through such restrictions as type of vessel, area of operation, passenger vs. freight services and scheduled vs. unscheduled services), tariff filing and control (maximum and standard tariffs together with appeal) and acquisitions. More specifically the laws provided for regulation in specific areas as described hereafter:

1. *Pacific and Atlantic Waters:* - ship registration (s. 661(1) CSA); - reservation of the coasting trade for commonwealth vessels (s. 663(1) and (2) CSA); and - suspension of the coasting laws (s. 665 CSA).

2. *Inland Waters:* - entry control (s. 10 & 11 TA); - capacity control (s. 10 TA); rate regulation on passenger and non-bulk traffic (traffic between L'lle d'Orleans and Thunder Bay) (s. 12 and Part III TA); reservation of the coasting trade on the Great Lakes and St. Lawrence River for Canadian ships (s. 663(3)

CSA); filling records with the Board of Grain Commissioners for Canada (s. 3 IWFRA); and non-recovery of excesses over the maximum rates and penalties by the Board (s. 5(4) IWFRA).

3. *Mackenzie River and Arctic:* - entry control of passengers and goods through licensing (s. 10 TA) and the ports between which the ships named may carry goods and maintain the service (s.10(4) TA). Equipment over 10 gross tons in the Mackenzie and over 500 gross tons in the Arctic must be licensed in the name of the carrier (s.2(1) TA); regulation of transport of bulk commodities in the Mackenzie (ss. 13-34); regulation by Order-in-Council for the movement of deck cargo in Western Arctic; exemption by the Governor-in-Council (s.12(2) TA); filing of tariffs (s. 14 TA) and charging as filed unless disallowed (s. 16 TA) together with division of tariffs and approval of standard tariffs and supplements; application of tolls equally (i.e. no discrimination between passenger/shipper/ localities) (s. 21 TA); obligations by all licensed common carriers (with reasonable and proper facilities and without unreasonable preference/advantage/prejudice/ disadvantage) (s. 22 TA); disallowance of tariffs (s. 23 TA) and permission to issue special rates (s. 28 TA); outlawing rebates/ concessions/discrimination/falsification of information to obtain less than applicable tolls (s. 27(1) TA); non-discrimination in carriage of traffic free or at reduced rates (s. 29 TA); and allowance of agreed charges to meet intermodal competition and protection of shippers if agreed charges are unjustly discriminatory (ss. 32-35 TA).

***b) Economic Regulations in Water Transportation After Deregulation***

The deregulation phase reflected an attempt to remove or reduce all unnecessary costs and to bring the regulation in water into harmony with other modes. It also reflected an increase in cabotage to protect Canadian interest and maintain

its competitive position. In 1985, Don Mazankowski, the Minister of Transport at that time, introduced his white paper.

1. *Pacific and Atlantic Waters:* - it proposed to amend the *Canada Shipping Act* by restricting the coasting trade to Canadian ships (the coasting trade permitted commonwealth), extending the acts jurisdiction to 200 nautical miles offshore (from 12 miles) and covering all marine activities (e.g. offshore exploration and development, dredging, etc. which were formerly excluded) except fishing. It was not until 1992 that these changes (which were recommended earlier by W. J. Darling) were introduced in Part X of the *Coasting Trade Act* (1992).

2. *Inland Waters:* - it called for a repeal of the *IWFRA* and the provisions of the *TA* pertaining to the Great Lakes. With regard to the former, only grain was subject to maximum rate regulation, as there appeared to be sufficient competition given a single buyer. Further, the Canadian Grain Commission never had cause to prescribe maximum rates. These factors outweighed any argument for retaining it. With regard to the latter, the nature of competition in that area (Thunder Bay and L'Ile D'Orleans) was deemed not to require retention of regulatory control.

3. *Mackenzie River and Arctic:* - it called for a retention of regulation of community resupply while streamlining the TA with regard to entry, licensing and rates, given the special needs of northern transport. Subsequently, the *National Transport Act, 1987*, recognizing these special needs continued regulation of entry, capacity, and area of service for the transport or resupply of goods by water to communities on the Mackenzie River watershed (including Athabasca) and Western Arctic as far as Spence Bay to the east and the Alaska boundary to the west.

Seven years later in 1994, Transport Minister, Douglas Young introduced a policy of commercialization (Marine Atlantic ferry service) and decentralization of government operations (divestiture of ports), including the elimination of federal licensing and tariff regulation of marine resupply services in the North. In 1996, the *Canada Transportation Act* eliminated licensing and tariff regulation of marine resupply services in the North and extended the Final Offer Arbitration provision to Northern marine resupply rates.

**V. Domestic Water Transportation Today**

Interest in promoting increased domestic freight transport by water now better known as 'shortsea' shipping began in 2003. Two issues acted as catalyst for this interest, highway congestion and a move towards a greener world and increased transportation sustainability. The two earliest studies - Transport Canada and Cambridge Systematics and the most recent report - will be examined. These have identified a number of obstacles to its development.

Transport Canada: *Making Connections: Shortsea Shipping in Canada* identified a number of potential challenges to the expansion of Canadian shortsea shipping. They can be classified into three major groups:

1. Operational and/or market-related: shortage of suitable port infrastructure and water terminal facilities, need for greater integration as in other modes of transportation, and a steady flow of cargo.

2. Regulations and other institutional arrangements: tariff and non-tariff barriers when bringing ships into domestic service and recent security measures.

3. Costs: service and user fees, excise taxes and additional costs

associated with seasonal operation.
Cambridge Systematics Inc.: *Cross Border Short Sea Shipping Study* identified three types of institutional issues that could have significant impacts on the commercial viability of a potential new short sea shipping service.

1. Service: need for a scheduled service.

2. Labour: greater costs associated with unionized workers at public facilities, this should favour development of private facilities.

3. Regulations: cabotage rules, custom requirements, US harbour maintenance tax, and custom cost recovery fee.

Standing Senate Committee: *Time for a New National Vision* identified a number of issues and made a number of recommendations based on the testimony of numerous witnesses.

1. Foreign built ships imported into Canada have to pay a 25% duty under the *Coasting Trade Act* and another 50% capital cost to bring the vessel up to Canada Coast Guard standards. Many of the foreign vessels used in domestic water are specialized and not produced in Canada raising questions as to the justification of the duty.

2. Fees are collected by the Canadian Coast Guard Marine Navigation Service. The industry indicates that this represents a cost of $40 million to the industry and there is no similar parallel of such a fee in rail or road transportation.

3. Costs on new international services are imposed on by the Canada Border Services Agency under their cost recovery initiative. This does not encourage the development of new

shortsea shipping.

4. Pilotage fees on small container vessels vs. bulk shipment per unit of cargo favours the latter in comparison to the former in the Seaway. This distorts the development of the two.

5. United States imposes a harbour maintenance tax on the value of cargo entering by water but not over land. This discourages the development of short sea shipping.

6. Cabotage regulations limit the nature of shortsea operations, as a result, ships are unable to provide the most efficient service (triangular routing), making it less competitive with the trucking industry.

Overall the Committee came to the conclusion " ...that there are significant regulatory and monetary obstacles in the way of an increased role for shortsea shipping of containers. These impediments would have to be eliminated or greatly reduced if this mode of transport was to grow. Changes to both Canada's tax and user charge policies as well as changes to the cabotage regime are essential to realizing this goal."

Accordingly, it made the following recommendations to encourage marine shortsea freight transportation: eliminating the federal tariff on imported vessels used for shortsea shipping; exempting shortsea container operations from the Marine Navigation Services fees; exempting new container ports on the Great Lakes from the costs of establishing new customs services; exempting shortsea container vessels flagged in Canada from pilotage fees on the St. Lawrence Seaway; negotiating with the U.S. to exempt shortsea container vessels from the harbour maintenance tax; and negotiating multilateral cabotage exemptions for shortsea container shipping operations.

**VI. Domestic Water Transportation Initiates**

Since 2003, a number of initiatives to promote short sea shipping have being undertaken. The most important federal initiatives are:

*1. NAFTA*: Memorandum of Cooperation on Sharing Shortsea Shipping Information and Sharing (2003); and Agreement between Canada, US and Mexico to Study Best Practices (2006).

*2. Consultation and Participation*: Eight consultations across Canada; and Participation in Quebec Shortsea Shipping Roundtable.

*3. Conferences*: National Marine Conference on Shortsea Shipping in Montreal (2004); and North American Shortsea Shipping Conference in Vancouver (2006).

*4. Funding*: Shortsea shipping studies, research and projects.

*5. Projects*: To date five shortsea shipping projects are being undertaken in B.C. They have received funding under the Asia-Pacific Gateway and Corridor Initiative. The five projects are: 1. Fraser River Shuttle ($10 million); 2. Delta Shortsea Berth ($4.7million); 3. Vanterm Shortsea Berth ($3.9 million); 4. Mountain View Apex Container Terminal ($14 million); and 5. Southern Railway of BC Rail Barge Ramp ($10 million).

*6. Regulatory*: Introduction of legislation in Congress to remove the harbour maintenance fee in the Great Lakes/Seaway; and Amendments to the Canadian Custom Tariff on containers.

Besides the federal government initiatives, there have also been attempts by the provincial governments and the private

sectors. The most noteworthy are those in: Quebec and Atlantic Canada.

***b) Future Directions***

*Establish a North American Shortsea Shipping Strategy?* - Transport Canada has called for a North American shortsea shipping strategy, as there is a significant international component and enhancing trilateral cooperation is essential to maximizing the success of shortsea shipping. It has undertaken to build on the 2003 MOU and pursue an active trilateral relationship.

*Investment in port facilities and vessels* - The Great Lakes St. Lawrence Seaway Study has indicated that we need the capability of rolling the truck trailer right onto the vessel and then rolling it off on the other side so as to avoid lengthy delays in port as well as the expense of loading and unloading cargo. Neo-bulk cargoes also provide a limited potential for growth. This calls for investment in suitable vessels (Ro-Ro) and appropriate port facilities.

*Shipping Research Agenda* - 'Shortsea shipping supporters recognize that, at present, there are important shortcomings in the availability of meaningful information on shortsea shipping in Canada. This hampers efforts to develop credible and effective policy interventions at all levels of government ...' It also increases risk an uncertainty. Transport Canada calls for the need for a Research Agenda (Making Connections: Shortsea Shipping in Canada).

*Deregulation of Containers and shipping* - Academic studies (Barry, Brooks, Prokov, and various reports eg. Cambridge Systematics) have advocated the abandonment of cabotage of container regulation and shortsea shipping, as it would be efficiency enhancing. Recently (2009), the Department of

Finance has proposed changes to the Customs Tariff to increase the time period in which foreign containers can be used without paying any tariff and to relax the restrictions on their use while in Canada. In August 2009 changes were made. More is needed so as to enable carriers to triangulate their routes. Other proposals include removal of the 25% tariff on importation of short sea vessels to alleviate shortage of vessels

*Integration into Multimodal Framework* - Shortsea shipments require trucking at both ends and trucking has to be engaged as a partner. In addition there is need for intermodal marketing companies and freight forwarders. (See recommendations of Cambridge Systematics) Even the Standing Committee recognized that transportation must be viewed as a system and that its effectiveness is undermined by poor integration within and throughout the system.

*Agreements between Port Gateways, Authorities, etc. to promote Shortsea* - Agreements between port gateways and authorities could promote shortsea shipping. The Seaway has 41 ports serving 150 million people, this is a large market with good potential. Agreements to reducing tolls to new firms and freezing tolls could help. Other examples are agreements to use underutilized ports, i.e., Churchill and Halifax to transfer wheat, etc.

**VII. Concluding Remarks**

The government's deregulation policy in water transportation since the mid 1980s reflects two conflicting philosophies: allowing market forces to dictate the provision of market services; and protecting Canadian interests from market forces: the former, with regard to international shipping and the latter with regard to domestic shipping. Having adopted a policy of commercialization and decentralization of government operations in 1994, its attention has been directed to divestiture

of its infrastructure such as Canada Ports and the St. Lawrence Seaway Authority.

After deregulation it could be argued that increased sustainability was the dominant policy philosophy shaping the current direction of domestic water transport in Canada. This resulted in increased interest in promoting increased domestic freight transport by water now better known as 'shortsea' began to gather momentum in 2003.

Studies were undertaken to examine its potential and they identified a number of obstacles to its development. A number of initiatives were also undertaken to promote its development. In June 2008, the Standing Senate Committee reviewed this matter and published its report: *Time for a New National Vision*. It identified a number of issues and came to the conclusion " ...that there are significant regulatory and monetary obstacles in the way of an increased role for shortsea shipping of containers.

These impediments would have to be eliminated or greatly reduced if this mode of transport was to grow. Changes to both Canada's tax and user charge policies as well as changes to the cabotage regime are essential to realizing this goal." It accordingly made a number of recommendations. Some of the suggested directions to promote shortsea shipping that have appeared in the literature are: establish a North American shortsea shipping strategy; invest in port facilities and vessels; establish a Shipping Research Agenda; deregulate containers and shipping; integrate the system to provide a multimodal framework; and encourage agreements between port gateways, Authorities.

While an emphasis on shortsea shipping in indeed a laudable policy objective (and one that should continue) one cannot help

but ask whether this has become the singular preoccupation of Canadian domestic water transportation policy. The present authors would ask readers to consider whether the emphasis on shortsea shipping has inadvertently diverted our attention away from other commercial trends that have been occurring and may need our attention, if we are to improve our sustainability. In section III c) we noted a shift in importance of commodities in the transborder and overseas cargo sectors. There is a certain irony in the fact that during a period where transportation sustainability was a significant policy influence the major commodities (by value) in the transborder and overseas trades have gradually shifted in relative importance: Petro/Gasoline and Fuel and Crude Petroleum are now the dominant commodities by value. This change should also raise the profile and highlight the important role that private marine terminals and ports (non Canadian Port Authorities) play in Canada.

The importance of shipping in coastal waters and the role of private terminals will likely increase in future significance. The private port of Kitimat, BC located on a fiord on Canada's west coast is the proposed location of choice for multiple Liquefied Natural Gas Terminals and crude oil exports. For transportation researchers perhaps there are important insights or lessons from the development of Canada's east coast petroleum resources and the development of the relatively new Canaport LNG terminal in Saint John New Brunswick that need to be considered in a west coast context.

Changes in shipping trends also raise questions about whether our domestic maritime governance and oversight framework is truly focused on sustainability and our national interests. For example, the adequacy of Canada's approach to assessing and

preparing for the risks from domestic, transborder and international shipping activity and the future of Canada's cabotage regulations require a broad policy perspective. This suggests that the future direction of domestic water transportation policy research will need to break free from the narrow confines of a regulation/deregulation debate, and a singular tactical response called shortsea shipping in the years ahead.

**Bibliography**

1. Transport Canada (2010), '*Transportation in Canada 2009*'.
2. Hanson, Trevor, R., '*The Effect of the Darling Report on Canadian Coastal Trade Regulation*, *Transportation Revolution*', CTRF Proceedings, 39 the Annual Conference, 2004, pp. 627-641.
3. '*Making Connections*', Shortsea Shipping in Canada, Transport Canada, TP 14552, 2006.
4. '*Time for a New National Vision*', Report of the Standing Senate Committee on Transport and Communications, June 2008.
5. '*Cross Border Short Sea Shipping Study*', Phase II, Final Report, Cambridge Systematics, January 2007.

**Endnotes**

[1] Annual Survey of Water Carriers, 2001, Surface and Marine Transport, Service Bulletin, Vol. 20, No. 1, p. 3. The private sector was estimated based on the data for 1995 that indicated it was slightly more than 3%, as the Survey did not apply to private carriers. These various components for statistical purposes are demarcated using a financial criteria and were classified into Class I and Class II with Class III (less than $100,000) being typically excluded.

[2] * Excluded is the private carriers; it was 23.4% for 1984 and 3.2% for 1995. The size of the total revenue would be 3063 if adjustment of individual components were made to total revenue in 2001. The statistics include both the government sector. NA=Not Available.