

# **The 21st Century:**

## **The Great Lakes Seaway System**

**Proceedings of a conference held September 27-29, 1988**

**Minnesota Sea Grant Extension Program**



**CIRCULATING COPY  
Sea Grant Depository**

**12.00**

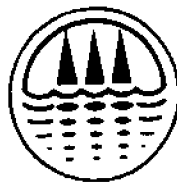
# **The 21st Century: The Great Lakes Seaway System**

**How can we influence the system with a view to increasing cargo movement and the competitiveness of the Seaway Route in a changing transportation industry?**

**Proceedings of a conference held September 27-29, 1988.**

**Karen Plass  
Managing Editor**

**Nancy Berini  
Editor**



**Minnesota Sea Grant. December 1988.**

## **Conference Sponsors:**

Minnesota Sea Grant Extension Program, University of Minnesota

Thunder Bay Harbour Commission

## **Co-sponsors:**

Lakehead University

Minnesota Department of Transportation: Ports and Waterways Section

North Dakota State University: Upper Great Plains Transportation Institute

Seaway Port Authority of Duluth

University of Manitoba: Transport Institute

University of Minnesota: Center for Transportation Studies, Department of Agricultural and Applied Economics, Institute for International Studies

Published by Minnesota Sea Grant, December 1988.

Minnesota Sea Grant supports research, extension, and educational programs related to Lake Superior and the Great Lakes. Offices are located on the Twin Cities and Duluth campuses of the University of Minnesota.

Minnesota Sea Grant is part of the National Sea Grant Program, which sponsors research in 31 coastal and Great Lakes states. The extension office in Duluth is also part of the Minnesota Extension Service.

The University of Minnesota is an equal opportunity educator and employer.

---

---

## Table of Contents

---

---

<u>Item</u>	<u>Page</u>
List of Presenters	ii-iii
Introduction	1
Dale R. Baker	
Panel 1: The Grain Perspective	1
James E. Hill, Richard L.M. Dawson, Ross Gaudreault, and Fred V. Hejduk	
Panel 2: The Cargo Perspective	6
Davis Helberg, Frank J. Dempsey, S. Paul Kennedy, Virgil Lobring, and John H. McAllister	
Panel 3: The Carrier Perspective	10
James H. Hartung, William E. Gard, John D. Guppy, and Duncan Maxwell	
Panel 4: The Employment Perspective	13
James H. Kellow, Philip J. Knetchel, Andrew C. Boyle, Merrill B. Frick, and J. Frederic Pitre	
Panel 5: The Government Perspective	18
John L. Agro, William F. Blair, Robert S. Silberman, James L. Emery, and Jo-Anne Knight	
Panel 6: The Research Perspective	23
Cy Cook, Pierre Camu, Jerry E. Fruin, Ronald L. Heilmann, and A.G. Wilson	
Summary: Rapporteur's Perspective	27
Robert G. Rosehart	
Index	28
This Is Our Seaway (song)	29
Publication Order Form	30

## **Presenters**

- John L. Agro, Q.C., Chairman, Hamilton Harbor Commission; Hamilton, Ont.
- Dale R. Baker, Director, Minnesota Sea Grant Extension Program, University of Minnesota; Duluth.
- William F. Blair, Member, The St. Lawrence Seaway Authority; Ottawa.
- Andrew C. Boyle, Secretary-Treasurer, Seafarers' International Union of Canada; Montreal.
- Pierre Camu, Vice President, Lavalin Inc.; Ottawa.
- Cy Cook, General Manager, Thunder Bay Harbour Commission; Thunder Bay.
- Richard L.M. Dawson, Senior Vice President, Agricultural Products Division, Cargill, Ltd.; Winnipeg.
- Frank J. Dempsey, Director, Corporate Transportation, Meehan Seaway Service, Ltd.; Milwaukee.
- The Honorable James L. Emery, Administrator, St. Lawrence Seaway Development Corporation, U.S. Department of Transportation; Washington.
- Merrill B. Frick, President, Frick Services, Inc.; Wawaka, Ind.
- Dr. Jerry E. Fruin, Associate Professor and Sea Grant Economist, Department of Agricultural and Applied Economics, University of Minnesota; St. Paul.
- William E. Gard, F.I.C.S., Vice President, Marketing, FEDCOM, A Division of Fednav Limited; Montreal.
- Ross Gaudreault, President and Chief Executive Officer, Port of Quebec Corporation; Quebec.
- John D. Guppy, Assistant Vice-President, Coal, Sulphur and Potash, Canadian National Railways; Montreal.
- James H. Hartung, Port Director, Port of Indiana/Burns International Harbor; Portage, Ind.
- Dr. Ronald L. Heilmann, Director, Management Research Center, University of Wisconsin-Milwaukee; Milwaukee.
- Fred V. Hejduk, Executive Director, Minnesota Wheat Research and Promotion Council; Red Lake Falls, Minn.
- Davis Helberg, Executive Director, Seaway Port Authority of Duluth; Duluth.
- James E. Hill, Manager, Property and Planning, Thunder Bay Harbour Commission; Thunder Bay.
- James H. Kellow, Executive Director, Detroit/Wayne County Port Authority; Detroit.
- S. Paul Kennedy, Commissioner, Thunder Bay Harbour Commission; and Traffic Manager, Thunder Bay Terminals Ltd.; Thunder Bay.
- Philip J. Knetchel, Captain, Lakes Pilots' Association, Inc.; Port Huron, Mich.
- Jo-Anne Knight, Regional Director, Policy and Coordination, Transport Canada; Toronto.
- Virgil Lobring, Vice President, Diversified Products and Services, Thyssen Steel Detroit; Oak Park, Mich.

Duncan Maxwell, President and Chief Executive Officer, ULS International Inc.; Toronto.

John H. McAllister, Vice President; Raw Materials, Purchases and Traffic; Dofasco Inc.; Hamilton, Ont.

J. Federic Pitre, Vice President-Marine, Canada Steamship Lines, Inc.; Montreal.

Dr. Robert G. Rosehart, President, Lakehead University; Thunder Bay.

Robert S. Silberman, Deputy Maritime Administrator for Inland Waterways and Great Lakes, Maritime Administration, U.S. Department of Transportation; Washington.

Dr. A.G. Wilson, Professor, Agricultural Economics, and Professional Associate, Transport Institute, University of Manitoba; Winnipeg.

---

---

## Figures and Tables

---

---

<u>Item</u>	<u>Page</u>	<u>Source</u>
Figure 1	3	Richard L.M. Dawson
Table 1	16	Andrew C. Boyle

---

---

## Photo Credits

---

---

<u>Photo</u>	<u>Page</u>	<u>Source</u>
Fucinato entering Duluth Harbor	Cover	Tim Slattery, Harbor Reflections
Dick Dawson, Cargill	2	Hill Photography, courtesy Thunder Bay Harbour Commission
Loading grain in Duluth/Superior	4	Basgen Photography, courtesy Seaway Port Authority of Duluth
Loading grain in Thunder Bay	7	J.R. Bielicki
Foreign vessel leaving Superior	12	J.R. Bielicki
Loading bagged wheat for Sudan	14	Basgen Photography, courtesy Seaway Port Authority of Duluth
Offshore in the sunshine	19	Tim Slattery, Harbor Reflections
Well-fed stowaway	25	J.R. Bielicki

## Introduction

**Dale R. Baker**

Minnesota Sea Grant Extension Program

In eleven short years we will enter into the 21st century. When the Seaway opened in 1959, it was an engineering marvel and a symbol of Canadian/U.S. cooperation. It provided a water route from the Midwest for shipping natural resources and agricultural products to the rest of the world. During the 1960s and the 1970s, the Seaway appeared to live up to the dream of becoming the fourth Seacoast. By 1980, however, a national recession, questionable public policy decisions, and advancing technology appeared to threaten its importance as an international shipping route.

If the Seaway is going to prosper into the 21st century, we need to plan and set priorities now. The conference planning committee wanted to look at where we are now and start charting a plan for the future. They felt strongly that all the major user groups of the Seaway should be represented and involved at the conference. Each speaker was asked to discuss the physical and policy changes needed for the Seaway to remain viable and competitive into the 21st century, and to describe how these changes could come about.

**The 21st Century: The Great Lakes/Seaway System** took place September 27-29 in Thunder Bay, Ontario. It was the sixth in a series of port conferences hosted by the Minnesota Sea Grant Program, and the first one held outside the United States.

The conference was a success, as judged by the comments made and the evaluations filled out by the 185 participants. The conference provided a forum for Seaway users to discuss common problems and goals among themselves and with federal, provincial, and state officials from both countries. A number of participants said that one of the greatest values was the opportunity for one-on-one interactions with people they seldom talk to.

It was apparent that issues beyond the control of the shipping communities played a major role in the 1988 shipping season. By far the greatest factor was the drought of 1988. The Canadian community was also concerned about the long range impacts of the Western Grain Transportation Act, under which railroad subsidies encourage grain exports from the West Coast rather than Seaway ports.

The mood of the conference was upbeat and positive. No one doubted the challenges ahead, but there was more optimism about the Seaway and its future than I have seen in several years. There seemed to exist a spirit of cooperation and a willingness to work together that has not always been evident.

A number of positive challenges were issued. One, apparently a trend, was to increase exports by increasing production of quality products in the Great Lakes states. Another was to keep Seaway costs competitive, which has been helped by some longshoremen taking wage reductions and the U.S. government rebating tolls. There have also been major efforts by both the U.S. and Canada to enhance the physical integrity of the Seaway. There were excellent examples of employee motivation being increased by more open employer/employee relationships. There were reports of value-added techniques, new marketing and product developments, and successful trade missions.

I would rate this conference as the finest we have had to date. There are many who should take credit for this. First of all, the Thunder Bay Harbour Commission was a wonderful host and co-sponsor: both Nora Logan and Cy Cook should be singled out for many efforts beyond the call of duty. Secondly, the planning committee was both active and responsive. Finally, Bruce Munson, who left the Sea Grant Extension Program before the conference took place, was instrumental in guiding the planning process.

## Panel 1: The Grain Perspective

Moderator: James E. Hill  
Panelists: Richard L.M. Dawson, Ross  
Gaudreault, and Fred V. Hejduk

**James E. Hill**, Manager, Property and Planning  
Thunder Bay Harbour Commission

Discussions regarding the grain perspective on the Great Lakes are very timely. Recently, we have experienced a major decline in grain shipments out of the

Seaway system due to various factors. Governmental policies and regulations with respect to transportation rates, as well as the recent drought, have caused serious concerns to the Seaway maritime industry.

Efforts to maintain a viable Seaway system into the 21st century must be increased, and initiatives of season extension and cost containment must be undertaken.

Both the Canadian and U.S. governments must be

convinced that the Seaway is a major national resource. It must be given every opportunity to compete equitably with other seacoasts and modes of transportation.

*Richard L.M. Dawson, Senior Vice President,  
Agricultural Products Division Cargill, Ltd.*

The St. Lawrence Seaway system faces a crisis. Survival is now the short-term goal of Seaway grain handling and lake shipping companies. Many communities along the Seaway are already experiencing massive layoffs. Further layoffs appear inevitable.

Three conditions -- heavy rail transportation subsidies, expanded West Coast capacity, and a western grain production disaster -- have combined dramatically to show the extreme vulnerability of the Seaway.

Transportation price signals, export market developments, and grain production problems in western Canada this year pose a grave threat to the Great Lakes/St. Lawrence system for moving grain to market. There are economic incentives, primarily derived from the structure of transportation subsidies, to maximize grain shipped through West Coast ports. Over the past three years, the grain export balance has shifted significantly toward the West Coast (Figure 1).

In a year when total grain exports could be as low as 18 million tonnes, export grain volume through the



Richard L.M. Dawson

Seaway system could fall to as little as four million tonnes. Together with domestic shipments of about 2.5 million tonnes, this is insufficient to keep the eastern grain pipeline employed. Sections of the system will close, creating problems in the future when Canada returns to its true grain export potential.

The short-term consequences are thousands of layoffs in the Seaway system, higher Seaway operating deficits, the possibility that one or more bulk carriers could leave the business, and reduced earnings or losses for Seaway grain operators. Long-term consequences include the elimination of capacity that may be required in the future, and economic losses for grain industry operators which will undermine investment in more efficient facilities.

The fundamental question is this: Does Canada want to have all its grain export facilities concentrated on the West Coast?

Much of the shift to the West Coast is a consequence of the opening of the new Prince Rupert grain facility in January 1985. It is clear that the rail freight rate policy under the Western Grain Transportation Act (WGTA) has had a significant impact on the direction of movement, pulling about three million tonnes of eastern grain toward the west.

Because of rail subsidies, the shipper's cost of forwarding grain to export position is always less to West Coast than to St. Lawrence ports. Shippers' perceived rail costs are significantly less than total actual costs. The result is a very strong internal, domestic bias in the system to use western Canadian grain exporting capability to the fullest extent possible.

If Canada wants to increase total grain exports during the 1990s, Seaway capacity is going to be critical. We will be unable to respond to this opportunity unless we provide some measure of stability and economic incentive to at least stay in the business in these last years of the 1980s.

Following are the major impacts of Seaway grain export volumes as low as four million tonnes:

1. A total direct loss of about 1,400 jobs at Thunder Bay, St. Lawrence ports, and Halifax.
2. A total direct loss of 675 jobs in the Canadian lake carrier fleet.
3. A total of 27 lake carriers laid up and a realistic prospect of 10 vessels being permanently lost to the fleet.
4. A decline of close to 17 percent in Seaway grain exporting capacity to a maximum of 16.5 million tonnes/year due to lake carrier losses.
5. Increased St. Lawrence Seaway Authority operating deficits.
6. Negative consequences for other bulk commodities such as iron ore that moves through the Seaway.



7. Disastrous declines in earnings for grain handling companies operating throughout the Seaway system, with long-term implications for handling capacity and future investment in efficiency.

To avert this disaster for the Seaway, the federal government must develop a temporary eastern grain transportation "offset" program to ensure an economic movement between west and east. This program should set a goal of at least eight million tonnes of Seaway exports if total Canadian exports exceed 16 million tonnes in 1988-89.

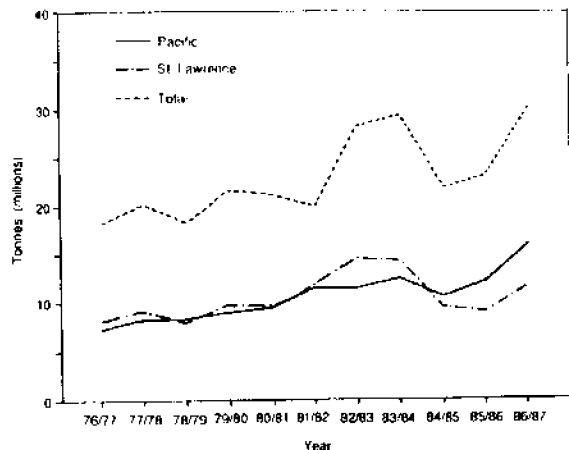


Figure 1. Eastern vs. western movement of Canadian grain exports, 1976-77 through 1986-87. (R.L.M. Dawson).

*Ross Gaudreault*, President and Chief Executive Officer, Port of Quebec Corporation

The future of the turbulent grain trade is difficult to predict. A host of demographic, political, economic, environmental, and technological factors can suddenly modify established export trends.

Many have come to believe the Far East is the only world grain market with growth potential. This is simply not the case.

Africa has the highest rate of population growth and urbanization in the world. Individual wealth there does not yet parallel the rise in demand for grain, but the 21st century may see a turnaround in the continent's fortunes.

Drewry Shipping Consultants of London recently reported that the Middle East is likely to show the largest increase in grain demand, with imports rising by 30 percent over the next five years to account for almost 20 percent of all seaborne grain traffic.

The Pacific Rim currently plays the star in Canada's

export grain trade, but there is speculation that China will import potassium and fertilizer and less wheat in the future. Japan's less spectacular economic growth and stable rate of urbanization will also put a damper on future growth in grain imports.

The Middle East and Africa offer strong market potential for grain exported through the Seaway. Competition for these markets will come from the U.S. and Europe, where governments pay out more in subsidies than grain's market value. GATT negotiations will not eliminate subsidies but will inevitably reduce them. The "United Europe of 1992" will also exert pressure to reduce the budget now allotted to pay massive grain subsidies. The Seaway must be prepared to again serve markets like North Africa, which Canada lost in the subsidy war.

Environmental factors such as fluctuating water levels, the greenhouse effect, soil degradation, and acid rain will also be of growing importance to the future of our transportation system. The system must develop the expertise to better forecast environmental consequences on cargo movements.

We will also be affected by technological developments in grain handling and cleaning techniques, and improvements to the national and international transportation infrastructure.

The Seaway's business leaders must be more vigilant in defining the real problems affecting the system. The real problem is, of course, the WGTA. Logic dictates that if transportation subsidies cover the cost of moving grain from the prairies to the West Coast, they should also offset the same costs to St. Lawrence River ports, not just to Thunder Bay. The importance of a united response to unfair transportation subsidies cannot be overstated.

Also, we must move from static rates and expenditures to the more dynamic concepts of price and revenue management.

Our product cannot be sold to new customers by stressing flaws and weaknesses. Labor issues and questions over Seaway tolls are not items for public discussion. If we agree that the Seaway is efficient, let that be our theme.

Diversification is a key to our future. The Port of Quebec has expanded its cargo base by working with the stevedoring and steamship companies to develop transportation packages for Brazilian and African iron ore moving into the Great Lakes. This "backhaul" enables lakers and the Seaway to be more competitive for grain shipments. We're also working with overseas partners to develop backhaul cargo for ocean shipping, so vessels that call with iron ore can leave fully loaded with grain.

According to the International Wheat Council's July

1988 report on long-term grain imports by developing countries, the total volume of world grain trade will be 215 million tonnes in the year 2000. In 1980, 216 million tonnes were traded. Given the stagnant market, we must invest to upgrade already existing facilities. The Port of Quebec can now unload a 96-car unit train in four hours, a self-unloading vessel in 12 hours, and transfer grain to an ocean-going ship at one tonne per second.

Ship to ship transfers remove the most profitable tonnage from the ports, reducing the system's capacity to handle large volumes of cargo in bumper years, and its capability to invest in improved facilities. Quality control could also be diminished. New handling techniques must be developed with the overall and long-term viability of the system in mind, and not strictly for short-term profit.

I believe future prosperity lies in new transportation packages, such as the overseas iron ore route, generating new cargo and revenues. Contribution of all partners along the system will be required to make such packages attractive when up against a competitor like the Mississippi River.

*Fred V. Hejduk*, Executive Director  
Minnesota Wheat Research and Promotion Council

Wheat farmers in Minnesota and other states of the upper Midwest believe a viable and competitive Great

Lakes/Seaway system is vital to their future. This is particularly true for farmers in Minnesota and the eastern Dakotas. Without the Great Lakes, we would be at a disadvantage in competing for those markets that get shipments from the Pacific Northwest and the Gulf.

Although supply and demand situations occasionally encourage movement of Minnesota wheat through the Pacific Northwest, in most cases transportation costs prohibit this. Hard red spring wheat from eastern Montana shipped recently by rail to the Pacific Northwest would have cost \$1.25 per cwt on a 52-car unit train; these same costs from northwestern Minnesota would have been \$1.83 per cwt. Thus, it is easy to see why a competitive Great Lakes system is important to us, not only to better position us against foreign competition, but also to improve our competitiveness within our own wheat industry.

The Minnesota Wheat Council, through its international affiliate, U.S. Wheat Associates, is committed to expanding markets for U.S. wheat. This is particularly critical for those regions of the world that will be natural markets for hard red spring (HRS) wheat shipped via the Great Lakes. We've seen the volume of HRS exports to Europe decline steadily in recent years. Total HRS exports to Europe in the 1987-88 marketing year were 30.6 million bushels; in 1980-81, exports to Europe were 55.3 million bushels. This decline is primarily the result of improved wheat varieties grown in



many European countries and the use of wheat gluten to improve flour quality. We expect the volume of HRS wheat shipments to continue to slowly decline. Consequently, it is important to find new markets to replace these lost export sales.

We've had some success in opening new markets in sub-Saharan Africa and in expanding sales to North African markets, generating considerable new business for the port of Duluth/Superior. However, it is important that we continue to be aggressive with programs such as the Targeted Export Assistance (TEA) and Export Enhancement Programs (EEP) in order to expand our success. While these programs have been successful, some inequities exist. This is especially true with the EEP.

While EEP has definitely contributed to expanded overall wheat exports, some classes of U.S. wheat have benefitted more from this program than others. For example, the level of actual 1988 EEP sales by wheat class from June 1 through September 20 is as follows: hard red winter, 1.80 million metric tons (mmt); soft red winter, 1.70 mmt; white, 1.15 mmt; hard red spring, 260,000 tons. Moreover, from the beginning of EEP sales in late 1985 through May 1988, HRS amounted to well below five percent of total EEP sales of all wheat classes.

Because EEP is a targeted program, meaning it is used to combat the export practices of some countries and not others, some farmers benefit from the program while others do not. We believe the program must be modified so that traditional HRS purchasers can also have better access. Such expansion would benefit HRS wheat producers. It would also lead to improved shipments via U.S. Great Lakes ports and increased economic activity for ports such as Duluth/Superior.

Another area where the U.S. wheat industry must improve is in export grain quality. We've lost considerable market share to our competitors because we have failed to consistently deliver a clean, quality product to our foreign customers.

The deleterious effects of the U.S. cargo preference system on Great Lakes wheat shipments must be resolved. These requirements place ports such as Duluth/Superior at an extreme disadvantage because there are essentially no U.S. flag vessels in ocean-going trade operating on the Great Lakes. These ports suffered loss of commerce, and farmers in the upper Midwest have been negatively impacted. It is imperative that, at a minimum, we return to the level of 50 percent that was specified in the original legislation. Coupled with that should be the consideration of a special complete or partial exemption from cargo preference requirements for Great Lakes grain shipments.

## Questions

Q [Question]: You said that the U.S. is prepared to recognize a fixed crow rate, yet you also said you hoped the Canadian government would return to a sliding rate, as designed. What might the U.S. do if we don't change our ways?

Dawson: In 1983, the crow benefit to farmers was frozen at about \$653 million; the farmer's percentage of the rate was to gradually climb from its 1983 level of about 20 percent to about 80 percent by the end of the century. Instead, the government has introduced special legislation to reduce that impact and put in its place a subsidy to keep the rate down. That's using transportation for income support to farmers. Let's let the WGTA fix take place. If you have a fix that over time will reduce the percentage effect of that subsidy, you have an argument to take south of the border. Otherwise you play into the hands of its opponents in Washington, who want to regard it as a direct subsidy.

Q: People across Canada are saying we need a change in the method of payment of the subsidy. On the prairie they want a change so more grain will go to the Pacific. You want it so more grain will go out the Seaway. Others want it so more grain will stay on the prairies and be fed to livestock. All of these things cannot be achieved with one change in policy.

Dawson: I am not trying to push grain down the Seaway. I'm saying let's try not to push it one direction or another. Let's let economics determine whether it goes east or west.

Q: Why haven't Ontario and Quebec been more activist in applying pressure regarding this imbalance of east vs. west?

Dawson: The impact of Prince Rupert has only been clear in the last 18 months, and the effect of the drought is current. It is a relatively new issue, in terms of atrophy setting in and hurting the system for its later use.

Q: You said that ship to ship transfers remove the most profitable aspect of the ports. Great! That improves viability.

Gaudreault: Self-unloaders are great, but ship to ship transfers are not the answer. The wheel always turns, and grain will come back to the Seaway. If we don't have the revenue to maintain the elevators on the Seaway, we won't be ready. Also, quality is important, and I don't know if we can maintain quality with ship to ship transfers of grain.

Q: Does U.S. cargo preference legislation apply to inland barges, lakeregs, and ocean going ships? How much has it

affected Duluth/Superior? Is it regarded in the U.S. as a subsidy?

Hejduk: It applies on the Great Lakes and the oceans, but not on the Mississippi. It would affect us more if we grew more classes of wheat; countries that get PL 480

cargoes usually buy cheaper wheat than the spring wheat that we grow. As for subsidies, we've all accused each other, and we're all guilty. We all subsidize to some degree. We view cargo preference as not a very injurious export subsidy.

## Panel 2: The Cargo Perspective

Moderator: Davis Helberg  
Panelists: Frank J. Dempsey, S. Paul Kennedy,  
Virgil Lohring, and John H. McAllister

*Davis Helberg*, Executive Director  
Seaway Port Authority of Duluth

It's not only highly appropriate and timely, it is absolutely essential to focus now on the 21st century. It's also our responsibility, even though some of us won't see the 21st century or won't see much of it.

Cargo is the theme of this discussion. As the director of a public port agency, I should say at the outset that ports don't create cargo. They serve cargo. Ports accommodate ships and shippers. They can and should bring them together, but they cannot force something that doesn't make sense economically. When we have labor, facilities, the right rates, and the right cargo, then it works.

Duluth exists because of its port. The port exists because of its proximity to the natural resources that produced the cargoes: first forest products, then iron ore, then grain, and now western coal. We continue to be blessed with an abundance of natural resources. But poker has changed dramatically in the past 30 years, with the container revolution, rail and truck deregulation, the emergence of the river barge industry, and the development of bigger ships serving tidewater ports.

We must ask ourselves some questions: What is our cargo of the future? Where is it? How do we attract it?

*Frank J. Dempsey*, Director, Corporate Transportation  
Meehan Seaway Service, Ltd.

The history of commerce via the Great Lakes began with sailing ships. Then, with the cooperation of the railroads, we saw an era of interlake movements that came to an end with the Panama Canal Act of 1915. We have also witnessed local Great Lakes movements of grain, ore,

taconite, and other products that still support local Great Lakes industries.

The ability to move local traffic is why many industries have located on the Great Lakes. This is natural cargo for the Great Lakes, and it is cargo that will continue. The movement of natural Great Lakes cargo between the U.S. and Canada can increase when the new trade treaty is completed between our countries.

With the opening of the Seaway, the U.S. and Canada encouraged international commerce to come directly into the middle of both nations. It looked like the course to take. But it was the beginning of problems for the Great Lakes. We now see that it was not the thing to do. This is not natural cargo for the Great Lakes.

The international cargo lines were well established on the tidewater of the U.S. and Canada. American flag protectionism hurt the Great Lakes. Frankly, the American flag carriers are experiencing potential extinction from their "unnatural" business methods of operating under subsidy and with cargo preference. Open commerce of the free market will prevail. Great Lakes traffic has to be natural cargo, supportive of local industries on the Great Lakes, or the system will not survive.

To achieve the Great Lakes "fair share" of international commerce, we have gone to court to protect our rights and we have won. But in reality we've lost. In USDA Invitation 92, Duluth/Superior and Milwaukee were initially awarded over 25 million tons under the PL 480 lowest landed cost formula. But when the bookings are made, Duluth/Superior and Milwaukee may receive no cargo. Why?

The cargo is destined for India. To India, cargo under PL 480 can only move via Indian or U.S. flag lines. The only Indian carrier serving the Great Lakes does not serve all Indian ports. Thus, the cargo will be diverted to U.S. flag lines. The cargo will move via a U.S. flag line that services the Great Lakes, or via Waterman Line at Chicago to go down the river in lash barges, or via APL at Oakland, California, to be stuffed into containers.

This is not natural cargo for the Great Lakes. It is tidewater cargo that we are trying to divert to the Great Lakes.

Many will say this cargo is produced in the Great Lakes hinterland and should move via U.S. Great Lakes ports. We know that if the three-year provision for becoming a U.S. flag operator were removed, this cargo could be handled profitably via the Great Lakes.

In these cases, the movers and shakers on the Great Lakes have to put their money where their mouths are, and get set up to handle this cargo to overseas destinations.

There is opportunity to make money on Great Lakes cargo sent to some destinations. We must do it ourselves, not try to encourage international ocean carriers that are well established at tidewater ports to come in to get these parcels. We cannot expect regular, liner type service in the Great Lakes.

There are many opportunities for adding to our natural cargo. For example, we at Meehan know of a liquid moving westward for the paper industry, and break-bulk moving eastward for many industries. Currently, no service exists on the Great Lakes that can handle liquid one direction and break-bulk the other.

Let's take a lesson from a similar situation on the Snake and Columbia Rivers. Potlatch Corporation uses specially designed barges to move corrosive liquid into Lewiston, Idaho, from Portland, Oregon, and send rolls of paper back to Portland. The weather factor on the Snake and Columbia Rivers parallels the weather on Lake Superior, yet they operate 11 of the 12 months.

Our marine architects are up to this challenge. When we do things like this, we can help build the paper industry along the Great Lakes with more natural cargo. We can move cargo within the Great Lakes, and if it makes financial sense, we can transload it with tidewater ocean carriers. But let's quit wasting time attempting to have the tidewater carriers operate in an unnatural environment. We must commit to pursuing natural Great Lakes cargo.

*S. Paul Kennedy, Commissioner, Thunder Bay Harbour Commission, and Traffic Manager, Thunder Bay Terminals Ltd.*

The ports of the Seaway system are uniquely able to increase cargo movement and Seaway competitiveness. The ports are involved in the mechanics of the Seaway system as a whole, whereas individual waterfront operators tend to deal only with those aspects of cargo movement that affect their individual enterprises.

A primary function of a port authority is the maintenance of the harbor channels, breakwalls, and shore facilities. Working with governmental agencies is necessary to maintain optimum conditions. Port authorities must also assess whether the facilities can meet the future cargo requirements of the system. An example is the examination of Thunder Bay's potential for handling 1,000 foot lakers.

In an article entitled "Why Ships Call or Don't Call at a Port," in the summer 1988 issue of Seaway Review, Davis Helberg said: "You can tell ship operators and shippers that they will make money using your port -- but telling ain't doing -- and if the principals in any cargo movement find out the hard way that your port can't perform, you will not be trusted in the future." This statement might be expanded to the Seaway system, where any port that fails to perform causes the loss of cargo to another transportation system: rail, the Mississippi, the West Coast, or even trucking.

Port facilities must be up to date, efficient, properly maintained, and accessible to other modes of transportation. Port authorities determine if the facilities can accommodate potential cargoes. Then they either encourage private industry or act themselves to ensure that service gaps are filled.

Port authorities can also increase cargo movements through education. They must be knowledgeable about



the products being moved through their port. They must understand production techniques, costs, and limitations; transportation methods and costs; concerns about product quality; methods of handling and storage; and end use. Understanding these things lets port managers expand each player's understanding. Such an overview is valuable in a multi-modal commercial enterprise where there can be a tendency for compartmentalized thinking.

Because port authorities generally have better political connections than individual operators within a port, they can convey the concerns of port constituents to all levels of government. When a major problem develops, port authorities lobby government at any appropriate level. Often ports work together because losses of cargo ripple throughout the system.

Examples of such efforts are the 1988 grain coalition, and the port of Thunder Bay's involvement in studies related to the potential for an increased use of western Canadian coal in Ontario. Another example is the effort to maintain the USS Mackinaw, the mainstay of icebreaking capability on the lakes.

In its marketing and research function, a port authority can act as a bridge between a shipper with a need to convey cargo and an entrepreneur who can provide service at an attractive rate. Matching needs to abilities (nichemanship) has been the norm on the Seaway system for years. What is new is ports developing marketing departments and searching out those unique opportunities to which local facilities are suited.

As a major waterfront landowner, a port is often able to provide the real estate necessary to develop new cargo transfer facilities, or to expand or relocate existing operations. This helps ensure that the capacity to transfer cargo to and from vessels will continue to exist. This may conflict with real estate development plans.

A port authority acts as a publicist through its marketing and public relations functions. Its ads represent all aspects of cargo handling operations in the port.

An understanding of port operators from the labor-management context is required for port management. Outdated work rules and inefficiencies can dramatically reduce the effectiveness of any port's endeavors to increase cargo throughput. These are areas where a third party has to tread carefully, but the opinions of a trusted, impartial port official can help streamline port operations.

The success of each port adds to the overall viability of the Seaway system.

*Virgil Lobring, Vice President, Diversified Products and Services, Thyssen Steel Detroit*

The Great Lakes/Seaway system exists as a community of diverse components such as ports, operators, stevedors, and shipping companies. A perhaps more important element to mention is us, for whom the system is an integral component of our distribution system or production programs.

If you accept that we have a stake in each other's success, then I hope you are equally ready to accept the corollary, that the entities that make up the Seaway/Great Lakes community must take an interest in each other and approach the viability of the system together, not in a piecemeal manner.

I'd like to suggest one way in which we might help each other, using as my springboard comments made at last year's conference by Mr. Laidlaw of the Dominion Marine Association while discussing critical policies that have a negative impact on the Great Lakes Seaway. He remarked that the decline in grain movement through the system was not helped by an uncertain mixture of

---

**Each of us today should  
commit to customer oriented  
quality. ... Quality is not simply  
a problem to be solved; it is a  
competitive opportunity.**

*Virgil Lobring*

---

perception and reality: namely, the perception that the system is a high-cost transportation alternative or that it has become a residual artery, as if it were one step away from mothballs. He observed that changing this perception is as important as changing the reality.

We know the system's handicaps: the physical limitations, draft restrictions, winter closing, and tolls. Some of us know better than others the effect of agricultural and maritime policies of both governments on the potential for agricultural cargoes. Some of us can speak eloquently on the issues of U.S. cargo preference and the competitive disadvantage placed on the industrial Midwest.

If the above is my perception of the Seaway and I am asked to suggest changes, I am tempted to suggest quick fixes, such as extending the season, changing the laws, and removing tolls.

What I suggest today is that we must change our perception so we can arrive at positions that will benefit our community with regard to promoting and facilitating the movement of goods in a global economy.

I don't believe it's valid to assume that manufacturers and producers are interested in the cheapest shipping solution. They are equally, if not more, interested in the best quality, complete service solution. They know that a quality solution is most cost-effective in their organization.

Once we change the perception, then proper strategies will unfold. Each of us today should commit to customer oriented quality. To paraphrase a professor at the Harvard Business School, this means pleasing customers, not just protecting them from annoyance. Quality is not simply a problem to be solved; it is a competitive opportunity. We need to define together the competitive opportunities we enjoy. Customer oriented quality requires a plan.

Each component of the Great Lakes system must commit to a quality plan in order to discover what the competitive opportunity might be. Such a plan must involve identifying what we do well, our unique opportunities, and things we can do better. It involves identifying our customers and listening to their needs. It can be costly to introduce a quality dimension that is unimportant to a customer. It is even more disastrous to neglect an element that is critical to a customer. We must organize our resources to meet our quality goals. And we must be able to measure our performance.

What I am suggesting is a process that will help change the perception of the Great Lakes/Seaway system. Such a process will also give direction to finding creative solutions, not quick fixes. Such a process is vitally necessary to ensure that the Seaway system remains viable in the 21st century.

*John H. McAllister, Vice President, Raw Materials, Purchases and Traffic, Dofasco Inc.*

When the Welland Canal was opened in the early 1930s, 25,000 ton vessels could have been built for it, but the Canadian flag carriers elected to continue to operate "upper lakers," with capacities of about 8,000 tons.

Most of the traffic carried grain, and the grain had to be transferred into "canallers," with a capacity of about 3,000 tons. The canaller was the largest ship able to transit the Lachine Canal around the rapids near Montreal.

As the 1959 opening of the Seaway drew near, Canadian carriers began building larger ships. A flood of building to maximum Seaway size occurred in the early 1960s. Meanwhile, the large and daring development of iron mines in Schefferville, Quebec, was begun by the Iron Ore Company of Canada (IOCC). This project opened in 1954. By 1956, shipments were up to 12 million tons.

IOCC also constructed a transfer dock at Contrecoeur, Quebec, which opened in 1956. Since Contrecoeur is below Montreal, vessels of 25,000 ton capacity were used from the ore loading dock at Sept. Iles to Contrecoeur, where the ore was transferred to the canallers for carriage to U.S. Lake Erie ports.

With the opening of the Seaway, grain was shipped direct to transfer terminals on the St. Lawrence, and iron ore was returned direct in the same vessels.

U.S. Steel started up its large iron ore mine at Gagnon, Quebec, in 1960. From there, the ore was railed to Port Cartier, Quebec. In 1956 Pickands Mather opened up its six million ton mine at Wabush, Labrador. This ore was, and is, shipped over a railroad owned by IOCC for pelletizing and shipping at Pointe Noire, Quebec.

In my opinion, these latter two projects would never have started if it hadn't been for the construction of the Seaway. All three projects ship important quantities of iron ore to partners and customers in the Great Lakes. For example, in the case of my company, 60 percent of our annual five million ton requirement originates at these three properties, partly through ownership and partly through purchase, with the balance supplied by rail from two mines that we own in northern Ontario.

Great Lakes receivers of St. Lawrence River iron ore find that transportation costs are "relatively" reasonable, since more grain moves east than iron ore moves west. The opposite case exists on eastbound iron ore from Lake Superior, especially to remote locations such as Hamilton, Ontario, where return loads are few and far between.

On the U.S. side, the opening of the Seaway had little impact for the carriers, since very little grain moves from U.S. ports to the Canadian transfer ports, and of course, U.S. flag carriers cannot carry cargo from one Canadian port to another.

The opening of the Poe Lock at Sault Ste. Marie in 1969 dramatically changed the U.S. picture. A flotilla of 1,000 foot ships with capacities of 50,000 to 60,000 tons was soon constructed. While these ships are too large to transit the Welland and St. Lawrence systems, they have proven to be the most economical means of transporting iron ore from Lake Superior to Lakes Michigan and Erie, as well as coal to the Detroit area.

From the parochial standpoint of a Canadian receiver of iron ore and coal, we would have to encourage the enlargement of the Welland and St. Lawrence systems in order to achieve the economies now being enjoyed by our U.S. competitors. Recognizing, however, that enlarging the Welland system alone, based on a study conducted some 20 years ago, would cost \$2 billion, probably \$3

billion today, it would be unrealistic to forecast that such a project would be authorized by the Canadian government, unless it was underwritten by tolls which we would find unaffordable.

Accordingly, my quick and dirty forecast for the future of the Seaway system is that in the early 21st century it will be the same artery that we are using today.

## Questions

Q: Would you elaborate on your comment about the costliness of introducing a quality dimension that is unimportant to the customer?

Lohring: The focus should be on the customer's needs rather than on our facilities or production processes. The purchase of a 200 ton crane is not an enhancement for a customer whose goods require only a 50 ton crane.

## Panel 3: The Carrier Perspective

Moderator: James H. Hartung  
Panelists: William E. Gard, John D. Guppy, and Duncan Maxwell

*James H. Hartung*, Port Director  
Port of Indiana/Burns International Harbor

Nothing requires constant reexamination more than the obvious. I recommend that we reexamine our community, establish the bond of community relationship, and get about solving the problems of the Great Lakes, whether real or perceived.

Our moderators are all port administrators. A port is the site of focus for all activity associated with maritime transportation. The port director, therefore, straddles the many worlds that are impacted or activated in the maritime universe. He must maintain and nurture a relationship with each, yet maintain a certain neutrality so as not to interfere with the dynamic activities of the pure business process. He must facilitate programs, but without favoritism.

One last thought: ports must continue to move from being mere anchorage and cargo transfer points to becoming transportation coordination centers. A port is not just a harbor for a ship, but a logistical hub for rail, rivers, highways, and airports.

*William E. Gard*, F.I.C.S., Vice President, Marketing  
FEDCOM, A Division of Fednav Limited

How long did it take to get the present Seaway system into being? Is 50 years totally unrealistic? I don't think so. Today it would be politically impossible to build a St. Lawrence Seaway.

We have to make people aware of the positive affect the Seaway system has on the North American economy. We must do it, and keep doing it.

We may not get megadollars for major physical changes, but we have to improve our political clout because there are lots of other groups looking for precious time on governmental agendas. We must identify and work with those groups whose own causes are Great Lakes trade-oriented, like ours.

Transportation is not boring. A 1,000 foot laker maneuvering her way through narrow, tortuous channels is an exciting piece of machinery. The Titanic was only 883 feet long. There are those among us old enough to remember coal burning ships, upper and lower tween decks, winches, and derricks. A self-unloader is exciting. Water transportation played a major and exciting part in opening up this vast continent, and it still plays a major role in our everyday lives.

We live in a high-tech age. Industries today are knowledge intensive. Education is a two-way street: we in the shipping fraternity need to educate ourselves as much as we need to educate others. Twenty-five percent of the research and development done in Canada is done by universities. There is no need for a clash of values between the academic and the business man. All our universities need funds. Industry must find the funds for research, and work more closely with the academic community.

We talked about vessels. Trades of the world in the next several decades might well demand that we go back to small ships, perhaps semi- or fully-automated ones with small crews or no crews at all. We have a system which can very well handle small ships. After all, that's how we started.

In North America, we've only scratched the surface of water transport as a substitute for expensive road and rail building. We have not properly come to grips with intermodalism, using all our transport facilities. Nor have we gotten the message across where it matters that competition from the Seaway system keeps other routes honest.



In 1945, the U.S. had a 40 percent share of the world's gross national product. By 1985, this dropped to a 28 percent share. The U.S. is not really down; the world GNP pie is bigger and the rest of the world is moving up. Conversely, the Third World has a tremendous debt problem. In our society we have too many goods and too few buyers. High technology increases the flow of goods. Therefore, we have to eliminate or drastically lower the Third World debt, if only to create a market with vast potential.

We have seen deregulation in the U.S. The same situation is coming in Canada, though I believe we will eventually return to a regulated transport environment.

Economies tend to be politically dominated. We must guard against any restrictive and damaging tendencies for the major trade blocs to trade only among their own members.

This conference is about looking forward to the new century. I quote the American columnist, William Pfaff:

"Time is not a loop and it is dangerous to act as though it were. While one learns from the past, one must also leave the past behind in order to discover that each new decade is new terrain, uncomfortably mapped."

My home port is Liverpool, a city that has been in existence since the 1200s. The port has seen good times and bad. It was once the U.K. gateway to the Americas, but in the past two decades it has had an extremely difficult time. After a savage pruning and heavy loss of jobs, the port has created new opportunities and is doing quite nicely. There is a lesson here.

For all man's smartness there are many things he cannot control. No matter how well we think we can forecast economic trends, there will always be push/pull situations causing blips.

We are unlikely to see major physical changes in the Seaway system. Nevertheless, world trade is constantly changing, and we can take advantage of these changes with what we already have in physical terms, provided we have the desire and imagination to do so. We can get to anywhere from here, but not if we stand around talking.

*John D. Guppy*, Assistant Vice-President, Coal, Sulphur and Potash, Canadian National Railways

It would have seemed rather strange, some years ago, for a representative of the railway industry to discuss, much less suggest, ways by which another major handler of bulk commodities could increase its competitiveness and flow of traffic.

This is a changing industry, and while competition is by no means a lost concept among us, there is equal emphasis on interdependence, interface, cooperation, and even partnership. The economic progress of Canada depends largely on the existence of a balanced, efficient, flexible, low cost, customer oriented transportation system, a system within which the various modes strive for profit, not monopoly.

Canada's exports of its natural resources have always been of great importance to the national economy. In some cases transportation costs exceed the cost of production.

Roughly two-thirds of the business we handle goes to or comes from outside Canada. At CN, we realize we're not going to remain in business if Canadian producers cannot get their products to world markets at competitive prices, or if importers cannot do likewise in domestic markets. This must be true for the Seaway and its users. So a major thrust of our marketing must be to work

---

---

**This is a changing industry,  
and while competition is by no  
means a lost concept among us,  
there is equal emphasis on  
interdependence, interface,  
cooperation, and even  
partnership.**

*John D. Guppy*

---

---

closely with producers on agreements and arrangements which provide lower transportation prices in return for certain amounts of guaranteed traffic.

CN recently signed a contract with a firm representing most of the potash producers in Saskatchewan to move potash by train to Thunder Bay and through the Seaway to Europe. CN provides the entire transportation package, at prices enabling Canadian potash to be competitive in European markets. This system reduced transportation costs by 20 percent, compared with running unit trains all the way to Montreal before interfacing with ocean vessels.

The use of western coal by Ontario Hydro has long been considered a national objective, but the economics of transportation were against it, mainly because cheap coal from the U.S. was much closer to the market. Ontario Hydro in recent years worked out arrangements with western Canadian coal producers to economically ship more than two million tonnes by rail to Thunder Bay and then by vessel to Ontario Hydro.

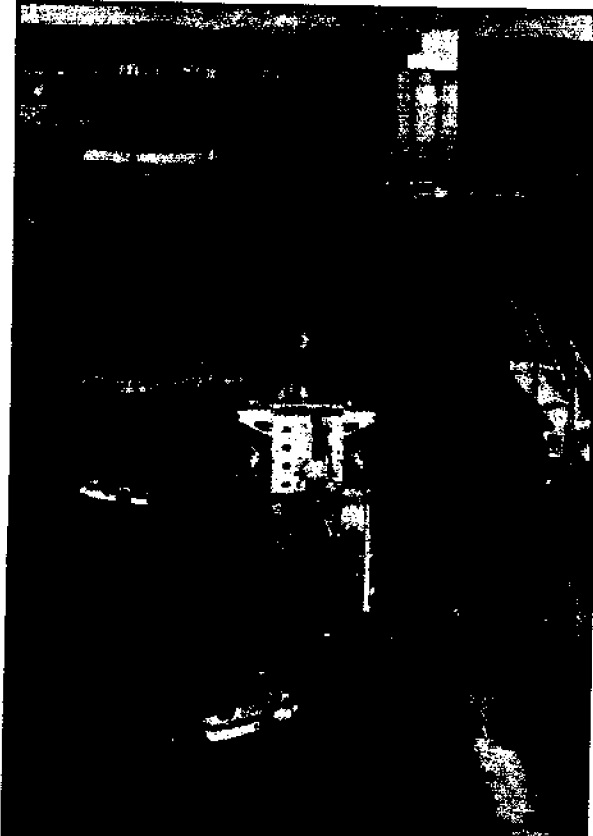
According to independent tax consultants, we could cut three to five dollars per tonne from transportation costs if we operated in a tax regime comparable to that enjoyed by U.S. railways with similar lengths of haul.

Fuel taxes are a particularly onerous burden. Since we pay for and maintain our own right-of-way, this seems unfair. Through fuel taxes, we contribute over \$100 million per year to government coffers.

Subsidies enable grain to move to market at artificially low transportation prices. While no doubt necessary from the producers' point of view, such subsidies might run counter to the interests of the Seaway, railways, and other components of the transportation system. By hiding the real costs of the system, they discourage initiatives and changes that could make the system more competitive.

I wonder if a lot of grain moving from Canada through West Coast ports wouldn't move through Thunder Bay if producers had to meet real transportation costs. I also wonder how quickly we might rationalize our extensive, costly and in many cases too lightly used rail branch line system if full costs were passed on. If we could remove these costs, wouldn't Canada be stronger?

Competitiveness fosters attitudes which are far different from the kind of adversarial buyer-against-seller



relationships that used to be common between producers and carriers of bulk commodities. It was these attitudes, in retrospect, that often brought government regulation into the picture in the first place.

For Canadian railways and many of their customers, the new partner rather than adversary approach is exemplified in the confidential contracts permitted within the new National Transportation Act. In most cases, these contracts, totalling about one-half of CN's current traffic, excluding grain, include long-term guarantees by shippers and the undertaking of the carrier to deliver a "package deal," which involves interfacing with other modes of transportation.

*Duncan Maxwell*, President and Chief Executive Officer, ULS International Inc.

The beginning of the 21st century is not far away. If history repeats itself, we could be heading for saturation of the Seaway instead of struggling for survival. It is not unrealistic to expect another upward cycle. Assume that our politicians deal with the subsidy problem, because they must. In the long term, with a hoped-for stabilized world market, export grain will again be a major volume cargo for the Seaway.

For the middle or latter part of the next century, we must envision the possibility of a Panamax-size Seaway.

The Trans-Canada Railway was not built to accommodate a high volume of trade. Neither was the Trans-Canada Highway. They generate and facilitate transportation of goods because they are there. When the Seaway was restricted to small vessels or canallers, it generated a trade consistent with its ability and capacity. When it was increased in size to take the present vessels, the whole concept changed. Likewise, since the large lock was constructed at the Soo, we have seen the development and implementation of 1,000 foot vessels.

If the Seaway were expanded to the capacity of Panamax vessels or large container ships, we would find these vessels sailing into the center of the continent.

If we can have submarines, why not a Seaway? Such a project would reduce unemployment and generate taxation. National megaprojects are not always economically supportable, but are often necessary. How could we economically justify the American or Russian space programs? Yet the spin-off technology has revolutionized the world. The spin-off from a Panamax Seaway will revolutionize our world.

Just as containerization changed ocean transportation and reduced the large volumes of break-bulk cargo carried into the Great Lakes, the process could be reversed if

container vessels were able to enter ports in the center of the country.

When radical suggestions are generally presented, people laugh them off as unrealistic and too costly. Twenty years later, we look back and realize, perhaps, that the fantasy wasn't so crazy. Had we commenced building a new Seaway 10 years ago, it would be open now and we would have all the benefits from it. Just 20 years ago, land was being assembled for the new Welland Canal. Will we wait until the 21st century before we decide what is really needed?

All tolls in the Seaway should be progressively removed for these reasons: (1) When a market is down, rates go down; hence to encourage trade in the Seaway, tolls should go down. (2) Neither the West Coast route nor the Mississippi are fully cost recoverable, so why penalize the Seaway? (3) When volume business reduces to the extent of inefficient operation, it is only a matter of time before individual parts of the system collapse, leading to a collapse of the total system. It is fundamental to the well-being of the Great Lakes ports that the system be alive and viable. This can be encouraged by the elimination of tolls. (4) We don't pay tolls to cross the Great Lakes, and we ought not have to pay tolls from lake to lake, or lake to river.

Direct and indirect subsidies of West Coast and Mississippi grain transportation should be reduced, if not all at once, then progressively.

Many of us are concerned to see people replaced by

machines. Job security is a priority. In cases where manpower reductions are required, effort should be made for retraining. We have a right to work, but if the right to work overloads the system and makes us uncompetitive in a world market, then we should find other ways of compensating.

When speaking of productivity of the system, let's consider the grain export system. Every leg of the journey, from farm to country elevator, ports, and markets, ought to be examined for higher productivity. Everyone must support the effort.

The implementation of our ideas starts with you as individuals. What have you done in the last few years to ensure increased productivity in the Great Lakes Seaway system? The system is not an organization. It's an organism. It's alive, and you're part of that life. If you're dead, a little part of me is dead. There are many issues to resolve. Many of them cannot be resolved by individuals. Even as groups, we find it difficult to move governments. But the area of productivity is within our control. We can do something about it together.

### Questions

Q: Did you mean to say that there have been West Coast subsidies with regard to the tunnel and the grain terminals?

Maxwell: There is substantial subsidization of the system going west, but there was no subsidy for the tunnel or the grain terminals.

## Panel 4: The Employment Perspective

Moderator: James H. Kellow  
Panelists: Philip J. Knetchel, Andrew C. Boyle,  
Merrill Frick, and J. Frederic Pitre

*James H. Kellow*, Executive Director  
Detroit/Wayne County Port Authority

This panel discussion is from the employment perspective. Simply stated, that means jobs. It means my job, your job, and the jobs and the people that everyone in this room has the ability to affect, whether from a management or labor perspective.

*Philip J. Knetchel*, Captain  
Lakes Pilots' Association, Inc.

This story appeared in Traffic World. Paul Martin,

president and CEO of Canada Steamship Lines, said this about the current status of the St. Lawrence Seaway:

"If the Canadian government put the \$500 million it puts annually into Via Rail, Canada's state-run passenger rail corporation, into the Seaway, we would carry every ton of grain, coal, and ore that moves down the Seaway for free. Sure, the government has the resources, but what the federal government is now doing is allowing the Seaway to die. For \$50 million a year you could make the Seaway the most competitive route going, and you could recoup the \$50 million ten times over throughout the economy. Give the Seaway the annual interest costs on the money that is currently devoted to Via Rail, and you will make the Seaway competitive for the next 25 years."

As I look at the Great Lakes system, I see these advantages:

1. Fresh water. The most important commodity after the summer of 1988. Everyone in the Midwest was looking to the Great Lakes as their answer for fresh water. Since 1987, Lake Erie has dropped 18 inches. Great Lakes shippers have had to lighten their ships' drafts by six to 10 inches. Keep the water in the Great Lakes so we can continue to provide reliable, cheap transportation. Control pollution so there will always be clean water available for all to use.

2. Environment. We have some of the best farm lands in the country, most of the raw materials needed for manufacturing, and the cheapest means of moving cargoes. The Great Lakes area produces 70 percent of all U.S. commodities shipped out of East Coast and Great Lakes ports.

3. Energy. We have hydro dams in the Seaway system, low sulphur fuels, and low shipping costs. This enables us to produce cheap energy needed for the expansion of business and population which is coming because of our water, environment, and energy resources.

4. Specialized vessels. The U.S. and Canada have developed the best ships available for moving bulk cargoes on the Great Lakes. During the last few years

we've seen more heavy lift ships coming into the system, bringing new steelmaking technology (continuous casting machines) and whole assembly lines for new and old automobile companies. Then there's the new satellite business coming, also with the new and old automobile businesses. This will bring the importing and exporting of parts from these plants.

We should start anew with these people and sell them on the Great Lakes system. Start small and work up, proving the system works well. We have to continually go out to new and old customers, selling them on the Seaway system and refusing to take no for an answer.

The bad news, the disadvantages, we all know what these are. Most have been there since the Seaway opened:

1. Coastal tidewater ports: New York, Philadelphia, Baltimore, Halifax, etc.

2. Mini-bridge: railroads with containers, east and west rail movements, Canada to U.S.

3. Mississippi River: but this could dry up.

4. Seaway system itself: tolls and limits.

5. Port lands: the ports' inability to expand or modernize due to the selling of port properties for other



types of development (recreation, condos, homes). If this continues, where will our ports be? How will they expand if or when it becomes necessary?

6. Changes in trading patterns and parties: today, Common Market countries are taking very good care of themselves. We have to look more to Third World countries, Latin and South America, Russia, and China.

7. Political changes: if society is to survive in a civilized manner, it must provide meaningful employment for all workers.

Therefore, let's keep our Great Lakes resources like water and energy home, and be sure that all cargo generated here is shipped out via the Seaway system.

We also need to change the disadvantages by making use of Ottawa and Washington. The first change should be Seaway tolls.

We must vigorously sell the system, call on people we seldom see, and refuse to take no for an answer. We must show them that the system works, and that the Mississippi River could be an unreliable shipping source, because it is vulnerable to drought, as shown in 1988.

The more ships the system has, the more work everyone will have.

*Andrew C. Boyle, Secretary-Treasurer  
Seafarers' International Union of Canada*

Operating through whatever the current economic cycle happens to be, boom, bust or static, the Canadian shipping industry can be accurately characterized as being in a constant state of struggling to survive.

This unique industrial status has developed as a result of Canada having plenty of natural resources, being poor in manufacturing and markets, and not having a national transportation policy, strategy, or program beneficial to Canada. We're left reacting to economic decisions that are based on a revolving political agenda. It is designed to reelect candidates of the ruling party by benefiting their commercial constituents to the detriment of the national interest.

The impact these government decisions have on the Canadian economy and competitiveness of our industry varies. Added together, their impact has created a genocidal situation for the Canadian shipping community.

The effect on the national economy is highlighted in key areas which would be remedied, in part, if a competitive (level) playing field were established. The creation of a second registry for Canadian ships involved in foreign trade would have a positive effect with respect to our steadily increasing deficit on services. These include freight. We've ended up about \$11 billion in the

red on total international transactions. This is more than double 1978's shortfall.

The biggest culprit in the deterioration of our trade balance on services has been interest payments. We now have a \$13 billion deficit in interest payments, versus \$3.4 billion in 1978.

Closer to home is the need to amend the Western Grain Transportation Act and resolve the marked problems between perceived costs and real costs associated with the movement of grain.

Perceived costs are those directly borne by the producer. These do not include the larger costs borne by the taxpayer in the form of the annual \$658 million paid as the crow benefit to the railways. The costs perceived by the shipper favor B.C. exports, while the total (real) cost of grain transport yields a substantially different set of calculations.

From Scott, Saskatchewan, the geographical midpoint between the West Coast and Thunder Bay, it is substantially more expensive, about \$17.97/tonne, to move grain east to St. Lawrence export positions than west to Vancouver or Prince Rupert. As the origination point is moved east, the total cost difference declines until it is approximately equal at Carlyle, Saskatchewan.

Total costs (exclusive of country elevator costs) of moving wheat from Carlyle to Quebec City are \$51.25/tonne; from Carlyle to Vancouver, \$50.33. East of Carlyle, the cost advantage of eastern movement increases. At Elm Creek, Manitoba, there is an \$8.23/tonne advantage in moving export grain through the Great Lakes/St. Lawrence. At Winnipeg there is a \$9.23/tonne cost advantage in going east. Nevertheless, the grains are shipped west, since transportation subsidies make that route cheaper by \$12.21 from a shipper's perspective.

The Wheat Board, by using real cost figures to determine at which port a sale is to be made, would level the playing field and better serve our national interest.

The government must also revise the ship waiver legislation. With the boom/bust cycles of a fluctuating market and the uncertainty of grain harvests, it encourages Canadian operators to flag out their ships, commit tax evasion, circumvent Canadian shipping and labor standards, and artificially create a market shortage. They are then allowed back in to compete unfairly against Canadian ship owners and Canada's best interests.

Seaway tolls should be equalized for Canadian ship owners competing against foreign ships, either by reducing the costs in taxes paid to Canada and/or by a subsidy. This could be similar to railway subsidies, like the \$658 million crow benefit for the western movement

Table 1. Total (real) costs versus shipper's (perceived) costs (FOB) of shipping a tonne of Canadian wheat to export position via Vancouver vs. the St. Lawrence Seaway. (A.C. Boyle, based on figures from Cargill, Ltd.).

	Total Cost		Difference St. Law.	Shipper's Cost		Difference St. Law.
	Van.	St. Law.		Van.	St. Law.	
Albright, Sask.	\$36.93	\$76.37	\$39.44	\$14.00	\$36.33	\$22.33
Scott, Sask.	39.95	57.92	17.97	14.63	32.57	17.94
* Carlyle, Sask.	50.33	51.25	0.92	16.56	31.11	14.55
Elm Creek, Man.	55.46	47.23	-8.23	17.86	30.27	12.41
** Winnipeg East, Man.	55.46	46.23	-9.23	17.86	30.07	12.21

\* Geographic midpoint with respect to total transportation costs.  
 \*\* The total cost of moving grain from Winnipeg East to Vancouver exceeds the cost to the St. Lawrence by \$9.23. The grain is still shipped west, however, since from a shipper's perspective this route is cheaper by \$12.21 due to the effect of transportation subsidies.

of grain, or the provision of government owned hopper cars for moving grain east during the winter.

Finally, to avoid the human abuse caused by privateering ship charterers, the Canadian government should also ratify ILO Convention 147 minimum standard for seafarers.

These recommendations are the responsible conclusions reached by a union following 20 years of tough contract talks and no strikes on the Great Lakes. This union, which initiated an industry wide job sharing program as a way to handle crew reductions and economic hard times, feels that these problems must be dealt with now to avoid disaster and allow us a chance to survive.

**Merrill B. Frick**, President  
Frick Services, Inc.

Frick Services became a tenant at Burns International Harbor, Indiana, in 1976 when we introduced liquid fertilizer to this location via the Mississippi and Illinois Rivers. In 1980, we brought in a vessel with potash from Thunder Bay, and shortly after brought in dry nitrogen and dry phosphate fertilizers.

We determined that this location had the opportunity to deliver a ton of fertilizer more economically than the way farmers had been getting it. We invested approximately \$10 million in private capital.

Today, both rail and truck are involved in both the "new" way and in the more traditional method of transportation of fertilizer, with one exception: the water route from Thunder Bay to Burns Harbor. Because we've not been able to keep all the business we had initially, we

need to evaluate our position.

Our main opportunity to increase business on the Great Lakes is with products presently in use. We must provide more efficient and less costly service. Individual terminal operators must be more aggressive in securing business. We must be in contact with the volume shippers and be creative in planning how we can save them money and still turn a profit for ourselves. We need to be entrepreneurs and use our imaginations to get business. Once we get the business, we have to remain competitive.

The 1988 drought has been of much concern to fertilizer distribution departments in the U.S. as well as other countries. The low level of the river system this year made people look for new routes. Some U.S. railroads announced plans to unload vessels from Europe on the East Coast and bring the cargo to the grain belt by rail. Why not bring these vessels to the Great Lakes and be even closer to the market before making the transfer? They will come if the Great Lakes route is cheaper.

At Burns Harbor, I compete with the other ports on Lake Michigan and must justify a shipper coming to my location. My costs must be kept in line. There's no room for frills and feather-bedding of labor with out of date work rules. We spent several hundred thousand dollars in receiving equipment to handle self-unloaders, allowing us to receive bulk and liquid cargoes at minimum cost. We might ask, "How efficient are local and state port facilities?"

At our location we can reach three states by truck in less than one hour. Because the allowed gross truck weight varies in each of these states, our distribution is complicated and inefficient. A considerable amount of our

product goes out by rail, so it's important to have more than one local carrier serving a port. We have many things to be concerned about besides water depth in the harbor.

About 50 percent of the annual tonnage we handle at Burns Harbor comes via Thunder Bay. The success of this movement is largely based on what the Canadian railroads do regarding the freight rate between mines in Saskatchewan and the port of Thunder Bay. We've increasingly seen our distribution area shrink because alternate routes have taken back part of the business. It will take a combination of events for this business to return to us and to the Great Lakes.

The tonnage that is meaningful to the Seaway is tonnage that has an economical advantage to the consumer. This is the business that will last.

We need fresh, bold marketing efforts to promote what we do or want to do. Are our ports attending the right kind of meetings and trade shows to tell their story? If so, are you getting the job done?

Frank Wilmer, vice president for the Association of Commercial Railroads, said in an international fertilizer magazine: "Rail shippers, who for so long looked to government for solutions to their problems, are learning to function in the marketplace. ... Markets are not and should not be neutral among competitors. ... That's how it is in the grain and fertilizer markets. That's how it should be in railroad markets. ..."

To succeed as a Seaway, port, or terminal is to be efficient. We need to get a ton of cargo moved through our system at a cost that is advantageous to the shipper. If we are higher cost than the alternative routes, we will not succeed. If we can show a savings to the shipper, we will succeed. We can't sit back and wait for government help! All of us have a stake in this process, and we need to work together on the problem.

*J. Frederic Pitre, Vice President-Marine  
Canada Steamship Lines, Inc.*

Ten years ago, the system was straining to capacity with a combined U.S./Canadian operating fleet of 250 dry bulk ships, over 20 million tonnes of Canadian iron ore being carried to U.S. steel mills, and over 20 million tonnes of grain being carried by Canadian lake vessels to the St. Lawrence. Of this, 16 million tonnes entered via Thunder Bay.

Those 20 million tonnes of Canadian ore have fallen to less than eight million tonnes today. American grain has all but left the system. Other things that didn't help as Seaway traffic declined were Ontario Hydro's switch to nuclear power, and the warmer weather, which diminished the market for salt, one of the boom commodities of the

1970s. The recent situation with Canadian grain could be the final nail in our viability coffin.

We've not been docile accepting these developments, however. The industry has worked hard to introduce new trades to the system, notably potash and coal. There are additional possibilities for new trades: western Canadian coal to Ontario Hydro via Thunder Bay, New Brunswick potash into the lakes, and Devco coal.

With a permanent loss of over 50 million tonnes of cargo, there's been a permanent loss of more than 100 ships on the Seaway. One hundred ships means a loss of over 5,000 American and Canadian seamen. Next year's Canadian grain situation could mean a lay-up of an additional 30 ships, translating into lost jobs for another 1,500 seamen.

I'm proud to say that Canadian Steamship Lines remains the largest employer on the Great Lakes, with over 25 ships continuing to operate in the system. We've been around for the 19th and 20th centuries. We've thrived largely because of the great work our seamen have done for our company. A vital element of our success has been the constructive relationship we've had with labor.

In addition to more tonnage, a continuing part of our recovery depends on employee motivation, training, and health. With sailing salaries at an acceptable level, ship

---

---

**We have traditionally focused on satisfying the material needs of workers. Today, we must expand to satisfy their emotional and psychological needs to have a motivated work force. ... Employee participation is the wave of the future. We'd better catch it.**

*J. Frederic Pitre*

---

---

staff getting four to six months off per year, and accommodations improving all the time, we've come a long way in improving working conditions on our ships. Now we must work with labor to provide our crew with opportunities to participate in real decisions relating to the future direction of our companies.

It's only when employee's personal goals and the company's organizational goals mesh that we achieve real long-term employee productivity. All workers in every shipping company, from the ordinary seaman to the president, must feel they are advancing and learning, have responsibility, are doing something useful, getting

recognition, and helping to achieve their own and the company's goals. Every employee is a president of his immediate environment.

We have traditionally focused on satisfying the material needs of workers. Today, we must expand to satisfy their emotional and psychological needs to have a motivated work force. We must look at ways to engender a level of commitment and dedication from our employees. Employee participation is the wave of the future. We'd better catch it.

It is impossible to overestimate the importance that proper training will play in the competitiveness of our industry in the future. The average seaman will have to cope with and adapt to new technologies and equipment. We already have difficulty finding engineers and electricians who are capable of handling the technological demands of state of the art self-unloaders.

Longer shipping seasons, tougher weather conditions, and the increased pressure of competition and technological change also demand that we place more emphasis on the health of our seamen. At CSL, we've made it easier for captains and chief engineers to retire at 62. We're upgrading the quality of food on ships and we're instituting exercise facilities on our vessels.

The government's claim that the proposed changes to the Ontario Workers Compensation Act would be cost-neutral is patently false. In 1981, the Quebec government decided to grab jurisdiction over workplace safety on ships through worker's compensation assessments. After a seven year battle to the highest court and thousands of dollars in legal costs, the decision was clearly in favor of

federal employees, including the marine industry. Would you believe the Ontario government is now challenging us again on the same issue?

Our industry gets tired of talking when government shows no intention of listening. Some day they might realize that a healthy marine industry means jobs, tax revenue, and economic growth for Canada. Let's hope that it won't be too late.

## Questions

Q: What about a second registry for Canadian ships?

Boyle: This concept has been developed by Canadian unions and shipping companies. Faced with the industry's downturn, owners have been forced to move tonnage offshore to find markets. The second registry is to enable us to compete on equal footing with international competitors from countries that have massive subsidies to shipping and ship building, and have low-paid seaman. Proposed changes include eliminating taxes for people working on ships in the foreign-going trade.

Pitre: We are not asking for a break for Canadian seamen who work in the Canadian-U.S. Great Lakes domestic trade. These seamen would keep paying taxes like always. But our other ships are like factories that, because of a lack of business on the Lakes, have been moved to foreign locations. These ships will use foreign crews unless we can get the Canadian tax laws changed. If the laws change, we might be able to keep Canadians working on our ships in foreign locations as well as on the Great Lakes.

## Panel 5: The Government Perspective

Moderator: John L. Agro  
Panelists: William F. Blair, Robert S. Silberman,  
James L. Emery, and Jo-Anne Knight

*John L. Agro, Q.C., Chairman*  
Hamilton Harbor Commission

The St. Lawrence Seaway was recognized as one of the ten most outstanding achievements of Canadian engineering of the past 100 years. The Seaway, providing access to and serving the industrial and agricultural heartland of North America, and sustaining a population of 61 million, well deserves being called the "industrial heart and breadbasket of the continent."

Today, everyone in our business is looking for ways to do things efficiently to meet competition. Cargoes are

out there. It's our job to find them. Compared with other waterways, the St. Lawrence/Great Lakes system is greatly underutilized.

If subsidization in Canada could be extended equally to the Seaway, we would be equally competitive with other transportation modes.

We must become more vocal and approach both governments collectively. Our port is actively pursuing equalization of opportunities. We have been a member of the International Association of Great Lakes Ports since day one. Our port director is a member of the Premier's advisory committee. I urge you all to support this association so it can become more active and more vocal.

Take your concerns to Ottawa, Toronto, and Washington. Meet with bureaucrats. Make them



understand our needs. It is not enough that in Canada one segment is forgiven interest debts to make them competitive. The Ontario government must continue to be made aware of the needs of Great Lakes ports. And we must keep each other well informed, notwithstanding the competitiveness of our work.

*William F. Blair*, Member  
The St. Lawrence Seaway Authority

Last October, Seaway Authority president Bill O'Neil and other members of the maritime industry developed a comprehensive strategy for the Seaway's future.

The task force recommended that transportation subsidies be harmonized to remove their negative impact on the Seaway and that the industry take action to increase usage and marketing of the system. Marketing strategies include identifying problems and opportunities in present markets and developing our business around this base, preserving our general cargo market, and identifying new markets, starting with coal and potash.

In the area of promotion, they recommended concentrating on North America, primarily on grain. The Business Development Unit of the task force and the Thunder Bay Harbour Commission are engaged in "The Western Canada Promotional Tour," where they visit potential grain, coal, and potash shippers to promote Seaway use. They also participate in prairie trade fairs to underline to the farmer the importance of the Seaway.

The Authority has already engaged in joint overseas trade missions with the St. Lawrence Seaway Development Corporation and will again co-sponsor, in 1989, a joint trade mission to Europe and possibly North Africa.

On pricing, the task force suggests we determine where our competitive position could be improved, possibly presenting a single price for transiting the system.

The Authority's rehabilitation program for the Welland Canal is designed to ensure continued reliability of the Seaway. Most important, the cost of the \$175 million program will not come out of toll charges.

As for larger locks, it is difficult to rationalize building a larger system when this one is utilized at less than 50 percent of its capacity. We must remember that owners of larger ocean vessels look for service between deep tidewater ports to maximize return on investment. They are not interested in gaining access to an inland waterway.

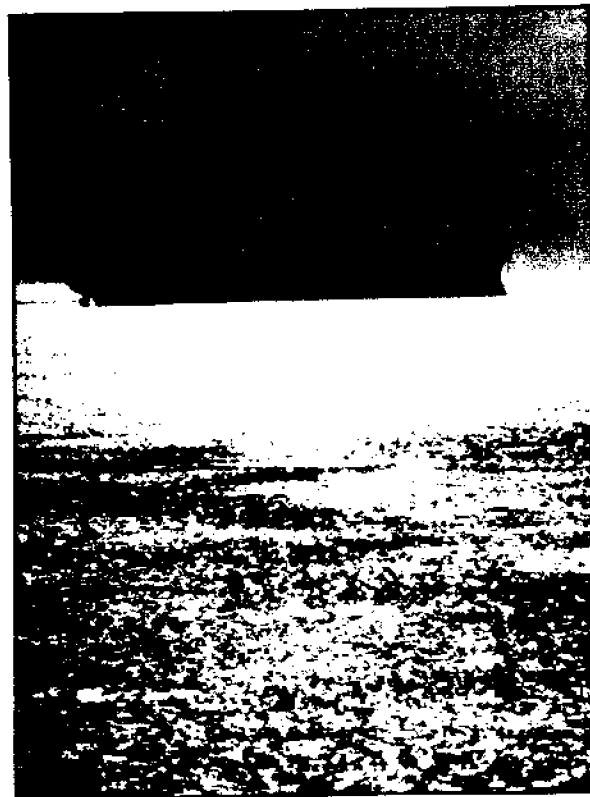
The Authority has no plans to radically extend the

present navigation season. Although recent climatic conditions have been on the warm side, it is premature to conclude that a greenhouse effect will affect navigation on the Seaway. Conclusions from cost-benefit studies on season extension differ significantly between Canada and the U.S.: where the U.S. concludes extension would be favorable, the Canadian studies do not.

Rationalization has been forced upon the industry by the reduced level of demand. This has led to improved efficiency. Purchase of the Halco bulkers by other members of the Dominion Marine Association is the most recent example. It is imperative that we keep an open mind about the need to decrease redundancy and ineffective aspects of competition among ourselves.

In the area of specialization, we must look for opportunities to develop existing traffic and find new business. We are placing at your disposal a new marketing research person with significant industry experience at uncovering new business. We must offer new services, for example, determining what part of the container market could be serviced by increasing deck stowage of boxes.

Since 1980, the Authority has devoted considerable attention to reducing costs. We've achieved a 20 percent reduction in manpower through new operating procedures and new equipment.



With the National Transportation Act of 1988, our industry has to face a more competitive environment. We must coordinate prices more closely and evaluate our competitiveness from an industry standpoint rather than from individual perspectives.

The Authority will look at incentive tolls as a means of generating new cargo. Incentive tolls will have to be fair to all users, new and old. This applies to cargoes as well. The concept of incentive tolls should be applied to new business or businesses which have not used the Seaway for a certain period of time. Similarly, the Authority will be considering the impact of future toll increases and the need to become more selective in toll increases.

Most of all, we must learn to speak to government and to our markets with a unified voice. When addressing the media, we should speak positively about our system, and about its achievements and potential. We must pool our resources to come up with substantive arguments when presenting our case to the public, as was evident in the Coalition on Grain Movement this summer.

*Robert S. Silberman, Deputy Maritime Administrator for Inland Waterways and Great Lakes Maritime Administration, U.S. Department of Transportation*

The system needs two-way trade. It needs imports and exports geographically related to the Great Lakes system. They must be identified and pursued vigorously. If we're not successful in pursuing such a geographic marketing strategy, other efforts to improve the system, whether physical or political, will have little meaning.

I'd like to share with you this piece of wisdom, which I find elegant in its simplicity. I quote Davis Helberg:

"Ship operators (who are in business to make money) and shippers of cargo (who are in business to make money) will use ports where they can make money. If your port performs the way you say it can perform, and if you have a willing ship operator and a willing shipper with some cargo available, then you should do all right."

If, in Mr. Helberg's comments, one replaces "port" with "Great Lakes/St. Lawrence Seaway system," I believe you have the best analysis of what needs to be done to ensure the stability of the system in the 21st century. The key is to demonstrate to the users (the ship operators and shippers of cargo) what sustainable competitive advantages the Great Lakes/St. Lawrence Seaway has over other transportation routes.

The major economic change affecting the Seaway has been the shifting geography of markets. The Seaway has a natural geographical advantage for goods shipped from

the American and Canadian Midwest, northeast to Europe. The Seaway, however, has lost much of that geographical advantage with the shift in bulk export markets away from Europe and toward the Pacific Rim and Africa.

Ultimately, the key to the Seaway's competitiveness will be its ability to attract cargo. There are opportunities. Total U.S. Atlantic liner trade is projected to rise by 80 percent by the turn of the century, and even more so for the nonliner segment. These trades, between the U.S. and north and south Europe, including the Mediterranean, are the logical ones for the Seaway to target.

In dealing with maritime issues from a public policy perspective over the last few months, I have been struck again and again by two phenomena. First, everyone tends to cloak their own economic well-being within some broad national concern, such as free trade, national security, or industrial competitiveness. Second, every positive event for a member of the Great Lakes/St. Lawrence Seaway community seems to cause a corresponding negative effect somewhere else in the community.

Take, for instance, the issue of steel imports. What port director wouldn't eagerly seek out a large shipment of foreign steel imports for his port? Yet, those imports hurt the domestic bulk iron ore carriers, who push for a foreign steel import quota. Both sides will claim broad national concerns to defend their positions. Both, in a way, are right.

This same duality holds true for many other issues, such as labor-management relations, U.S. cargo preference laws, and, yes, the implementation of the PL 480 Food for Peace program.

Indeed, my title itself suggests such a dichotomy of interests. Many knowledgeable people, some of whom have spoken here today, view the U.S. inland waterway system and the Great Lakes/St. Lawrence Seaway system as not only physically distinct from each other, but also inherently competitive. The drought further exacerbated this view this summer.

I, however, do not believe it is necessarily the case that one system's gain must be the other's loss. That may be true in the short run, as evidenced by the approximately 200,000 tons of bulk cargo which has been diverted to Great Lakes ports because of low water on the Mississippi. In the long run, however, the two transportation systems will be, and ought to be, complementary. Their very proximity creates mutual opportunities. The vitality of the Great Lakes/St. Lawrence Seaway system will always be based on volume of trade. As the inland waterway system spurs economic development in America's heartland, it creates the basis and the market for that trade.

President John F. Kennedy used to say "a rising tide lifts all boats." While the direction of the water level might not be appropriate with this year's drought, the sentiment of that quote remains compelling.

*The Honorable James L. Emery*, Administrator  
St. Lawrence Seaway Development Corporation  
U.S. Department of Transportation

We're truly a bi-national waterway. We stand the most to gain when we work together. We've built the base. Now we have to build upon it, not with gloomy eyes, but through sharper eyes more focused on future opportunities.

We're a united transportation system. We've achieved unparalleled "system solidarity." Costs are more competitive. The government didn't do it alone. The ports and industry and labor did. You bit the bullet.

The world knows we're here, that we didn't go out of business. Why? Because we sent the message out. Our Seaway Trade Missions have taken us to 13 countries in Europe and North Africa. They've cemented long standing trade flows and brought new business our way. Our Seaway film, jointly funded by the Corporation, Ontario, and Quebec, has been an invaluable marketing tool. Our reputation is better than ever for reliable, dependable service.

If iron ore, general cargo, and U.S. grain continue at the current pace, we're looking at higher totals in those cargoes than we've seen for the past three years. It only took us until the end of August to "top off" 1987 year-end totals in coal, coke, and stone.

Total transits are up five percent over 1987, with ocean vessels up eight. We're looking at more transits than we've had for the past three years, as well.

This year has seen a number of other breakthroughs: the first ship from China called at U.S. Seaway ports, potentially opening up trade with a market of one billion people. We've seen new cargo, such as the logs Thunder Bay sent to Egypt. Our trade mission stops in Genoa, Rome, and Milan led a top level Italian trade delegation to pay us a visit recently. The missions have paid for themselves, and I'm glad the Seaway Authority will be a co-sponsor next year. For next year's mission, we plan to return to London and Antwerp, as well as break new ground in Casablanca, Tunis, and Madrid.

The missions and other trade promotion programs have positioned us to take advantage of future opportunities. This year we saw some of those opportunities: low water on the Mississippi let us prove the viability of the system to the "unbelievers." We have

to be prepared to increase our market share of that cargo for the long term.

Look what the Illinois Central railroad did. They saw the low water coming last spring and leased 600 rail cars. It paid off: in July their grain shipments more than doubled. The railroad thinks low water on the Mississippi could last for years, so they're trying to lock in long-term contracts. We should be prepared to do the same.

The Soviets are back in the market as big grain buyers. They're going to have heavy grain import demand for the foreseeable future. Let's bring their business to the Seaway.

Our Seaway Strategic Planning group has recommended installing a system-wide computer hook up. Think of it: we could be the first entire "system" in the world to be computer linked. It could give us a tremendous leg up.

The Reagan-Bush and Mulroney administrations have done their jobs. They've brought us real economic growth. Great Lakes factories are humming, stimulating demand for Great Lakes/Seaway bulk cargo. *Fortune* magazine calls it the "resurrection of the Rustbelt."

We're on the verge of nailing down the U.S./Canada Free Trade Pact. Last week, it was ratified in the U.S. Senate. It's been approved by the House of Commons, and we now await the decision of the Canadian Senate. The Great Lakes region is going to benefit most because the expanded trade has to funnel right through us. As we know, the industrial and agricultural heartland of North America stands to lose the most if we backslide into a recession or another policy fiasco like the Carter grain embargo.

What can the states and provinces do? A University of Georgia study found that an increase of \$1,000 in state spending on export promotion of manufactured products leads to over \$400,000 in increased exports.

What if Ohio's Great Lakes ports of Toledo, Cleveland, Ashtabula, and Conneaut were immediately plugged in to see if they could handle the cargo whenever the state of Ohio did a foreign deal? Why let the cargo go to Baltimore, where we get no economic benefit? Our states and provinces have foreign trade offices. Do the offices know about the capabilities of our ports? Are the ports featured in state export promotion literature?

The message we send out has to be upbeat. Look at the Tennessee-Tombigbee system, a bulk system like ours. They're making a big deal out of their first one-million ton month. We handle that much in a week, but they're calling it a "boom." They're smart. They're attracting positive attention to the Tenn-Tom. In the

final analysis, the Seaway ports and industries have to take the lead in keeping the system competitive and providing the impetus it needs.

*Jo-Anne Knight, Regional Director, Policy and Coordination, Transport Canada*

The problems, reverses, difficulties of the Seaway are well known and amply documented. Transport Canada continues to assess the situation along with our colleagues in other government departments. Make no mistake, the viability of the system over the long term is of great concern to all of us. That said, I do not bring

---

---

**Positive change is mostly a gradual process. Events such as the downturn of the past few months are only interruptions along the path. Good management, planning, global marketing techniques, and a readiness to meet the needs of change head on clearly suggest an optimistic future...**

*Jo-Anne Knight*

---

---

with me today any messages of balm for the acknowledged problems facing the lakes, Seaway, ports, domestic fleet, or Thunder Bay.

Thunder Bay had an excellent year in 1987, with nearly 14 million tonnes of grain carried down the St. Lawrence for export overseas. So far this season, the Great Lakes fleet has moved six million tonnes down the Great Lakes from Thunder Bay.

Given the drought, tonnage has held up better on the Seaway than earlier anticipated. The larger than normal movements of American grain diverted through the Seaway [from the Mississippi River] counter-balanced the fall in Canadian volumes.

To date, there has been no final determination made of the expected total grain export tonnage from this crop year. This is perhaps the greatest anxiety for all of us. What makes grain movement through Thunder Bay so uncertain? All will agree this past summer's drought is a major contributing factor. Some point to inequities in the WGTA. Others call attention to shifting world markets.

The one consistency in all of this is the government's recognition of the vital importance of the Seaway in the movement of Canada's export commodities.

The Seaway's construction was predicated on the recognition that marine transportation represented the cheapest and most efficient method of transporting large volumes of lower-value commodities over long distances. Today, that rationale is still true.

The port of Thunder Bay will remain an integral part of this system throughout the 1990s and into the 21st century. Its location confers upon it the title of Canada's "Heartland Harbor." And it is in this role that Thunder Bay exerts its influence for stability of movement and change. While grain remains its staple, the port continues to exhibit new volumes of coal, potash, other dry and liquid bulk and, most recently, lumber. This diversification can only encourage the port in its efforts toward meeting the demands of change in an exporting world.

Positive change is mostly a gradual process. Events such as the downturn of the past few months are only interruptions along the path. Good management, planning, global marketing techniques, and a readiness to meet the needs of change head on clearly suggest an optimistic future for the Seaway system.

Why should we expect the Seaway of the future to be exactly what it is today? It will be what Canada needs then. It is not for the federal government to determine or dictate what these futures may or may not be. It is you, members of the industry, who are the visionaries, the developers, the practitioners. Transport Canada will work with you, not as an entrepreneur, but as a facilitator.

## Questions

**Q:** Your marketing study found that the ports should do the advertising for the system. Isn't that at odds with your point that we should speak with one voice?

**Emery:** It's important for people who ship commodities to know what Milwaukee can do better than Toledo. Last year the IAGLP put out a publication on all the ports in the system, but it's not specific enough to tell someone in Chicago whether they should ship through Chicago, Burns Harbor, or Milwaukee.

**Q:** What about a government review of the WGTA?

**Knight:** There will be a review of the rates, but amendments will not take place before the next federal election. Any amendment would still have to satisfy competing interests. It wouldn't be any easier to satisfy everyone the second time around.

## Panel 6: The Research Perspective

Moderator: Cy Cook  
Panelists: Pierre Camu, Dr. Jerry E. Fruin, Dr. Ronald L. Heilmann, and Dr. A.G. Wilson

*Cy Cook*, General Manager  
Thunder Bay Harbour Commission

The Italian Renaissance lasted 40 to 50 years. The Golden Age of Greece lasted about 40 years. Our Seaway is in its 30th year. Does that mean we're heading toward our Golden Age, our Renaissance?

Periods of stability have always been very short. Mankind has always been used to rapid change and turmoil, and we too have to come to grips with our changing environment. Failure to face reality is our greatest danger. We need leadership now to exploit our new realities and opportunities. Research can help as we prepare ourselves for the future.

*Pierre Camu*, Vice President  
Lavalin Inc.

There are four avenues of research that could be further explored: technology applicable to the existing system; the economics of the system; government policies and strategies; and regional, continental, and international economics.

1. Research in technology. In 20 years, lock number one on the Welland Canal will be 100 years old. This suggests that a rehabilitation scheme will be needed. At about the same time, the Montreal/Lake Ontario section will be 50 years old, requiring a maintenance program to assure customers of the continuation of a first-class waterway system.

Hydrodynamic studies need to be undertaken to speed up the movement of vessels and the cycle of lockages. Hardware, such as valves, electrical systems, pumps, etc., must be constantly updated.

It is desirable but unrealistic to try to use the Seaway for 12 months a year. The existing system was not built for that. What makes sense is to extend the navigation season by another month.

We do not suggest any type of research related to vessels. If ever the system were modified, ship owners would ask naval architects to design new vessels to take advantage of the changes.

The evolution of the physical characteristics of the system will be in the building of locks comparable to the Poe Lock at Welland, Cornwall, and Montreal. Canals are seldom abandoned; they are replaced by new ones or new uses are found for them.

2. Research in economics. I propose the search for a new bulk commodity or an old staple that could be carried in large quantities. An example is coal. By a careful analysis of the combined hinterlands of Great Lakes and St. Lawrence ports, one may discover a winning combination, like the grain-iron ore combination that lasted for 30 years and may be renewed again.

I suggest creating a ferry with ice-breaking capabilities to cross the lakes. The objective would be to develop traffic like the trade exchanges between Baltic ports.

I would like to see research on the rediscovery of regional traffic between ports and lakes and between the lakes and the St. Lawrence River ports. This would be a study of general cargo and traffic possibilities between Canadian and American ports. This traffic would only be possible under special economic conditions, such as special tolls or lower tariffs.

Cost studies in terms of global economic impacts have been neglected, and few studies have included tolls, harbor dues, pilotage fees, tug services, and other costs related to vessels.

3. Research in governmental policies. I suggest a study that would encompass the effects of decentralization, privatization, and simplification of administrative duties, procedures, and controls on the future of the Great Lakes/St. Lawrence waterway.

One of the most important pieces of research would be to examine the federal policies in shipping and maritime trade, starting with these questions: Is there a maritime policy at the federal level of government? Does it include the Great Lakes/St. Lawrence Seaway system? Where does it fit in the overall transportation policies for the continent?

Canada has no deep-sea fleet. Even the approval by the House of Commons of the new National Shipping Act took more than a decade, because it was always postponed by more urgent legislation. Canada is more a continental than a maritime power, despite the fact that it borders three oceans. In this context, maritime policies, shipping practices and rules, and capital expenditures

related to water transportation do not rank high. The Seaway has become a regional instead of a national preoccupation. Is it the same on the American side of the border?

The Free Trade Agreement will not change or affect such policies. Both countries may have to develop together a continental and maritime policy vis-a-vis the rest of the world.

4. Research in regional vs. continental and international economics. This is an aspect too often neglected by researchers, except geographers. It is when one compares the Seaway with the Suez and Panama canals, and with the Gulf Coast and Pacific ports.

---

---

### **The Seaway has become a regional instead of a national preoccupation [in Canada]. Is it the same on the American side of the border?**

Pierre Camu

---

---

In terms of population, manufacturing, labor, trade and commerce, the Great Lakes basin is one of the most productive regions of the continent and the world. The problem is that some of the freight that originates in the economic basin or hinterland of the Great Lakes/St. Lawrence is not carried in and out of the region by water. When will it be possible to break that pattern?

The research on the Seaway has to be coordinated, well organized, comprehensive, global in its approach, and initiated soon. It should be done by a diversified team of researchers. The users should be involved more than before, because they know the system well.

*Dr. Jerry E. Fruin, Associate Professor and Sea Grant Economist Department of Agricultural and Applied Economics University of Minnesota*

For the indefinite future, capital costs and environmental considerations will continue to limit Seaway traffic to ships able to traverse the 27 foot channel. Solving the capacity problem requires increasing channel depth rather than lock size. The objections to rebuilding are environmental, not financial. Cost may be the stated reason, but the hidden agenda will be the environment. We will have to design the rest of the system, including carriers, communication, and intermodal methods around the fixed infrastructure of the Seaway,

with the goal of developing the most efficient long distance logistics system in the world.

A relatively fixed amount of traffic is available to move out of the Seaway. The shift in the North America economy to high-tech and service oriented industries, and the growing aggressiveness among competing suppliers of bulk commodities around the world, will limit the growth of outbound traffic.

Coal and fertilizer volumes will increase substantially, along with more obscure products like waste paper and pelletized soybean meal. I do not rule out the possibility of growth in grain shipments. There will be vigorous competition for this traffic from alternative rail routes on both sides of the border, and from Gulf ports. Any increases in volume will not go out the Seaway unless the total cost of the movement, including the opportunity costs, are competitive.

We should be doing research on factors that would allow increased operational speeds and/or decreased total transit time. These would include hull designs and navigational systems. Fuel economy, safety considerations, and environmental aspects of increased speeds would be an essential part of any research program.

Rather than transfer cargo to land storage by the Gulf of St. Lawrence and then to an ocean-going vessel, we should perfect laker to saltie transfer techniques. We should take advantage of efficiencies of moving maximum size lakers through the canals and then using deep draft ocean vessels for the overseas movement. Potential savings include reduced vessel time, reduced docking requirements, and reduced amounts of capital tied up in ship to land and land to ship terminal facilities and equipment.

Satellite monitoring and coordination of unit trains, lakers, salties, and possibly individual rail car lots of grain should be developed. In the 21st century, we will only need minimal storage capacity at modal transfer points. Grain quality selection and cleaning should take place as close to the farm as possible, avoiding transportation costs and equipment bottlenecks.

Another research area is the impact of government policies on Great Lakes cargo volumes and, subsequently, on transportation costs. The trick is to find the proper mix of subsidies and regulation so society reaps the largest benefits.

The lakes have a reputation, true or not, for high ancillary charges. A number of labor factors add unnecessarily to costs. There is a perception of high costs that must be overcome, either by lowering costs or through education and public relations.

This year's shift of traffic from the Mississippi to the

Seaway carries little long-run promise for Seaway grain traffic. First, when the river is that short of water, there's not going to be much grain traffic. Second, and more important, the economic and environmental aspects of maintaining a nine-foot channel in the lower Mississippi are relatively simple. The required actions might cost \$3 billion, the same as a new Welland Canal, but the politics and political coalitions are different. Environmentalists will probably fight to take the lead in such an endeavor on the Mississippi in the name of saving wetlands and improving the ecology. Louisiana, other states, and organized labor on the Gulf would back such a project wholeheartedly. This is very unlike the ambiguous and disappearing support that Seaway improvements get from similar East Coast interests.

As we go into the 21st century and beyond, our research should be designed to make the Great Lakes and Seaway a very efficient inland waterway to move bulk commodities.

*Dr. Ronald L. Heilmann*, Director, Management Research Center University of Wisconsin-Milwaukee

The demand for transportation on the Great Lakes/St. Lawrence Seaway is derived directly from the health of the regional economy. On the U.S. side of the Great Lakes, a lot of changes are taking place which will have a potentially significant impact on what will happen in Great Lakes shipping.

When Japan's market penetration in consumer

electronics and automobiles blew U.S. markets out of the water in the early 1980s, we attributed the significant price advantage to cheap labor. We soon saw that not only were the products cheaper, they were better. Year after year, we saw the quality of these imports improve.

Today, the exchange rate between the yen and dollar offers no price advantage, yet consumers are still willing to pay for these products. Why? They're willing to pay for quality.

What are we doing about it? Quality has become and will continue to be the basis of competition in world markets. Within U.S. industry today, those of the Great Lakes region are leading the nation in this change in the ways we're doing business, largely due to the auto industry.

The tools for quality improvement which have been evolved primarily in manufacturing are applicable to the service and public sectors as well. Japan had developed a better way, not by focusing on the product or service, but by focusing on the process by which it's built or provided. By getting the process under control, the quality of the product or service essentially takes care of itself.

Despite the birth of the quality movement in manufacturing, it wasn't automation that led to Japan's process advantages, it is the simple recognition that the most important thing is people. If the people who work in the system aren't given the tools to do their job right, they can't be held responsible if it is done wrong. Therefore, the Japanese have invested a great deal in their



people in the form of training. This also led to things like involving the people doing the job in decision making. If you want to know how to do a job better, it makes sense to ask to person who is doing it; he or she may know it best. Management can learn something from that.

When something goes wrong in a Japanese company, it isn't "Who screwed up?" but "What went wrong?" These are fundamentally different attitudes.

Although a very popular book concerning quality is titled *Quality Is Free*, the truth is that you've got to invest in it. When much of what we've heard at this conference is that we've got to cut costs, it may be difficult to relate to what I'm saying. It sounds as if I'm advocating another expense. But if you do something right the first time, you won't have to do it again. You have an inherent efficiency gain. Therefore, a by-product of investing in quality is improvement in efficiency and productivity. In short, you end up with cost savings. This spills over into the service and public sectors, as well. A process is a process. It makes no difference what the product or service is.

If we focus on the quality of service on the Great Lakes, it will lead to being able to demonstrate a competitive advantage in attracting cargo. As companies of the Great Lakes region do better, they will generate more products, and those products are potential cargo. And that's what this Seaway conference is all about: attracting cargo.

*Dr. A.G. Wilson, Professor, Agricultural Economics, and Professional Associate, Transport Institute, University of Manitoba*

The Seaway system is market driven. It is essential that several marketing factors be addressed:

1. The present location of markets and the potential location of future markets.
2. The products for these markets, volume potentially purchased, packaging, and degree to which the markets can be penetrated.
3. Shipping costs from Canadian and U.S. ports to these markets.
4. Internal shipment and handling costs from production to ports.

At present, two major factors are affecting the movement of Canadian grain through the St. Lawrence Seaway system: the location of markets and the volume of production on the prairies. The former is the more fundamental factor, since the latter for this year at least reflects the weather pattern. To enhance the movement of Canadian grain through the Seaway, certain actions could be beneficial:

- Promote exports of grain to countries whose location is served at the least cost through the Seaway. These could include, for example, those in sub-Saharan Africa where our market penetration is minimal at present.
- Encourage the production of grain of the type and characteristics desired by markets potentially served through the Seaway. Many of these markets require a product having different characteristics than those existing currently in Canadian grain. Production of grain having the desired characteristics is often accompanied by higher yields, giving those on the Canadian prairies the ability to produce at lower unit cost and so become more competitive. This will have a positive influence on Seaway volumes.
- Streamline the current system for moving grain through the Seaway in the interest of reducing costs. The Mississippi River system may provide additional competition to the Seaway in the future if this does not occur. Given the location of existing markets, the system is overexpanded and would not be reproduced. It is interesting to note that shipments to western Asia shifted to the Pacific Coast in 1983-84, before the new Prince Rupert terminal became fully operational.
- Support the pay-the-producer option under the Western Grain Transportation Act. This will ensure a minimum movement through the Seaway and reduce the economic pressure for a further substantial increase in West Coast capacity.
- Argue for interim funds to assist in the Seaway's adjustment to future needs, and for at least a minimum flow of grain by this route. The Seaway remains essential to the movement of Canadian grain. Such support can be economically justified in the short run as a way to maintain the system during a period when limited volumes are available because of adverse production conditions on the prairies. This should assure that adequate capacity is retained to meet future requirements.

This is a time for positive thinking. Problems have arisen in the past. What can be done at present to increase the movement of grain through the system? There are options available that can improve the real competitiveness of the system. Such a course will be more effective than fruitless arguments concerning the level of subsidies applying to movements east and west in Canada. At the same time, producers, the Seaway, and taxpayers will benefit from such an economic approach to the problem of reduced grain traffic on the Seaway.

## Questions

Q: Wasn't the trend toward the West Coast there before



the WGTA, because that is where the markets are?

Wilson: Nevertheless, certain markets can be best serviced through the Seaway.

Q: If we see a pay-the-producer option in Canada as part of the answer to Seaway problems, isn't there a danger? What if the producers look at the deregulated U.S. rail

rates and pressure the government to not make grain go through Thunder Bay or Vancouver before going to the U.S.?

Wilson: The rail rates on grain under the WGTA would be highly competitive with American rates on grain. I don't see the American rates being lower than ours, even on high volume movements.

## Summary: Rapporteur's Perspective

*Dr. Robert G. Rosehart*, President  
Lakehead University

At this conference, there has been a gentle tone of optimism and many positive messages. I'd like to think that behind those comments there is substance and opportunity. If I sound dubious, I am, a little bit.

One of the realities of life is that it's difficult to go back. One has to look to the future. One also has to realize that neither Canada nor the U.S. completely dictates to the world on matters of the Seaway. It's probably not the most dominant issue to politicians.

The Seaway seems to be a highly over-regulated operation with very outdated regulations. I've gotten the impression that, out of frustration, you've given up trying to change these regulations and are looking at other things, like marketing. These other things are very good, but do they address the fundamental issues and problems?

I look to government to be involved in infrastructure and provide a climate for business. For a variety of good and bad political reasons, the government seems to be hanging onto outdated regulations, and the infrastructure, in this case the Seaway, has to a great extent been ignored.

Who really is doing the long-term strategic planning for the Seaway? One has to look at leadership, and one must be fair to the current government in that the Prime Minister keeps farm subsidies on the table. There are differences of opinions on subsidies and what form they take. But no matter what form they take in Canada and the U.S., they're only a fraction of western Europe's subsidies. When you talk about the African market, you must remember there are others also after it.

In the long-term and into the 21st century, much will be done to enhance the future of the Seaway, if progress can be made on farm subsidies through worldwide economic summits and at the GATT table. There are cynics who would say politicians and these issues come and go. Farm subsidies are probably not a very good topic at an economic summit, but the fact that Canada

continues to be an annoyance by bringing them up is probably significant.

At one point, the Free Trade Agreement had some interesting implications for the Seaway. Obviously, the Great Lakes/Seaway lobby wasn't nearly as strong as the coastal lobby or the large unions in the U.S.: whole maritime provisions in the Free Trade Agreement were knocked out. Here is an opportunity that was lost. I'm not asking where the Seaway lobby was when that occurred. You probably were trying, but it indicates that you've got to get more political clout.

Where do we go from here? Today we're dealing with a very small world, in terms of telecommunication, computer conferencing, and fax systems. There needs to be more focus on these issues and some political inspiration. But who's going to carry the ball? You've got to get focused, develop some political support, and put your pet issues away. You've got to put it together and get on with the job. Otherwise you're going to wake up some morning and read a headline: government phases out Seaway system.

You didn't create the problem, but you've got to be part of the solution. You have to be optimistic, work on your strengths, and get government to let the private sector carry forward as entrepreneurs. To the government I say: Don't frustrate them with regulations. Provide them with the infrastructure, and let them do the job.

We've heard a lot about marketing. Marketing is very important. Canadians can learn something about marketing from our neighbors to the south. We should also look at product quality, at value-added commodities.

We have to accept the reality that the future will not be the same as the present or the past. We've got to prepare for change and be part of the process.

The Seaway system is a lot more than a waterway. Historically, it created a bond between east and west, especially in Canada. There is a social as well as economic bond, and social and regional development factors, which should not be forgotten.

---

---

## Index

---

---

<u>Presenter</u>	<u>Page</u>
Agro, John L. ....	18
Baker, Dale R. ....	1
Blair, William F. ....	19
Boyle, Andrew C. ....	15
Camu, Pierre ....	23
Cook, Cy ....	23
Dawson, Richard L.M. ....	2
Dempsey, Frank J. ....	6
Emery, James L. ....	21
Frick, Merrill B. ....	16
Fruin, Jerry E. ....	24
Gard, William E. ....	10
Gaudreault, Ross ....	3
Guppy, John D. ....	11
Hartung, James H. ....	10
Heilmann, Ronald L. ....	25
Hejduk, Fred V. ....	4
Helberg, Davis ....	6
Hill, James E. ....	1
Kellow, James H. ....	13
Kennedy, S. Paul ....	7
Kneichel, Philip J. ....	13
Knight, Jo-Anne ....	22
Lobring, Virgil ....	8
Maxwell, Duncan ....	12
McAllister, John H. ....	9
Pitre, J. Frederic ....	17
Roschart, Robert G. ....	27
Silberman, Robert S. ....	20
Wilson, A.G. ....	26

---

---

# This Is Our Seaway

---

---

Created by Richard Burton of Thunder Bay

(Sung to the tune of Frank Sinatra's "My Way," in the key of C)

<p><b>Verse 1.</b></p> <p>So now, We've talked about All our free trade and our relations</p> <p>Because It's important to Yes, get along As next door nations</p> <p>But let Us not forget Why we all talk In this here breezeway</p> <p>To discuss The future of Our mutual Seaway</p> <p><b>(CHORUS 1)</b></p>	<p><b>Chorus 1.</b></p> <p>So what is a river Or our Great Lakes If we have not Got what it takes</p> <p><b>Chorus 2.</b></p> <p>We'll transport coal And iron ore Potash or grain And even more</p> <p>Detroit/Wayne County Chicago too To Montreal And right on through</p>	<p>But still We all discuss Our pros and cons At this convention</p> <p>Can we Cut all our costs Pick up our speed And still deliver</p> <p>On the Great Lakes and St. Lawrence River</p> <p><b>(CHORUS) 2)</b></p> <p>To ship our goods From port to port And fill those ships Both back and forth</p> <p>We can ship Anything, any day Along our Seaway</p> <p>For Canada And the U.S. of A. It's all our Seaway!</p>
<p><b>Verse 2.</b></p> <p>So as, We look ahead At the Great Lakes and Seaway system</p> <p>To see How we can improve and to compete In transportation</p> <p>Because The next century Is only just Around the bend</p> <p>We want To be the best At what we All send</p> <p><b>(CHORUS 1)</b></p>		
<p><b>Verse 3.</b></p> <p>Regrets, We've had a few But then again Too few to mention</p>		

## Selected Shipping Publications from Minnesota Sea Grant

- Additional copies of this booklet: **The 21st Century: The Great Lakes/Seaway System.** Proceedings. 1988. K. Plass and N. Berini, eds. \$2.
- Government Policies and Great Lakes Shipping: Perspectives on U.S. and Canadian Agricultural and Maritime Policies.** Proceedings. 1988. K. Plass, ed. 42 pages. \$2.
- Cargo Preference and Export Competitiveness in the Port of Duluth: A Survey of the Issues.** 1987. S. Hanson, C.F. Runge, and J.E. Fruin. Research Report 26. 18 pages. Free.
- A Preliminary Analysis of Season Extension and the Duluth-Superior Economy.** 1986. C.F. Runge and J.E. Fruin. Research Report 14. 37 pages. Free.
- Agriculture and the Seaway: from Field to Foreign Market.** Conference Highlights. 1986. K. Plass, ed. 58 pages. \$1.
- The Seaway in the Year 2000.** Conference Highlights. 1985. H. Bell, ed. 54 pages. \$1.
- Maritime User Fees: Perspectives on the Upper Great Lakes.** Conference Highlights. 1983. N. Berini, ed. 46 pages. \$1.

\*\*\*\*\*

Please check the title(s) wanted, fill in your name and address below, and return with a check made out to the University of Minnesota.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Total amount enclosed:  
(U.S. funds only)

\$ \_\_\_\_\_

Return this order form to Minnesota Sea Grant Extension, 208 Washburn Hall, UMD, Duluth, MN 55812 (telephone 218/726-8106).

The University of Minnesota is an equal opportunity educator and employer.