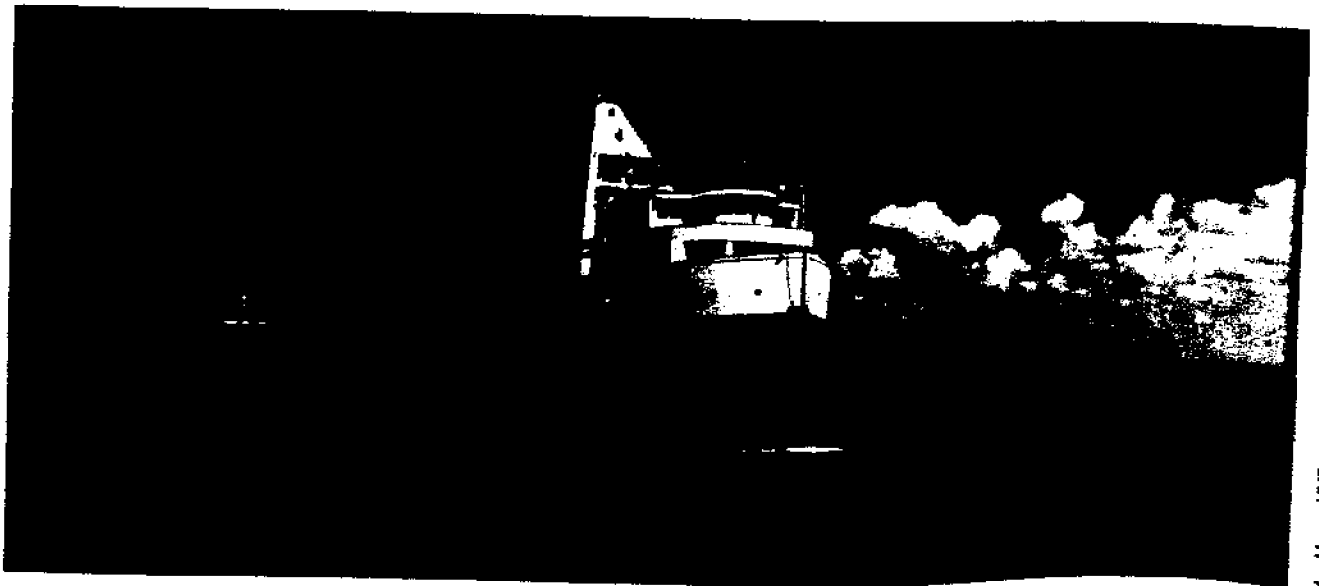


Great Lakes Ports in a Changing Economy

Summary of a Conference Held September 19-21, 1989

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Minnesota Sea Grant Extension Program



Ken Moran, UMD

Great Lakes Ports in a Changing Economy

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Minnesota Sea Grant
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Minnesota Sea Grant is a statewide program that supports research, extension, and educational programs related to Lake Superior and the Great Lakes. Offices are located on the St. Paul 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 program is also part of the Minnesota Extension Service.

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Introduction

*Dale R. Baker, Leader
Minnesota Sea Grant Extension Program*

This seventh Great Lakes port policy conference marked a departure in focus from the first six. Early conferences focused on single issues like user fees, international trade, and Seaway infrastructure. This conference looked at the role of Great Lakes ports in the regional economy. The Great Lakes region plays an important part in the global economy, and the ports play a major role in linking this economy to the rest of the world.

For those who want to succeed in Great Lakes shipping today, it is imperative to understand how ports and shipping companies affect local, regional, national, and global economies. I was impressed as to how well conference participants were versed in the vast variety of issues that pertain to regional and global economies.

Great Lakes Ports in a Changing Economy took place from September 19-21 in Merrillville, Indiana. This was the second Minnesota Sea Grant Extension port conference held outside of the Duluth-Superior area. The conference, attended by 81 participants, was a success.

For 1990, the conference may occur in conjunction with the annual conference of the International Association of Great Lakes Ports, which is to be held in Oshawa, Ontario, from June 24 to the June 27. Combining these conferences would reduce the number of Great Lakes ports meetings, which has proliferated in recent years.

At the September conference, members of the port community were upbeat and positive about the Seaway's future. The drought of 1988 was behind them, and the 1989 shipping season was strong overall. Cooperation between ports and between public and private interests appeared to lay the groundwork for long-term Seaway maintenance and improvement.

In spite of the prevailing optimism, a number of concerns were raised, including these: employment and output in the eight Great Lakes states have lagged behind national growth; many legislators and others fail to appreciate and understand the value of the St. Lawrence Seaway; and three new and potentially harmful exotics were recently introduced to the Great Lakes in ballast water.

Some positive, new ideas included the following: the St. Lawrence Seaway Development Corporation is studying the feasibility of developing year-round service by sending cargoes by rail to an East Coast, alternate port during the winter months when the Seaway is closed; and Michael Donahue of the Great Lakes Commission suggested borrowing an idea from the environmental community, where state, federal, and regional organizations meet at "mini-summits" to share ideas, agree to take action on some issues, and agree to disagree on others.

A number of people deserve special credit for their part in the conference. The planning committee developed the theme and identified speakers. Barbara Liukkonen of Sea Grant was the major organizer and guiding force. Sally Ludington of Burns International Harbor worked closely with Barb on logistics, accommodations, and registration, and deserves major credit for the local arrangements. Jim Hartung served as the host port director. Karen Plass of Sea Grant and Nancy Berini produced this conference record. ■

Panel 1: A Global Perspective

Moderator: *Davis Helberg*

Panelists: *Kingsley E. Haynes*
J. Bruce McLeod
Graham S. Toft

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

People talk about the dearth of business resulting from the slump of ocean-going shipping in the grain trade, especially in our port. Yet the grain trade in our port is up this year. I see this happening more and more as our business evolves. For people like pilots, the towing industry, line handlers—for those elements of our industry who are reliant on one phase of the business, in this case ocean-going shipping, it's been a poor year. But if you ask certain freight forwarders in the grain industry and some of the grain elevators in Duluth-Superior, it has been a great year.

As change inevitably occurs, we all become more efficient, more competitive, and more productive. As we grow, there's pain and forced attrition. External forces well beyond our control rule our destiny.

Western coal from Montana is booming through our port this year. The steel industry has recovered to the extent that iron ore shipment is very strong. Imported steel is way down, especially in our port, yet export steel has become a major new cargo for ports such as Burns Harbor. Exporting American steel was unthinkable just a few years ago.

To see what's going on, we need a global perspective. Instead of being called "Great Lakes Ports in a Changing Economy," this conference could have been called "The Great Lakes in a Global Economy: A Changing Perspective." It comes out about the same either way. ■

*Kingsley E. Haynes, Chair
Department of Geography and Public Policy
Boston University*

Trends

The purpose of my presentation is to lay a broad groundwork for the panelists who follow. Hopefully, they will elaborate on some of these themes and relate them to specific port issues.

Our interest in the global perspective is related to the way in which it affects our local economy, its organization, and its future. The port is the local or regional economy's window on the rest of the nation and the rest of the world. It is through that window that imports enter, exports leave, and the winds of change blow. These winds of change are driven by increasingly free trade and increasingly open markets in an environment of reduced economic and regulatory barriers and in response to rapid technological advances in transportation, communication, and information exchange. These technological advances are being systematically integrated into production.

A consequence of these integrating technologies and their related policies is a major change in the production of manufactured goods and the delivery of a variety of services. Instead of the tradition of stable, medium quality, minimum choice mass production and long production runs, it is now possible through computer-aided design and manufacturing (CAD-CAM) to profitably produce products tailored to small "niche" markets with short production runs.

With flexible manufacturing, these smaller "niche" markets can be successfully exploited and consumer choice can be maximized. The major value element added is no longer simply the physical production of the product; it is its innovative design, marketing, and redesign for alternate use. This makes the value added contributor the professional services related to guarantees, quality, fit, and flexible production systems. A consequence is

that innovations in products and design come to the market more quickly than before and the product development life cycle (from creation or innovation to standardized production) is significantly shortened.

The system described above requires a transport support system that is increasingly "divisible"—able to respond to smaller loads with more destinations at low cost and relatively high speed. Ports will be required to respond to these changes in order to hold market share. Protective maritime policies that undercut such flexibility will be under increasing attack.

The new systems of production are being generated in "flatter" and "decentralized" organizational structures with fewer mid-managers and a thinning of senior executives but with increasingly targeted centers of responsibilities. The reduction of mid-level management has only begun. Given that ports will increasingly service this kind of flatter, leaner organization, they will need to develop and sell export and marketing services that were traditionally incorporated into larger traditional manufacturing organizations. Being "lean and mean" means giving up or externalizing activities that used to be internalized when an organization got large enough. Are the Great Lakes ports ready to supply these new services for their regional clients?

Not only are firms becoming flatter organizationally, but the most innovative firms are new and small. These firms are the future. Even large organizations, in response to the new competitive environment, are downsizing and decentralizing while targeting products for a global marketplace. These large, decentralized organizations are restructuring themselves into a series of responsibility centers. This means a reduction in the central organization's overhead and its cost sharing of that overhead (for example, in providing export expertise). This makes these smaller decentralized units—new or reorganized—dependent for external support service expertise. Can port authorities and commissions organize to help that group?

A major shift is taking place in employment from manufacturing to service. This has been underway

for a long time but has accelerated in recent years as the growth of new jobs has been dominated by the service sector. Further, even within the manufacturing sector, there has been an expansion of non-production personnel in R&D, design, and marketing. This has been done in an attempt to more closely integrate producers and consumers with better, more accurate, and more rapid feedback systems to make products fit consumer needs and to tailor production for specific markets and submarkets. High value added service employment has paralleled the expansion of the low skilled service workforce.

Within large urban areas, where skilled, high cost headquarter activity has been located, there has now been a movement to shift office record processing to cheaper locations both in the U.S. and abroad. This has been made possible through advances in telecommunications.

Increasing production on demand augments just in time inventory supply systems. Telecommunications and sophisticated demand load management may produce something "akin" to a continuous supply stream.

Another major trend is the globalization of financial markets and the increasingly rapid movement of capital in response to slight changes in rates of return and investment opportunities. This will continue to make off-shore holding activities and tax havens important unless deregulation of these markets continues to decline. Financial deregulation will likely be used to continue to wipe out the advantage of off-shore tax havens.

Port Considerations

To use these perspectives in the context of Great Lake ports, we need to ask how these global trends impact two fundamentals of port development: (1) a port's hinterland, which is the regional economy that it services with imports and exports, and (2) its foreland, which is the sum of the markets that its regional economy services through the port, i.e., the external economies that generate the demand for products and goods that are exported through the port.

The Great Lakes region has had a strong traditional manufacturing economy with an important

agricultural subcomponent. In spite of a quarter century decline of manufacturing employment in relative terms, and a recent decline in absolute terms, employment volatility has been made more acute with the sharp fluctuation in currency valuation in the past decade. This has complicated the decline (1978-82) and rise (1983-88) of the national and regional economy.

The U.S. dollar appreciated 50% between 1979 and 1985, resulting in a shift in growth away from export industries and away from those domestic industries susceptible to foreign competition. Growth shifted to service industries and the service components of manufacturing industries (including R&D, design, etc.), as well as to production of intermediate goods for supply of existing U.S. manufacturing where locational and access advantage could be used against foreign suppliers.

The 1985 depreciation of U.S. currency back to 1979 levels resulted in a major expansion of tradable goods and a growth in exports, particularly high value added goods, but not a major increase in employment in these sectors. Competition in import vulnerable industries increased as U.S. producers "took on" foreign producers, first at home and then abroad. However, labor demand did not rise as rapidly or as far as expected (1985-88). Further, the 1979-85/85-88 change was accompanied by a continuing rise in industrial dependence of U.S. production on imports¹ (Table 1).

With the rise of foreign investment in the U.S., both as wholly owned subsidiaries and as joint ventures, this trend is likely to continue. Japan finds the Great Lakes region attractive, with 130 plants exceeded only by the Pacific region's 227 plants. However, estimated employment in both regions is expected to be similar (37,000 to 38,000). This has major implications for the flow and mix of goods into the Great Lakes region and could have an impact on port commodity mix. A major exception to the attractiveness of Japanese manufacturing investment in the Midwest seems to be Minnesota and Wisconsin.²

¹Little, J.S. 1989. Exchange rates and structural change in U.S. manufacturing employment. *New England Economic Review*, pp. 56-69.

²Chang, K. 1989. Japan's direct manufacturing investment in the U.S. *Professional Geographer* 41(3):314-327.

Table 1:
U.S. manufacturing dependence
on imported capital goods.

| | 1979 (%) | 1985 (%) | 1988 (%) |
|---|----------|----------|----------|
| Imports of consumer goods as a share of personal consumption expenditures (excluding auto) | 4 | 7 | 8 |
| Imports of capital goods as a share of private investment in producer durables equipment (including transport but excluding auto) | 10 | 25 | 34 |

Source: Survey of Current Business, August 1986 and August 1988.

The increased diversification of the port concept must be taken into account. The potential synergy and cross-subsidy (both financial and intellectual) of alternate transport and communication systems must be maximized. Rail and truck terminals, airports, and a general expansion of intermodalism must be accommodated, as well as communication, as reflected in the world teleport system. New York City is the North American leader, with Toronto, Detroit, Chicago, and Minneapolis as other centers. Communication is a fundamental element of the globalization of financial services. Since such services are of vital interest to producers and exporters, any port that helps to integrate this with their customers' marketing needs will be at the cutting edge for delivering vital services.

Another important trend for ports and port regions has been the rise of regional economies on the global scene. With deregulation, a significant part of the national space is at the periphery in international competition. World interaction, integration, and competition are being led by regional networks of innovative firms and organizations concentrated in certain areas. With GATT and global agreements creating some standardization of inputs from innovative R&D activity, new firm and product development is often more of a regional than a national consideration.

In the U.S., the two best known regions of innovation are Route 128 around Boston and Silicon Valley, California. However, emergent regions include



Austin, Texas, where multi-firm cooperation on microcomputer and silicon chip research is underway, and the so-called Golden Triangle near Raleigh-Durham, North Carolina. Two other high density, high tech regions in the U.S. are Orange County, south of Los Angeles, and Fairfax County, south of Washington, D.C.

In Europe, regions of innovation include the northeastern Italian region near Milan (sometimes called the Third Italy), the Lyon region in France, and the Baden-Wurtensburg region of southern Germany. Regional concentrations of these small, high tech, network link firms are less clearly defined in Asia, but Japan, Taiwan, and India all have such emergent regions. The operational implications mean that the port and exchange activities (imports and export linkages) of these regions may be, in value added terms, more essential than the national space we normally target for our port marketing activities. Further, these may be the rapidly growing suppliers and markets of the future.

Finally, environmental concerns are returning as not simply a local pollution control issue but as an issue with international dimensions. Ozone depletion and global warming have major implications for further industrialization and development in

the already industrialized world. Further, these global and international regional issues (i.e., acid rain) have implications for alternative development strategies in Third World economic expansion, particularly for China and India. This environmental sensitivity is now widely reflected in the U.S. and in environmental management activity in Taiwan. In Europe, it is a major political consideration, as reflected in the rise of the "green" movements. These concerns will favor more environmentally benign modes of transportation and efficient energy use, but will make coastal modification and expansion into wetlands more difficult.

Strategic Implications

Given these global issues and a few of the operational implications indicated above, a basic strategy for Great Lake port development in a changing world can be distilled.

Organizationally, the strategy implies an opening of port authorities and commissions to external influences, not simply in the general cooperative sense but in the business sense of joint venturing new firms: joint venturing import-export financing and market assessment for customers with regional bank and marketing firms. Also, establishing incubators for new and innovative organizations, and getting into expanded land development for business and residential activity. Given the rise of the services in the leisure and recreation industry, this should be tapped as part of port development but not necessarily to the exclusion of primary functions.

Ports often have special legislation that provides greater flexibility than local governments; ports therefore need to take the lead in regional development.

In summary, the two dominant strategic considerations are: (1) the special role of port authorities in leading regional development, and (2) the need for maximizing diversification of port authority activities in the widest possible range. Without the execution of these two strategies, the role of ports in the Great Lakes could easily be eclipsed by the global trends driving economic restructuring. ■

**J. Bruce McLeod, Vice President,
Western Region
The St. Lawrence Seaway Authority**

Globalization includes two realities: (1) products, including both natural resources and manufactured goods, can no longer dominate a given market without serious challenge from somewhere in the world, and (2) new trends are always in the making, and they rarely begin in our backyard.

We will have to develop a plan of action if we are to survive. One of my favorite examples of such a plan is the General Electric Company.

G.E. took stock of what its competitors were doing globally. It realized, even while it prospered, that it could not continue its strong dependence on traditional North American markets. It completely revamped its corporate structure, eliminated successful products if they were not world leaders, and closed branch plants. Only autonomous global product centers remained. G.E. now seeks global alliances.

While many of us are still arguing the pros and cons of free trade between the U.S. and Canada, G.E. is several years into its global action plan.

Effect of Globalization to Date

The grain market best illustrates the shifting, volatile world market: Western Europe changed from a customer importing more than 50 million metric tons, to a competitor exporting a similar amount. The Pacific Rim markets for grain have grown; Atlantic markets have not. The number of grain export customers served by the Seaway has grown, but volumes are much lower and are not guaranteed from one year to the next.

Overnight, it seemed, North America became unable to compete in raw steel production. Whereas Japan adjusted years ago by concentrating on specialized steel, many of us only complained and talked of quotas. This year, finally, we're exporting specialized steel. Specialized steel is another swing in global markets that we must respond to.

The effects of globalization are so serious that our cargo category of "other bulk" has displaced iron ore and coal to become number two on the Welland Canal. "Other bulk" is growing, and we had better appreciate that it represents changing markets, opportunities, and cargo/customer diversity.

Evidence of Globalization from Trade Missions

The following evidence, gathered on trade missions to Europe, forced us to learn how our customers view us from afar. I saw the embarrassment of the polite British, saying that they no longer import much of our grain. I saw a bulk dock in Rotterdam with piles of iron ore from over 10 countries, and our Labrador ore was somewhat insignificant. I also saw 30 Rhine barges lined up to offload a large bulk carrier. How can the European river and canal systems still be thriving and modernizing? Could it be they have a strong alliance with the industries they serve?

Globalization Forces an Attitude Change

In 1979, we complacently rode a wave of steady increases in traffic and cargoes; today, we fight to get our heads above a sea of fierce competition. In 1979, the customers came to us; now, we go to them. In 1979, bitching was accepted and we enjoyed fighting with each other; today, we must work together and develop a plan of action. (Our local bickering looks so silly when seen from Europe!)

"In 1979, we complacently rode a wave of steady increases in traffic and cargoes; today, we fight to get our heads above a sea of fierce competition."

In 1979, we held Seaway business information in great secrecy; today, we must share information for the common good. Then, we had secure customers and only local competition; now, we must understand our customers' international arena and help them compete to survive. Then, our industry

embraced the status quo; now, we must innovate, and recognize and manage world change.

Implications of Globalization for the Future

To more fully appreciate this global perspective, let's look at future implications that could form part of a plan to change: there would never be another Seaway-sized ship built in the Great Lakes; the shipping industry would act as partners with the railroads; each component of the Seaway would initially work with one customer to understand all of its global problems; the Seaway industry would drop weak services and concentrate on strong ones; and we would start a "Seaway school" for research and training in world markets.

Two attitude changes forced upon us are worth repeating. First, our customers must be the focus of our attention. We must work with our customers and learn about their needs. Second, we must work together as an industry, putting our parochial differences aside, sharing our experiences and business information. Together, we must fashion, as did G.E., a determined plan of action. ■

*Graham S. Toft, President
Indiana Economic Development Council, Inc.*

Changing Needs of Business

A number of factors related to business climate require attention. The changing needs of businesses in a global economy are a function of things like these:

- (1) Changes in markets: we no longer have mass markets, but markets that are segmented and international.
- (2) Changes in products: there is more stress on timeliness and innovation.
- (3) Changes in services to produce those products.
- (4) Changes in processes in order to respond to those products.

(5) Changes in business structure with mergers.

(6) Changes in the work force. The downsizing of the white collar workforce today is almost as significant as the downsizing of the blue collar workforce during the last recession. The U.S. workforce, like the population, is increasingly made up of minorities.

(7) Changes in the work place: with more women in the work place, for example, we may see more flextime and child care.

(8) Changes in lifestyle.

Effects on International Activity

Time is a strategic resource of the 1990s. We have done a good job in the physical transfer of goods. Now we have to minimize the time factor and maximize value added services.

Receivables financing is critical to small and mid-sized firms. Again, it is a time factor, because we have many small and mid-sized businesses that are going to be in the international market whether they like it or not.

The need for intermediaries, which is a standard business development concept, is new for ports. Over 250,000 small to mid-sized U.S. businesses could participate in international activity but don't because they don't have intermediaries taking care of receivables and other transactions.

The U.S. is complacent about international markets. While we were involved in other things, our competitors, Germany and Japan, were setting up structures to compete internationally.

The Changing Role of Ports

Historically, ports were "home" ports, anchors for city growth. There was so much "friction" around dock areas that insurance, legal, and other support services built up around them.

Today, we have moved into an era of "through" ports. Ports no longer need to be in cities. A through port moves goods through, using intermodalism, containerization, and automation.

Some ports are becoming "way" ports, offering opportunities in conjunction with stopovers, e.g., with foreign trade zones. Airports have taken particular advantage of this.

"Venture" ports are ports of the future that will help improve their customers' productive performance. We must look at the qualitative factors that go into productive performance: timeliness of service, quality, flexibility, speed of innovation, and command of strategic resources.

Port Authorities in a Global Marketplace

To function effectively in a global marketplace, ports must be many things, including:

Autonomous: incorporating flexibility, entrepreneurial style, and innovation within the authority or commission.

Business intermediaries: becoming brokers and traders in business services (as in the physical sense). Ports must explore becoming export trading companies, export management companies, and foreign sales corporations (FSCs). An ideal merger between a bank and port authority would be an FSC.

Financiers: providing or insuring receivables and other financing mechanisms, especially to small and mid-sized businesses.

Regional developers: moving away from a site-specific mentality toward viewing the entire region as a port.

Real estate developers: creating industrial and business parks, and incubators for small businesses.

Business brokers: taking positions in firms, arranging loans, and building equity. One model is a holding company that partially owns small, minority businesses.

It seems our regional economies are seriously disadvantaged because we don't have the market intelligence for firms working in these areas.

Port authorities have made great improvements in a physical sense. Now they must do it in a business development sense. There are tremendous opportunities to act as intermediaries. Ports could

become modern mercantilistic organizations that enhance regional economic development. ■

Discussion

Q: What will the Great Lakes cargo mix be in 20 to 30 years? Will grain be gone? Will there still be bulk commodities?

McLeod: Grain will not be gone, although some destinations will have changed. Steel will be a diminishing product. We will have more business, a different mix, and much greater product diversity.

Haynes: The amount of grain tonnage moving through the ports will probably stay level, but more of it will be processed grain, with more value added. This will have implications for how we operate.

Q: In your future scenario, ports are more like holding companies, involved in a variety of business enterprises. Can they do that as government agencies, or will we need privately held port corporations?

Toft: The port authority will be the lead agency, but partnerships will be formed. Export trading companies are best operated lean and mean, for profit. Port authorities could nurture this by providing incentives and facilities.

McLeod: My company is a crown corporation. It won't be sold to private interests. The expense of rehabilitating the infrastructure would not be attractive to private buyers.

Q: As we move toward venture ports, what are the implications for ports in terms of revenue and dependence on taxes?

Toft: Venture activities must be self-supporting in the long run. A new industrial park, even an incubator, needs to be self-supporting in five years. Until then, it will have to be supported by other resources.

Q: The larger ports are relying on traditional revenue sources, while the smaller ports are having to turn to recreation and tourism. Do you see this trend continuing?

Haynes: Yes, it's part of diversification. The larger ports can do these things, too, by spinning them off separately and using independent costing for associated support. If such an endeavor pays for

itself and generates revenue, then it is a positive component that helps broaden the port. The benefits of such diversity include cross-subsidy and synergism. ■

Panel 2: Economic Restructuring

Moderator: *Frank G. Martin, Jr.*

Panelists: *David Johnston*
David R. Allardice

*Frank G. Martin, Jr., Executive Director
Indiana Port Commission*

The talent we have in port administration on the Great Lakes is probably the best of any coastal range in the country. But in the area of political awareness—exciting Congress about port development, and developing a federal agenda in support of the Great Lakes port industry—we're running a distant fourth to our coastal brothers.

Since coming to Indiana, I've spoken at length to our congressional delegation, and found that I was one of the first port administrators to speak to them on port issues. Indiana has Representative John Meyers. Although he is the ranking Republican on the House Appropriations Committee in charge of water resources, he has had minimal dialogue with the Great Lakes industry.

The Great Lakes region has never had as much clout in Congress as today, with people like Senators Rostenkowski, Myers, Glenn, Durenburger, and Michael. If we don't get things started in the next session of Congress, much of what we're talking about today won't be accomplished. I hope to develop, with other port administrators, a hard-hitting federal agenda that spells out how we're going to, hopefully, resolve longstanding Great Lakes problems.

In Oregon, I worked with Governor Neal Goldschmidt, a former secretary of transportation

who knows ports and their importance to a state's economy. At a time of massive unemployment, Goldschmidt gave me one charge: diversify port operations. We received nearly total cooperation from Oregon's legislature and congressional delegation.

We, on the Great Lakes, must get away from traditional thinking about port development. Ports exist to create new opportunities and new employment. With a diversified development portfolio and a committed congressional delegation, we can realize the vision of the previous generation who created the concept of the Seaway and left its optimum development to us. ■

*David Johnston, Director
Traffic Safety Division
Indiana Department of Transportation*

During the 1970s and 1980s, much change occurred. The port industry did not keep up with and respond to the changing economic and political world. Planning, particularly strategic planning, was not used to assess and respond organizationally to these changes.

Historically, U.S. transportation has gone through three phases of restructuring.

First, the economic principle of technical substitution had a profound impact on our transportation network. Settlement of the Midwest relied on water transportation. As new technology was developed, railroads replaced water as the primary mode of transportation, followed by auto/truck technology and, later, aviation. Telecommunications may significantly affect the present system, with the

development of networks, teleports, and home-based computer link-ups.

Second, the global economy emerged. We found ourselves, as a nation, state, and port, changing from an export to an import economy. Along with this came new domestic and international economic centers. The traditional core centers are either maturing or declining. The port industry did not do an adequate job in responding to this change.

Third, deregulation of the transportation industry had many results. Prior to deregulation, transportation rates were public and were regulated at the federal level. Rail routes were fixed. Through deregulation, rail abandonments occurred to the point that we now have a transcontinental rail system in place with few feeder lines. Competition and rate negotiations have become important. The port industry must compete; to do that, it must go through institutional and cultural change. We have found this tough to do, and have often resisted it.

You are the pros. I, a novice, offer the following suggestions:

- (1) Do strategic planning. Analyze your port's external and internal environments, the organization's culture, your customers' needs, your strengths and weaknesses, and your opportunities and threats. Find your niche. Set goals and develop strategies to attain those goals.
- (2) Be responsive to outside forces that affect your organization. Do not insulate yourself.
- (3) Understand that ports are public organizations. Diplomatically walk the "fine line" between your public and private customers.
- (4) Become both an educator and leader in your community, and capitalize on your contribution. Educate against parochialism and show your economic leadership.
- (5) Build partnerships locally and statewide with the other modes of transportation and with the business community.
- (6) Capitalize on research. It shows that the key factors determining where industries lo-

cate are the labor pool, market, utilities, and transportation network. Balance your shipping role with your industrial development role.

(7) Get rid of the "captive" idea in marketing. Think primarily of through-put and system marketing. Design your facilities for intermodal access, so you can respond to changes.

(8) Get more involved in the public policy process; it has changed the port industry. Expect a lot from your trade organizations, like the American Association of Port Authorities and the International Association of Great Lake Ports. ■

*David R. Allardice, Vice President and
Assistant Director of Research
Federal Reserve Bank of Chicago*

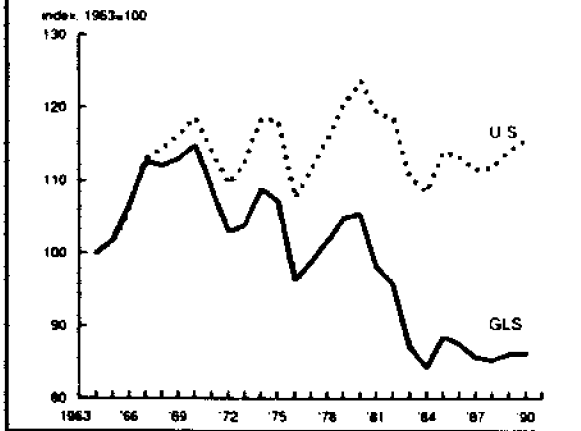
The changes taking place today are probably as far-reaching as any that have taken place since the Industrial Revolution. We need regional cooperation because events are shaping the region in a common way.

Employment and output in the eight Great Lakes states have lagged behind the nation. Manufacturing employment has declined and manufacturing output has been relatively stagnant. These things have been most true of the region's large industrial states.

"Employment and output in the eight Great Lakes states have lagged behind the nation. Manufacturing employment has declined and manufacturing output has been relatively stagnant."

Total Employment, 1963-89 — While U.S. employment increased 90% since 1963, Great Lakes employment increased only 47%. Within the Great Lakes region, the smaller states showed more growth: Minnesota 105%, Wisconsin 76%, and Indiana 63%. The larger states showed less growth:

Figure 1: Manufacturing employment increased 16% nationally from 1963 to 1989, while it decreased 18% in the Great Lakes region. (D.R. Allardice).



Michigan 59%, Ohio 51%, Illinois 42%, Pennsylvania 37%, and New York 31%.

Manufacturing Employment, 1963-89 — Manufacturing employment increased 16% nationally, but decreased 18% in the Great Lakes states (Figure 1). Manufacturing employment declined in the region's larger industrial states: New York down 34%, Pennsylvania down 25%, Illinois down 20%, Ohio down 10%, and Michigan down 4%. It increased in the region's smaller states: Minnesota up 64%, Wisconsin up 20%, and Indiana up 3%. (Note: percentages for smaller states work on a smaller base).

Total Output, 1963-86 — Total output did not show a dismal decline: output grew 98% nationally, compared to 62% in the Great Lakes. The smaller states grew more rapidly: Minnesota 112%, Wisconsin 94%, Indiana 61%. The larger industrial states showed little divergence: Michigan grew 63%, Ohio 59%, New York 58%, Illinois 55%, and Pennsylvania 54%.

Manufacturing Output, 1963-86 — Manufacturing output is more relevant to transportation than is total output. Since the mid-1970s, Great Lakes manufacturing output has been relatively stagnant. From 1963 to 1986, it rose 57%, compared to 104% for the nation as a whole. Today, Great Lakes manufacturing employment is way down. The region's manufacturing output, on the other hand, is growing, but at a pace that lags the national average (Figure 2).

Several structural changes are shaping economic trends that have regional impact. These are: (1) A geographic redistribution of industries as the population moves west and south, (2) a changing composition of industries from manufacturing to service, and (3) an increasing globalization of the economy.

Geographic redistribution has affected the region's share of total U.S. manufacturing employment and output.

Total Employment Shares from Manufacturing — The Great Lakes region's share of national manufacturing employment decreased 12 percentage points from 1963 to 1988, dropping from 47% to 35%. The greatest losses were in the larger states, especially New York.

Total Output Shares in Manufacturing — The Great Lakes dropped from producing 49% to 38% of all U.S. manufacturing output. Again, the larger states dropped the most.

Causes of Geographic Redistribution of Industries — The causes include: (1) factories moving south for cheap labor and land, (2) productivity differentials (this is a mixed bag, since recent numbers show that Midwestern productivity exceeds the national average), (3) geographic shifting of markets to the Sunbelt. The 1990 census will show that the Great Lakes region is losing population. This has severe implications. It will reduce congressional representation, and, ultimately, federal dollars.

Figure 2: Manufacturing output increased 104% nationally from 1963 to 1986, while it increased only 57% in the Great Lakes region. (D.R. Allardice).

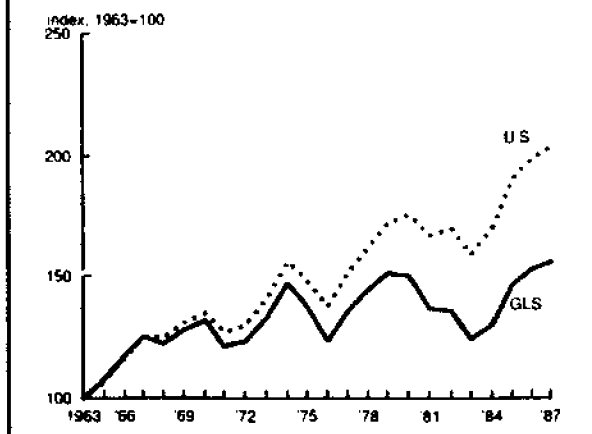
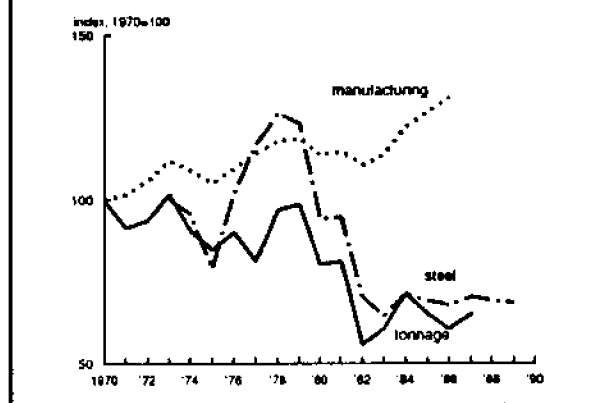


Figure 3: Great Lakes manufacturing has increased 31% since 1970, but tonnage shipped on the lakes has decreased 35%. Shipping is driven by basic manufacturing industries, like steel. (D.R. Allardice).



Changing Composition of Great Lakes Employment — Nationally, manufacturing accounted for 30% of employment in 1963, vs. 18% in 1988. In the Great Lakes, it accounted for 35% of employment in 1963, vs. 20% in 1988. We started higher and remain higher than the U.S. as a whole, but all the Great Lakes states are becoming less manufacturing oriented.

Changing Composition of Great Lakes Output — The U.S. is not de-industrializing. Manufacturing output shares remained fairly stable from 1963 through 1968. In 1986, manufacturing accounted

for 22% of output nationally, and 26% of output on the Great Lakes.

Several major developments will favor the Great Lakes region in the 1990s. These include: (1) a shift from a consumption-based economy to a production-based economy, (2) a shift from import to export dominance, (3) a resurgence in competitiveness, with an infrastructure to support a competitive, growing private sector, and (4) the changing role of transportation.

Personal Income — Dramatic shifts in personal income occurred with the deregulation of the trucking industry. From 1977 to 1987, personal income from trucking grew 36% nationwide, vs. only 10% in the Great Lakes region. Rail dropped 31% nationally, vs. 46% in the region. Waterborne commerce dropped 13% nationally, vs. 23% in the region.

Great Lakes Manufacturing and Shipping — Since 1970, Great Lakes manufacturing has increased 31%, while tonnage shipped has decreased 35% (Figure 3). Great Lakes shipping is driven by basic manufacturing industries, like steel.

Some improvement in steel will occur in the near-term future. Transportation will benefit, but steel will not return to its prior levels. Because of this, we need to start thinking about new alternatives. ■

Ballast Water Exotics: Impacts, Costs, and Solutions

Speakers: *Raymond M. Newman*
Joseph Leach
Margaret Dochoda

Raymond M. Newman, Assistant Professor
Department of Fisheries and Wildlife
University of Minnesota

Background

A number of exotic species are now present in the Great Lakes. In addition to well known problems associated with lamprey, alewife, and smelt, three new species were recently introduced in ballast water. This has already affected Great Lakes shipping policies and will increase maintenance and operating costs for Great Lakes shippers. ■

Great Lakes Exotic Species

The Great Lakes have had a history of introduced exotic species; some introductions were intentional, but many were accidental through human changes in drainage connections (e.g., canals) or through stocking in neighboring lakes. Unquestionably, the most problematic exotic has been the sea lamprey (*Petromyzon marinus*), which gained access to Lake

Erie and the upper Great Lakes with the completion of the Welland Canal.

Although overfishing was instrumental in the collapse of the lake trout and whitefish fisheries of the upper Great Lakes, the lamprey was also very important in the fish population's collapse, and it inhibited subsequent rehabilitation of lake trout populations. Currently, the U.S. and Canada are spending about \$8 million per year on lamprey control and an additional \$12 million per year on lake trout rehabilitation. We have probably spent (in 1989 dollars) more than \$0.5 billion over the past 35 years trying to remedy the effects of exotic fishes (lamprey, alewife, and smelt) on native fishes, in addition to the substantial economic loss caused by the decline of important commercial and sport fisheries.

Recently a new cause of inadvertent exotic introductions has come to light: ballast water. Ships from European and Asian ports can introduce exotic freshwater species that would normally be unable to cross saltwater barriers to reach the Great Lakes. Within the past 10 years, about half a dozen new exotics from other continents have invaded the Great Lakes. I will focus on two species, a zooplankter (*Bythotrephes cederstroemi*) and a fish (ruffe, *Gymnocephalus cernuus*). Dr. Leach will then describe the serious effects of the European zebra mussel.

Both *Bythotrephes* and the ruffe were introduced via ballast water on vessels arriving from Europe. *Bythotrephes* was first sighted in Lake Huron in 1984 and quickly spread to lakes Erie and Ontario. It is now found in all five Great Lakes. The ruffe was first sighted in the Duluth-Superior harbor of Lake Superior in 1987, although retrospective searches of preserved samples showed that it was present in 1986. So far, it has not spread beyond the Ashland, Wisconsin, area on western Lake Superior.

Both of these organisms possess long spines which may reduce their vulnerability to predation.

Bythotrephes is now seasonally common in all the Great Lakes, regularly fouling fishing lines. It has the potential to out-compete desirable native zooplankters. Although it is large, it seems to be readily consumed by larger fish. Work at the University of Michigan, however, suggests that the

spine may be a feeding deterrent for the zooplankton-dependent juvenile stages of desirable fishes such as trout and perch. The spine greatly increases handling time, may deter further feeding, and may cause stomach and intestinal problems for these fish. *Bythotrephes'* impact on desirable Great Lakes fishes has yet to be determined, but it may cause starvation or mortality among juveniles.

The ruffe is a small perch-like fish with exceptionally long dorsal spines. It is prolific and matures within a year, yet it rarely gets large enough (e.g., eight inches) to be a desirable sport or food fish. The population in the Duluth-Superior harbor has increased to between 300,000 and 500,000 fish. Several age groups are present and about half the current population was produced this year, indicating good reproductive success. In many European lakes, the ruffe is considered a pest. It has been implicated in whitefish declines there, owing to egg predation, and may out-compete perch for food.

The concern in the Duluth-Superior harbor is for the recently expanded walleye fishery. This fishery, which has developed in response to improved water quality, is worth almost \$1 million per year. A program of top-down or predator control has been initiated by stocking predators (e.g., walleye and

"Ships from European and Asian ports can introduce exotic freshwater species that would normally be unable to cross saltwater barriers . . . about half a dozen new exotics from other continents have invaded the Great Lakes."

northern pike) and by reducing bag limits and increasing size limits for desirable predators. The aim is to control ruffe by predation, but it is not yet known how the predators will respond to the spiny ruffe.

Even greater concern exists for Lake Erie's commercial perch fishery, worth \$20 to \$30 million per year, and its sport walleye fishery. The ruffe will probably make it to Lake Erie and should do well in that environment. Any negative effects on these recently rehabilitated fisheries could have a major economic impact. Control by methods other than predation will be costly and hard to implement.

These examples have most of their impact on the \$2 to \$4 billion sport and commercial fisheries of the Great Lakes and the general "ecosystem health" of the lakes. Once exotics are introduced, control is difficult and costly, and eradication is unlikely. In these examples, the costs are long term, but are spread among resource agencies, commercial fisheries, bait dealers, and the recreation industry. Other exotics, however, incur direct costs that will immediately affect industry, municipalities, ports, and shippers. The zebra mussel is such an animal. ■

*Joseph Leach, Research Scientist
Lake Erie Fisheries Station
Ontario Ministry of Natural Resources*

The Zebra Mussel

The zebra mussel (*Dreissena polymorpha*), a small bivalve mollusc native to Europe, has recently become established in the Great Lakes, probably from larvae discharged in ballast water. The mussel was first observed in Lake St. Clair in June 1988. They are now found in lakes St. Clair and Erie, and in the Detroit River.³ As the adults attach to any solid surface with the aid of adhesive threads, they can be easily transported upstream by boats or to inland lakes by wildlife.

The zebra mussel is a serious pest in Europe and is rapidly becoming one in North America. It colonizes intake cribs and pipes serving water treatment plants, power generating stations, and industries. In lakes Erie and St. Clair, the mussels have already restricted flows in water intake pipes. The costs to prevent infestations and remove encrustations are projected at many millions of dollars. Mechanical removal and chemical treatment (chlorination) of pipes are now being used. New intake designs are being considered, but the costs are considerable.

³Editor's note: zebra mussels were subsequently found in Lake Michigan's Green Bay.



Zebra mussels colonized a vehicle submerged in Lake St. Clair.

Windsor Star

Commercial shipping and recreational boating will be affected by additional fuel and clean-up costs.

The fishing industry may be substantially affected: encrusted commercial fishing gear in Lake Erie requires frequent lifting and cleaning, and hulls of fishing tugs require annual scraping.

In Lake Erie's western basin, the mussels have colonized some important walleye spawning reefs at densities up to 30,000 per square meter. Water clarity in western and central Lake Erie doubled in 1989 compared to recent years, probably due to the filtering activity of the zebra mussel. Clear water may seem like a good thing, but we are concerned with the long-term effect of shifting so many food particles from the water column to the lake bottom. If the walleye population is affected, the economic consequences could be substantial.

Fish, diving ducks, and crayfish are natural predators of the mussel, but predation is not expected to reduce abundance substantially. This pest will probably remain firmly established in the Great Lakes, and we will have to learn to live with it. ■

*Margaret Dochoda, Fishery Biologist
Great Lakes Fishery Commission*

Preventing Ballast Water Introductions

Ocean-going ships visiting the Great Lakes carry as much as 1.25 million gallons of ballast water when coming in without cargo. For the last 10 years, as many as 1,100 ocean-going vessels per season have entered the lakes. Almost all carried ballast water. As many as 600 per year carried water in place of cargo.

The Canadian Coast Guard, in consultation with other Great Lakes and environmental agencies, established voluntary guidelines that became effective in May 1989. Ships entering the Seaway are now asked to exchange their ballast water at depths greater than 2,000 meters, before they reach the continental shelf. The objective is to exchange coastal organisms for open-water organisms that are less likely to survive and

reproduce in the Great Lakes. Compared with chlorine disinfection, ballast water exchange is relatively safe and cost-effective.

We are concerned about compliance with these guidelines, because even a single ship can effect an introduction. Thus far, the shipping associations have been cooperative, and ships began exchanging ballast water even before the guidelines went into effect. When ocean-going ships were surveyed by the Seaway Authority in May and June of 1989, 65% and 89%, respectively, were within the guidelines. While 100% compliance is necessary, we were encouraged.

Michigan Representatives Bob Davis and Dennis Hertel have introduced a bill requiring the Coast Guard, in consultation with other agencies, to report to Congress within six months on options for controlling the influx of exotic organisms into the Great Lakes via ballast water. This bill could produce an excellent opportunity to review concerns about compliance. ■

Panel 3: Leadership and Development

Moderator: *John Loftus*

Speakers: *Edward H. Bowles
Michael J. Donahue
Patrick Jones
John Loftus for Donna Taylor*

*John Loftus, Seaport Director
Toledo-Lucas County Port Authority*

In talking about leadership and development, this panel will discuss waterfront and port development on the Great Lakes, and will also provide a national perspective. Leadership is not limited to the traditional roles of port authorities or governmental agencies. It includes the changing face of leadership needed to develop waterfronts, and to accomplish the planning that is necessary for successful waterfront development. ■

*Edward H. Bowles, Director of Area Development
Northern Indiana Public Service Company*

Overview

Here in northwest Indiana we've shifted from a totally inclusive economy, where our destiny was pretty much in our own grasp, to one facing the pressures of an international market. We want access to that globalized market.

Globalization has had a severe impact on us. In this three-county area, 35,000 steelworkers who were gainfully employed less than three years ago suddenly found themselves walking the streets. We laid them off a thousand at a time. And, when we thought we had caught up with the changing marketplace and were again able to control our destiny, we had to lay off another thousand workers.

We're a much stronger industry for having gone through those years, however. Losing markets and

plants in the Midwest has forced us to determine how we can become a player on the international scene.

Today, we are beginning to participate in the mergers, joint ventures, and buy-outs that are changing the outlook of the business community.

"Globalization has had a severe impact on us. In this three-county area, 35,000 steelworkers who were gainfully employed less than three years ago suddenly found themselves walking the streets."

Consider the major rolling mill being built near here. I/N Tek, the result of a joint effort of Inland Steel and Nippon Steel, produces tempered steel in 12 hours instead of 12 days. Powder Tek is the result of a merger of eight different corporations that started in Japan, came through the West Coast, and bought out Triton Powders in Indiana. These powders are used by the Xerox Corporation in the transfer of images.

The reentry into international trade by U.S. steel companies has given us an incentive to look for other markets. We now have firms locating here to act as subcontractors to the major heavy industries. They are also looking for other markets, many of them international.

Local Efforts

How do we capitalize on the potential of Burns Harbor? A leadership cadre is being developed to promote the region. A World Trade Council, formed with the support of port staff and a local university, is finishing a survey of our export and import capabilities. We're also developing an inventory of firms interested in using our port to supply international companies.

The Northwest Indiana Forum conducts an ongoing program of visitation with international banks in Chicago. This area used to be automatically overlooked, but in the last two years at least 15 Japanese firms have looked at our area. The Japanese and Europeans have discovered direct access to the heartland of America through the inter-

national port system, here in the Midwest. The Indiana Department of Commerce conducts educational and trade missions and has several overseas offices. The latest major improvement is the introduction of a new foreign trade zone at Burns International Harbor.

Challenges and Solutions

Customers and businesses all over the world are demanding both high quality and reasonable prices. Market share is going to the producer who can bring new technology from the laboratory to the marketplace the fastest.

It's now difficult to find employees who are smarter than the manufacturing robots they're supposed to be supervising. The country is running out of workers able to do the jobs that the 1990s will require. The "skills gap" could hobble our ability to compete with Japan and Europe. The creation and retention of a quality workforce must be important agenda items if we are to compete internationally.

The "coming-on-strong" campaign launched by the steel companies in northwest Indiana is building a broad awareness in our citizenry of steel's importance to the state's economy. Farming communities are beginning to understand the steel industry's value to the entire state. Steel companies are also going into the schools, to ensure that there will be quality workers ready to replace a retiring workforce.

My own company is involved in an adult literacy program in the Gary school system. We take functionally illiterate adults, who've gone as far as their skills can carry them and are either unemployed or laid off, and bring them up to a trainable level. It's been very successful. The first class of 50 graduated this spring. The next class has more than 200 enrolled.

The Indiana Economic Education Council, headed by Purdue University, is teaching fourth and fifth graders about international trade: what it takes to sell a product, and what a profit is all about. These programs are getting strong support from the local business community.

Leadership and development are issues we all face. Northwest Indiana is a late starter in the

process. We're determined to not let this opportunity slip away. Like our steel industry friends, we're coming on strong. ■

*Michael J. Donahue, Executive Director
Great Lakes Commission*

The question is not whether leadership and development potential exists within the Great Lakes maritime community, but how best to nurture, harness, and direct it for the region's benefit.

The Great Lakes community has a proud legacy of regional cooperation on maritime issues, dating from the U.S./Canada navigation treaties of the early to mid-1800s, to the formation of the International Joint Commission in 1909, and to the more recent formation of the Great Lakes Commission, Great Lakes Task Force, and International Association of Great Lakes Ports.

The Great Lakes Commission is the oldest interstate organization in this region and is the only one created by state and federal legislation. It has thrived because its member states recognize the benefits of regional unity. They realize that transcending the parochialism of individual jurisdictions and interests can be a win-win scenario.

Past Commission involvement in Great Lakes maritime issues includes the following:

- In 1970, the Commission successfully lobbied Congress for Merchant Marine Act amendments that officially designated the Great Lakes as a seacoast. This designation has been a foundation for lobbying efforts focusing on equitable treatment for the lakes.
- This legislation also eliminated the interest repayment requirement for the St. Lawrence Seaway, and provided the basis for the Great Lakes states to participate in the federal Coastal Zone Management Program.
- In 1982, member states turned to the Commission to assist in the lobbying effort to forgive the Seaway construction debt.

- The Commission has testified before the Canadian Parliament regarding Canadian Coast Guard user fee legislation.

Key priorities for which the Great Lakes states will use the Great Lakes Commission's leadership include:

(1) Great Lakes Steel Policy - A year's worth of diligent debate resulted in a Great Lakes steel policy statement that was unanimously approved by our member states in 1989.

(2) Financing for a second large lock at Sault Ste. Marie, Michigan - In late 1988, at the request of its member states, the Commission agreed to explore financing options to provide an equitable and politically feasible funding strategy. That study will soon be released.

(3) U.S. Coast Guard funding in the Great Lakes region - In early 1990, the Commission will take a concerted look at the status of Coast Guard services in the Great Lakes region and the funding levels required to maintain an adequate level of services, including search and rescue, ice breaking capability, spill prevention and response, and others. An advocacy strategy will be developed and pursued.

Much progress has been made in the area of regional leadership, but much remains to be accomplished. Various maritime interests coalesce around issues from time to time, but there are opportunities to formalize this. We could borrow an idea from the environmental community: a number of state, federal, and regional organizations, including the Great Lakes Commission, meet for quarterly "mini-summits" to share ideas, agree to joint action on some issues, and agree to disagree on others. This mini-summit approach might provide a model for the Great Lakes maritime community.

The maritime community should strengthen ties, where possible, with resource management and environmental interests. Non-point pollution from upland agricultural runoff would be a good area for a partnership approach, because ports spend millions of dollars annually dredging these transported sediments from shipping channels and harbors. Another partnership could address the invasion of exotic species like the zebra mussel,



which has implications for the maritime community.

We should avoid the tendency to "think small" when we plan for the future of the Great Lakes-St. Lawrence transportation system. Historically, we have tended to focus more on what **can** be done politically than what **should** be done for the good of the system. If our goals are modest, our success will be modest as well.

Finally, the increasing national and international profile of the Great Lakes region and its transportation system is a very positive development. I attribute it, in part, to the region's growing expertise and presence in Washington. ■

*Patrick Jones, Vice President,
Government Relations
American Association of Port Authorities*

Over the past 18 months, we have seen an unprecedented 40% turnover in U.S. port directors, and 46% of these changes could be classified as involuntary. New port directors are now in ample supply.

In terms of leadership and development in the port industry, it is important to know who these

new directors are, become aware of the skills and experiences being sought, and understand the changing climate in which port directors now function.

Today's port directors must perform in a tough environment. Major economic adjustments continue under deregulation. Changing technology makes a guessing game of future shore-side facility development. Port development and operations are increasingly scrutinized for environmental and economic impacts. This has led to increased public visibility and political pressure. Yet, a port's destiny is to a significant extent beyond the port manager's control, with routing decisions more in the hands of vessel owners.

In my recent informal survey of U.S. port directors, the attribute most coveted for job longevity was "luck."

Some years ago, the late Harry Brockel, former AAPA President and Director of the Port of Milwaukee, suggested that the ideal port administrator should have degrees in economics, law, civil and mechanical engineering, a CPA certificate, a course in traffic management, 10 years each with a steamship line and a railroad, and a few years in some governmental post. The ideal person would be proficient in business analysis, personnel, public relations, and public speaking. When finally ready to run a port, he said, the ideal port administrator would be 100 years old — too old to get hired.

"In my recent informal survey of U.S. port directors, the attribute most coveted for job longevity was 'luck.'"

Port authorities grew at the turn of the century out of two inconsistent themes: a belief in participatory democracy and a distrust of politicians. The tension between a port's responsiveness to its public and its insulation from politicians is dynamic, not static. At many U.S. ports, public accountability is now at a zenith, and political autonomy is weak.

While the primary purpose of a local port authority is still to finance, develop, and operate or lease a cargo-handling infrastructure, we are now seeing a growing focus on ports as agencies for economic development and job creation. It is becoming more common to see the development of commercial real estate at piers where port facilities once thrived. The danger is that the port's board may succumb to the view that commercial real estate is a panacea for a stagnant local economy, when the port is not necessarily stagnant. Such commercial developments eliminate marine cargo operations forever.

When port agencies sponsor projects in response to local economic needs or political pressures, we see such activities as shipyards, recreational boat and fishing harbors, parks, public markets, and even commuter rail and ferry boat services. As many of these noncargo activities are noncompensatory, they tend to dilute the port's ability to develop marine facilities.

If you look at a successful, vibrant port you'll also find critics who point to the resulting increases in pollution and traffic congestion. This is a "catch-22" situation for the port director, with the only partial solution being a good, proactive public relations effort.

Federal regulation, especially on the environmental side, has increased the cost of port development or stopped it outright. Development costs also have increased because the federal government has turned over to the ports much of the cost of federal channel construction. At the same time, it has become more difficult to secure public subsidy.

The expectations placed on our ports are growing in terms of their contribution to local and regional economic activity and job creation, and their competition with rival port cities. As difficult as it is to meet these growing expectations, the most imposing hurdle is the public's lack of awareness of ports and what they do.

Comparing today's port director with one from five years ago, we see that the port director of five years ago is, by and large, gone. Five years ago, the average tenure of a port director was 7.2 years;

today, it's 4.5 years. The average age at appointment remains the same (44 years), but their background has changed. Today, fewer have prior port experience, although the number with experience in transportation remains stable. Fewer now have a military background. The percent with a college background is about the same, but the number who have done graduate work has risen.

Turnover on port authority governing boards is even higher than for port directors: 25% of board members have served less than two years, and 75% have served less than seven years.

A profile of the 28 new U.S. port directors reveals an emphasis on administrative skills, with a focus on public relations, government relations, and marketing. Several also have a strong planning orientation.

Discussions with port directors and commissioners about the ideal port director reveal a distinct change in emphasis. Emerging is a man or woman who has business acumen, possesses strong public relations skills, communicates well, understands the need to be responsive to public constituents as well as to customers, knows all facets of the port business, and is just as comfortable on the docks as in the corporate boardroom or the governor's office. ■

*John Loftus for Donna Taylor, President
International Association of Great Lakes Ports*

Unfortunately, due to an illness, Donna Taylor, who is the President of the International Association of Great Lakes Ports (IAGLP), was not able to be with us to discuss the IAGLP's operations and agenda. I will try to summarize the remarks she related to me.

The International Association of Great Lakes Ports is a bi-national association of 20 U.S. and Canadian ports. It focuses on the common interests of these ports and the needs of the Great Lakes/St. Lawrence Seaway maritime industry.

The IAGLP has been around for more than 30 years, and it has operated in a variety of capacities.

During the last five years, the IAGLP has tried to take on a new role and provide greater leadership when it comes to representing the Great Lakes maritime interests in both Washington and Ottawa. A few specific issues coalesced the group and forced it to undertake this very important role.

The first item came up in the early 1980s when the U.S. Congress began debating the imposition of a national deep-draft port user fee. The association came together as a group and worked with legislators to tailor a provision within this user fee proposal to eliminate, or at least establish a mechanism for eliminating, tolls on the Great Lakes.

By understanding the importance of a unified front and working with its Washington representatives, the IAGLP (at least on the U.S. side) understood how effective this group actually could be. With the passage of the 1986 Water Resources Bill, the association achieved one of its goals, the elimination of U.S. Seaway tolls.

The second issue that brought the group together was the change in cargo preference laws, which affect the movement of agricultural aid cargoes destined for many Third World nations. Congress was increasing the percentage of cargo that had to move on U.S. flag vessels, which do not provide regular service to the Great Lakes.

By raising the percentage that had to move on U.S. flag vessels from 50% to 75%, Congress was effectively eliminating the opportunity for the Great Lakes to compete for such cargoes. The IAGLP saw this as having a tremendous impact on the livelihood of western Great Lakes ports, and having broad repercussions because it would discourage vessels from entering the Great Lakes/St. Lawrence Seaway system. While the association wasn't necessarily successful in completely protecting itself, it pointed out the need for some sort of Washington representation to protect the interests of the Great Lakes maritime industry.

A third situation occurred on the Canadian side of the lakes with the introduction of Bill C75, and in particular Clause 4 of that legislation. C75 was an overhaul of transportation practices in Canada, with Clause 4 including a cost recovery formula

that was viewed as extremely detrimental to the Great Lakes. As a result, the association became more aware that the passage of legislation in either Washington or Ottawa could, in effect, shut down our entire industry. Consequently, a concerted effort was made on the part of the Great Lakes ports, especially our Canadian members, to eliminate or modify Clause 4 in C75. Fortunately, with the help of the East Coast members of Parliament, we were able to have Clause 4 stricken from the legislation.

I used these three examples to point out the issues that really coalesced the IAGLP into a unified group and directed our efforts to those areas (Ottawa and Washington) that have a tremendous and often negative impact on the operation of our Great Lakes maritime industry. As we proceed as an association, we have to understand that our competitors are not necessarily the other Great Lakes ports, but the ocean ports and their maritime interests.

We must meet competition from these other interests by protecting ourselves in our capitols, whether it be Ottawa or Washington, as well as remaining cost competitive. It is the second point—remaining competitive—that forces the IAGLP to continue looking at ways to keep our costs down and get involved in issues like Seaway tolls, pilotage, and port cost containment.

We must keep interacting with our governments and remain cost-effective if we are to exist into the next century. ■

Discussion

Q: Why have the U.S. ports been reticent about employing their anti-trust immunity?

Jones: The anti-trust immunity varies from range to range. Some West Coast groups use it actively. Here, historically competitive relationships and personalities prevent greater use.

Loftus: It is exercised more often than people realize, but it is done informally because we are a fairly small group.

Jones: One reason that ports have anti-trust immunity is that the carriers have the conference system and can set rates. Because of "independent action," however, conference rates don't hold up when shippers balk at prices. It is hard to keep rates up when customers are getting scarcer, there is excess capacity, and the public wants those terminals full. That's why the port industry is so intensely competitive.

Q: Given the weak link between ports and urban environments, and the trend toward lower tax sub-

sidies, what do you anticipate for port developments in the future?

Jones: With the changing technology, port operations have fewer direct job benefits and less economic impact. It is therefore getting tougher to justify capital investment in new terminal facilities, especially if those facilities have marginal job benefits. ■

Panel 4: Cargo Trends and Patterns

Moderator: *J. Bruce McLeod*

Speakers: *James L. Emery*
Douglas L. Lloyd
Eric Reinelt

*J. Bruce McLeod, Vice President, Western Region
St. Lawrence Seaway Authority*

Anticipating cargo trends and patterns is a critical topic to which all previous speakers have made reference in one way or another. I was asked what the Seaway cargo scene would look like 20 years from now. Having broken my crystal ball, I am going to turn to our panelists. Each one has a unique perspective to offer. ■

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

The Great Lakes are coming together whenever Minnesota sponsors anything in Indiana.

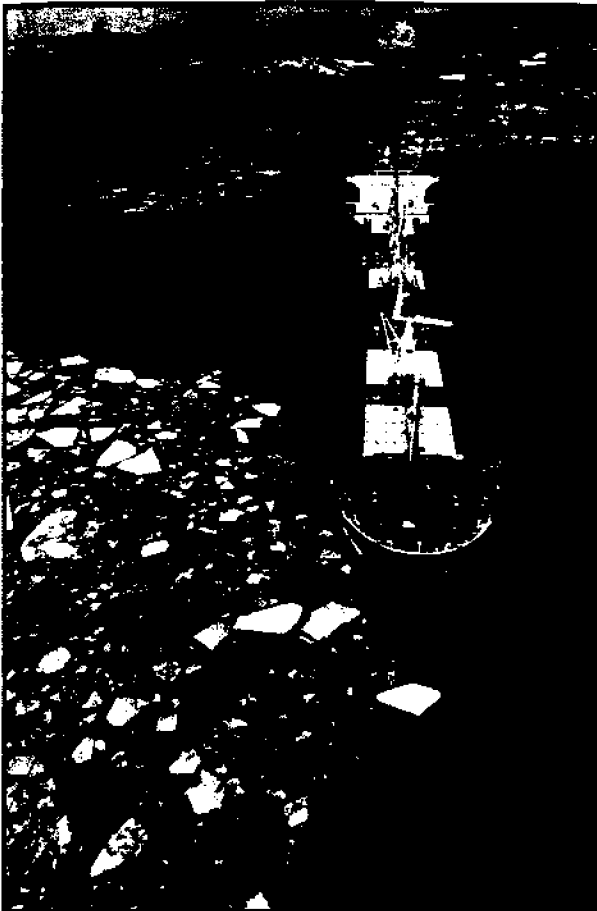
We are working together as a united system. The potential is all around us and it's making itself felt

on the bottom line. Seaway U.S. export grain is up 15%, on top of 1988's gain of 8% and 1987's gain of 9%. The long-term potential for export grain looks great due to shortages in the Soviet Union and rapid growth in world population, which will increase from five billion people today to six billion by the year 2000.

The steel industry's rebound has increased the demand for iron ore. Iron ore through the Seaway is up 20%, on top of 1988's gain of 13% and 1987's gain of 19%. The Seaway's traditional slogan of "Steel in...grain out" might have to be changed to "Steel in...steel out," because U.S. steel exports are robust. Last year, we sent out 200,000 tons, 800% more than 1987. We've already doubled our steel exports, and we're looking to double them again by the end of 1989.

We have completed five annual Seaway Trade Missions. We went to 22 trade centers in Europe and North Africa. We have found that a combination of repeat engagements and first-time visits is most effective. That's why, in 1990, we are planning return stops in Rotterdam, Hamburg, and Bremen, along with first-time stops in Vienna, Leningrad, and Moscow.

We just completed our 1989 Seaway Listen-Ins at 11 ports, from one end of the system to the other. We will use the feedback to update our 1984 Seaway Action Plan.



In response to requests, we are promoting system-wide electronic data interchange by initiating a Seaway Automated Information Service. We're hiring a consultant to design a demonstration project that we hope to start next year. We need interested Seaway users to take an active role in developing the service. The Seaway Corporation has served as the catalyst to get this project off the ground. It will be up to the users to fine-tune it.

Another potential area for Seaway success is in year-round service. We are hiring an expert to assess the feasibility of establishing an East Coast, alternative port for winter so our customers can ship all year. A carrier that calls on Great Lakes ports during the Seaway season would call on an ocean port during the winter. Shippers would pay a blended rate—a Great Lakes port rate plus a land-to-ocean port rate—that would be much more competitive than other year-round rates.

Drewry Shipping Consultants predicts a trend toward smaller, more efficient ships in the bulk trade over the next few years. The Seaway system is ideally suited for smaller, more efficient ships, and is looking forward to capturing this business.

We're keeping an eye on 1992, when the European Economic Community will form one market of 320 million people. The Seaway wants to be there, because Europe is our major trading partner.

We can't overemphasize protecting the environment. Shortly after the Alaskan oil spill, we updated the Seaway's emergency plans for oil and hazardous substances spills. One month after we unveiled our new Emergency Response Plan, we had a chemical spill. It was cleaned up within hours, and shipping never skipped a beat.

As an offshoot, we are developing a computer model of the entire U.S. section of the St. Lawrence River. The model will pinpoint river current and wind conditions that would influence a spill's flow, and tell us how long it would take a spill at point A to reach point B. We will be the world's first waterway with this capability. Transportation Secretary Samuel Skinner said our plan "could serve as a model for inland waterways nationwide."

As part of our contribution, the Seaway system must trim its transportation costs. Transportation accounts for 25% of world trade costs. Seaway

"We have to become entrepreneurs, finding new ways to make old ways work better."

costs, while much lower than that, can be cut even more. Already, we have lowered our rates on lumber and eliminated tolls on government aid cargo. What we lose in profit today, we'll more than make up in volume tomorrow.

We have to become entrepreneurs, finding new ways to make old ways work better. The outlook is bright. The lakes folks are proven survivors. ■

*Douglas L. Lloyd, Maritime Development
Representative, Great Lakes Region
Maritime Administration
U.S. Department of Transportation*

The Seaway and Great Lakes trades show signs of healthy increases related to our rebounding, integrated steel industry. International trade between the U.S. and Canada is expected to offer new cargo opportunities due to the recently signed U.S.-Canada trade agreement. Overseas trade is showing an increase in exports of U.S. coal, grain, and steel products.

Seaway cargoes are primarily Canadian domestic and U.S./Canadian tonnage. Of the total 40.5 million metric tons handled in 1988, the primary cargo was export grain: 10.1 million metric tons from Canada and 5.5 million metric tons from the U.S. Canadian iron ore was second, with 10.8 million tons moving to Canadian and U.S. mills. Petcoke accounted for 1.5 million tons, followed by salt. Other commodities, in decreasing tonnage, were: fuel oil, chemicals, scrap iron and steel, and coal.

Seaway overseas trade accounts for about 8% (1.1 million tons) of the cargo handled by U.S. ports each year. Most tramp ocean vessels carry an average of about 15,000 to 17,000 deadweight tons at the controlling 26-foot Seaway draft.

Cross-Lake Trade

Trade between U.S. and Canadian ports is made up almost entirely of dry bulk commodities carried by Canadian lake vessels built to Seaway dimensions. Most of these lakers are restricted by design to operate within the system. U.S.-Canadian cargoes account for about 35% of the total U.S. Great Lakes port activity. U.S. coal shipped to Canadian power plants amounts to over half of the tonnage exported from U.S. Great Lakes ports. Canadian iron ore, salt, stone, and potash make up major portions of the tonnage imported from Canada.

U.S. Domestic Trade

Cargo moved between U.S. ports accounted for 65% of the total U.S. Great Lakes cargo handled.

Year-Round Operations

It is little known beyond the Great Lakes, but year-round ferry and tanker operation is taking place on lakes Michigan, Erie, and Huron.

Current Cargo Trends

The Canadian fleet operation in 1989 has been distinctly competitive in U.S. Great Lakes ports, attracting U.S. grain exports for transshipment through St. Lawrence elevators.

Unusual "split cargoes" (e.g., ore/coal) are being loaded at the head of the lakes aboard U.S. flag self-unloaders in the domestic trade. Several marketing studies are exploring new Great Lakes port cargoes, including forestry products, chemicals, potash, cement, fertilizer, coke, building materials (granite), briquettes, pig iron, scrap metal, slabs, ingots, and tin plate. Other commodities having significant potential for Great Lakes ports include grain processing by-products, sugar, peas, beans, and lentils.

The laker trades have shown signs of steady upward growth over the past two years. A prime reason for this growth has been improved export sales due to the U.S. dollar's decline and improved international relations. Since the major share of the region's maritime economy is tied to heavy industry, improvements in the international economy and in trade policies have produced significant gains for domestic business.

New Trends

Domestically, we expect to see fewer fleet operators and an effort to consolidate management and resources. There is a need to examine what the fleet's new vessel requirement will be in five to 10 years, particularly for the small, river-sized self-unloaders. Perhaps more tug/barge units will be built for the sake of economy.

In cross-lake trade, we anticipate increased use of foreign built, chartered vessels operated by Canadian companies, such as the Sun Oil tanker *Kiisla*, which is already operating year-round on the upper lakes.

Overseas, we foresee the Canadian fleets providing strong competition to the "salties," particularly for outbound cargoes such as grain, coal, and petcoke.

In the lakes-to-rivers trade, we expect to see increased tonnage moving on the Illinois Waterway, promoted by the Lake Michigan ports of Burns Harbor and Chicago. The transshipment between vessel and barge could further encourage trade between Canada and customers in the Gulf Coast area. ■

*Eric Reinelt, Economic Development Specialist
Port of Milwaukee*

Unlike some fairly well insulated ocean ports, the Great Lakes ports are inexorably tied to the regional economy.

In examining Great Lakes trends, two facts emerge: (1) the Great Lakes is a mature market, not given to massive breakthroughs, and (2) the Great Lakes market is actually three separate markets—the eastern lakes, the central lakes, and the western lakes—with different driving forces, different product lines, and, most important, different competitive factors.

Potential for the Great Lakes ports will follow four trends: (1) an increase in domestic business, (2) a movement toward capital-intensive rather than labor-intensive cargo streams, (3) an increase in multimodal operations, and (4) a shift to more generalized transportation and distribution functions.

Domestic and International Business

Our ports need to plan for and pursue more domestic business. Domestic and interlake business has dominated the Great Lakes' cargo flow, and nothing is on the horizon to change that.

International business on the Great Lakes will remain flat until the governments of Canada and the U.S. do something about system costs and season extension. Great Lakes international business will continue to languish as a result of the per-

verse subsidies and regulations of both governments, like the Canadian grain transportation subsidies and U.S. cargo preference requirements.

Domestic business will remain strong or increase because of budding problems in the U.S. and Canadian highway and rail infrastructure. The U.S. government recently estimated that it will cost \$500 to \$600 billion to rebuild the interstate highway system. States have also shorted infrastructure rebuilding programs. Many railroads are now highly leveraged, probably putting the squeeze on roadbed rebuilding and equipment replacement.

When the highway lobby goes to the federal government to get its \$500 to \$600 billion, we should be there to get funds for a modernized, enlarged Seaway. In any case, the resulting increases in highway user fees and rail freight rates should benefit domestic waterborne commerce.

Capital Intensity

Cargo streams on the Great Lakes will increasingly become capital-intensive, with the development of dry bulk, liquids, inter- and intralake containers, and roll on-roll off operations.

"Unlike some fairly well insulated ocean ports, the Great Lakes ports are inexorably tied to the regional economy."

The aging baby-boom generation will provide fewer young workers to fill longshore positions. Lower unemployment rates and the seasonal and often unpredictable nature of dock work will make it more difficult to attract people to longshore activities. We will have to compensate for this loss of talent with increases in technology and efficiency.

Stating that ports and shipowners will be developing more capital-intensive operations does *not* mean that human resources will be shorted. Quite the opposite. Future cargo streams and overall operations enhancement will require major investments in human resources.

Multimodal Operations/Distributive Functions

The final two trends we will see in ports are shifts toward multimodal operations and whole-scale transportative and distributive functions.

Several years ago, an Antwerp study concluded that shippers and receivers choose a port for its multiplicity of transport modes and lines, not for its infrastructure. Today, a port is only as strong as its supporting inland and waterborne connections. Nevertheless, ports themselves will remain important because consumers of transportation services increasingly value a balanced, multimodal transport menu to ensure competitive rate structures. Only in ports can this unique structure be maintained.

Far from fearing deregulation or other modes of carriage, ports should welcome them and use them to advantage. Every port has room for cargo flows dominated by rail and truck as well as water. Ports need to be transportation and distribution centers in their own right, not simply temporary transit points.

Rail and truck carriers need to and will become active port partners, and will learn that ports can generate business for them. The reverse is also true.

We need to rely on domestic business, move toward technology and capital, and become more distributive and multimodal. As we do this, we must beware of subsidies, which pervert natural market tendencies and flows. They don't work long, and they harm a good port more than they help it. ■

Discussion

Q: In the 1970s, we shipped a lot of logs. Are they now being packed into containers? Are they still going by ship?

Lloyd: The logs have insects in the bark, and fumigation is easier when the logs are in containers. Containers also have an advantage in inventory control: 20 containers can be accommodated more economically than a whole shipload of logs, which ties up a lot of wharf space.

Reinelt: In Milwaukee, a new industry has grown up around logs. Stevedores who used to load logs into ships now load them into containers to go by rail to Montreal. We had to get involved in intermodal operations, because ships stopped coming in for logs.

Q: We used to have balanced loads: grain going one way and iron the other. What is being done to balance container loads?

Lloyd: The St. Lawrence Seaway Corporation's Nightcasing System helps inbound ships find outbound employment. Unfortunately, however, these ships need 17,000 tons of traditional commodities for a profitable voyage. It's tough for one port to tie up that much real estate.

Q: What is the economic impact of intermodal vs. lake shipping in Milwaukee?

Reinelt: Port employment accounts for about 1,400 jobs. It generates about \$50 million in sales and another \$5 million in tax revenue. Maybe 10% of that comes from intermodal operations. If you include the local associated trucking industry, intermodal probably accounts for as much as 20%. This is significant, and it keeps people working when ships aren't around.

Q: If a system were set up with an East Coast port, why would they give up the cargo for nine months of the year?

Emery: First, it is cheaper to ship from the lakes for things like heavy lift cargoes, iron, steel, and grain. The East Coast rate for three months, blended with the lakes' nine month rate, will give a lower cost per ton than going 12 months off the East Coast. Second, the ports would have to enter into non-competition agreements.

Reinelt: Two years ago, when a small container service between Milwaukee and Antwerp wanted to run all year, we looked for an East Coast port to use in winter, and did all the cost studies. Those ports are afraid of us taking their business for nine months of the year. They know we're competitive, and they fear what we could do if we ever got everything together.

Q: How close are we to year-round navigation?

Emery: It's a long way off. It is opposed by every Great Lakes governor and by Congress. We could

not do it, even if we wanted to, with such opposition. We cannot even request an additional two

weeks until the Welland Canal work is done, and that will take several more years. ■

Panel 5: Strategies for the Future

Moderator: Roger R. Stough

Panelists: William J. Brah
Robert F. Goodwin
James H. Hartung
James E. Hill

*Roger R. Stough, Associate Director
Regional Economic Development Institute
Indiana University*

The changing geographic, sectoral, and structural reality of the world economy has resulted in a tremendous expansion in the flow of raw materials, parts, goods, services, and information between North America, Western Europe, and the Pacific Rim. The transportation and communication hinge-points of this system are located at the ocean termini of the North American land bridge, which may further reduce the role of Great Lakes ports.

Partly because of the impact of recent regional and global industrial and economic restructuring, some Great Lakes ports have expanded their missions to include non-traditional functions. These include: regional economic development, telecommunications, regional planning, real estate (e.g., non-traditional waterfront development), and transportation unrelated to water (e.g., airports). By broadening their base of activity, some ports have grown despite the Seaway's current constraints on seasonality, channel width, and depth.

The future of Great Lakes ports will depend on how well they adapt traditional port functions to changing conditions and diversify their missions and portfolios. However, individual port creativity will be significantly constrained unless the ports are collectively able to reconfigure the role of the

Seaway in an era when the ocean coasts control the North American land bridge. ■

*William J. Brah, President
The Center for the Great Lakes*

Our objective is to learn to thrive in a changing economy by viewing it as an opportunity, an advantage.

In 1980, 70% of the goods we produced were in active competition with foreign products, compared to only 20% in 1960. In this context, our advantage lies in sophisticated new products and services that depend on advanced technologies, skilled workers, and a flexible production system. Such products are more secure against low-wage competition. Examples include:

- (1) Precision products, like precision casting, which require precise engineering, testing, and maintenance.
- (2) Custom products produced from scrap metal in mini-mills; specialty steel, comprising new additives and different levels of purification, cast into customized shapes; and specialty chemicals prepared for particular industrial processes or custom blended for different regions.
- (3) Biotechnology, ceramics, and products that require rapidly changing technology.

The region's traditional industries—steel, chemicals, and automobiles—are the gateways through which such products emerge. Other staples like grain and coal are important, but can't guarantee our economic future. Most of the accessible coal will have been mined within the next several years, and additional coal will be more costly to retrieve.

Grain exports can't fill our trade gap indefinitely, because production is spreading to other areas of the globe and our soil is becoming depleted.

In the past, physical infrastructure was the key. It is still important, but today's key is intellectual infrastructure: educated workers, good research universities, entrepreneurial climates, and an attractive quality of life.

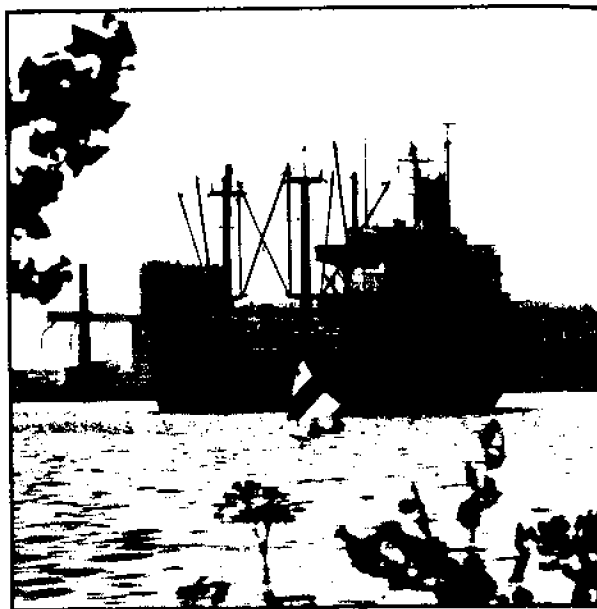
Cooperation—not competition—is the best strategy for meeting these challenges. As a group, I suggest you do the following. First, study how fast our economy is evolving in these directions and what it means for ports and water transportation. There are lessons to be learned from West Germany and France, which are making progress toward shifting their economies.

Second, be concerned whether federal policies favor this region. They haven't traditionally. If just half of the government goods produced in this region or bound for it were shipped via the Great Lakes, it would generate \$28.2 million and 1,742 jobs in Great Lakes port cities. It's cheaper to drink a glass of water in Dallas than in Milwaukee. If the price of water were closer to the actual free market cost of obtaining it, the Great Lakes would have a great economic advantage.

"You are understandably concerned about recreational and shipping conflicts, and about reserving enough dockside space for commercial port use. But some commercial ports are making money from their recreational marinas."

Third, continue working to improve and promote the region's quality of life. This includes environmental quality, amenities, and recreation.

The region has invested \$9 billion in improving water quality. The lakes are cleaner now than at any time in recent history. When looking for a competitive edge, you look at reducing costs. The cleaner the water is to start with, the less you must spend to treat it before you can use it. It is no accident that the increase in water-related amenities parallels improvements in water quality.



Ken Moran, UMD

The number of Great Lakes anglers has increased by 700,000 since 1980. They generate \$1.8 billion in economic benefits annually. The number of charter fishing boats on the lakes went from 535 in the mid-1970s to 2,600 today. There are now 1.5 million recreational boats on the lakes. The number of marina slips on line or coming on line soon is 7,760 on Lake Ontario and 5,831 on southern Lake Michigan.

Six billion dollars have been invested this decade in redevelopment of underused or deteriorated waterfronts. You are understandably concerned about recreational and shipping conflicts, and about reserving enough dockside space for commercial port use. But some commercial ports are making money from their recreational marinas. Racine, Wisconsin, closed its commercial port and developed a marina and festival ground that has helped to revitalize the downtown area and generated \$100 million in revenue since 1987.

We also have to do a better job marketing the appeal of the region's quality of life. In your overseas trade missions, you are the region's ambassadors. Rather than simply urging foreign companies to do business here, encourage them to move their businesses to the Great Lakes region. ■

***Robert F. Goodwin, Coastal Resources Specialist
Washington Sea Grant Program***

The ports of Olympia and Skamokawa, Washington, and Mt. Hood, Oregon, have either adapted to changing economic circumstances or have been adopted by them. There may be similarities between these three cases and the circumstances confronting some Great Lakes ports.

Olympia, Washington

Olympia, a white-collar community and the state's capital with 30,000 residents, is located at the south end of Puget Sound. The Port of Olympia's experience is one of cautiously adapting to new functions—public waterfront access, a recreational marina, and commercial real estate development—while simultaneously promoting maritime industrial development and retaining its remaining ocean shipping activity.

Olympia is a port under stress due to deep divisions in the community over appropriate future uses of the harbor and the management role that the port should play. Pressures for more public access and amenities have upset the port's plans for its waterfront lands. Nearby neighborhoods are lobbying for increasingly stringent zoning and shoreline management regulations that would threaten the ability of existing manufacturing firms to expand. They would also require new plants to locate on the peninsula occupied by the port's marine terminals and cargo storage yards, areas that port officials consider sacrosanct.

"Gentrification" of the peninsula may threaten the very survival of the port as a cargo-handler and industrial development agency. Ironically, the port is partially a victim of its own investments in leisure-serving facilities.

Hood River, Oregon

Hood River, a small city on the Oregon shore of the Columbia River, found itself in the middle of a recreation boom fueled by factors entirely outside its control: meteorology, a new form of water-based recreation, and federal action creating a National

Scenic Area. The port seized the opportunity to reap community-wide gains from these events.

Wind surfing put Hood River on the map. Predictable strong winds create one of the finest wind surfing sites in the world. Use of the Port of Hood River Marina Park mushroomed from 18,000 visitations in 1982 to 321,000 in 1986.

Major international board sailing events have attracted manufacturers of sailboards, masts, sails, clothing, and accessories. Six manufacturers and 14 retail outlets serving board sailors have located in Hood River. Receipts from the port's toll bridge have grown, along with wind surfing and other tourism traffic.

Older local citizens complain, however, that they have to wait in line for service at their usual stores and restaurants. Others worry that the real estate market is being taken over by Californians. Rents are rising, as are real estate prices.

Skamokawa, Washington

The Port of Wahkiakum #2 in Skamokawa illustrates the positive, cooperative, economic development role of a port in a depressed region.

Faced with local mill closures and an unemployment rate that hit 33% in 1980, the Lower Columbia Economic Development Council (LCEDC)—a consortium of local government and private businesses—sought assistance from the Cowlitz-Wahkiakum governmental conference to prepare an economic development plan for the county. The port, an active member of the LCEDC, helped secure government planning grants and loans, and was designated in the economic development plan as a major player in the revitalization of the local economy.

With no marine facilities, one-half of the port's revenue has come from its recreational vehicle park. These revenues have grown 18% to 25% in each of the last few years, as visitors began making Skamokawa their primary destination rather than just an overnight stop.

By cooperating with other community groups, the port multiplied the impact of its own specialized functions. By sharing "turf" with others, the whole community benefited. Skamokawa largely made its

own opportunities and created an environment in which it could prosper. ■

*James H. Hartung, Port Director
Burns International Harbor*

The strategy of the 1990s will be one of change. We need to seize the day. Any other approach is doomed to failure.

Let's think about three levels of strategic consideration for the Seaway system: national, regional, and local.

National Level

On a national level, we're trying to achieve: equitable treatment by our governments in Washington and Ottawa, a 10-month season, sufficient lock size, cost containment on pilotage and tolls, and U.S. flag service or access to U.S. government-impelled cargoes. As we identify our goals, we must ask ourselves several questions.

Do we have enough political muscle to introduce and pass beneficial Seaway legislation? Probably not, especially when the Great Lakes delegation will lose 10-12 seats with reapportionment of the House of Representatives. The Obey/Glenn efforts were valiant, but unsuccessful.

Is our strength better used as a voting block to potentially disrupt or spoil the maritime legislation for other coastal ranges and interests, thereby placing ourselves in a position to bargain for concessions beneficial to the lakes? This is an elemental political strategy that we've seldom used with maritime legislation.

Are all the representatives of Great Lakes states on our side? Has anyone kept score to determine who's been to the wall with us, who's been a selective supporter, or who's been in opposition, and why? Who's had a lack of information, misinformation, or conflicts of interest? How can we turn the opposition into friends? Do we have an effective way to keep our elected leaders informed?

Regional Level

Many of the problems associated with achieving a unified agenda at the national level are attributable to the lack of unity within the region. If we are to seek a unified commitment on the part of our elected leaders, we must seek a unified agenda. Easy? No, but necessary.

We need a maritime summit conference to draw together the groups that purport to speak for the Great Lakes on commercial shipping issues. These include: the International Great Lakes Mayors, Great Lakes Commission, Center for the Great Lakes, Council of Great Lakes Governors, Shipping Federation of Canada, U.S. Great Lakes Shippers Association, Lake Carriers Association, St. Lawrence Seaway Development Corporation, and St. Lawrence Seaway Authority.

"If we are to seek a unified commitment on the part of our elected leaders, we must seek a unified agenda. Easy? No, but necessary."

In this summit we must find out how close we are to having a unified agenda. We need to delineate areas where we agree to disagree, and identify areas where we can move together. We must ask what other groups are allied with Seaway interests. What mechanisms must be developed to effectively and regularly network the collective strength of these interest groups? Regional strength is essential!

Local Level

The fundamental questions for ports are: what is your role in the community you serve? Is it to simply count ships, create waterfront jobs, and serve your area's dominant industry? Is it to provide economic development opportunities and actively seek new industry? Is it to be an active player in federal and regional issues, and encourage additional shipping on the system as a whole? Is it to be a politician, a fund raiser?

What markets do you serve? How diversified can you become? How can you maximize your strengths

and compensate for your weaknesses? Do you have enough money to do what is necessary to seize opportunities? How can you gain access to creative financing resources?

Ports on the Great Lakes are merely components of the communities they serve—not, as on other coasts, the reason for the community! You must convince your community, federal and regional leaders, and yourself that you are important to regional developments, because you are.

Once we identify all the questions and feel comfortable with the answers, we can start to build effective strategies for the future. ■

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

The Thunder Bay Harbour Commission was established in 1964, with the stipulation that it be self-sustaining. We were given lands within the port, Keefer Terminal, a warehouse, and 50 acres of land. Other lands and water lots not related to the terminal amounted to 200 to 300 acres. The government negotiated the rates and gave us our first tenant. The Act also required that we charge tariffs for use of the port; these take the form of harbor dues, which amount to a tax on products entering and leaving the port.

Tonnages through the port increased steadily, from about 6 or 7 million tonnes in the early 1960's to a peak of 23.5 million tonnes in 1983; 75% to 80% of this cargo was grain.

Keefer Terminal, however, burdened us. The rates negotiated by the government were too low. We were, in effect, subsidizing Keefer with harbor dues. The agreement was in perpetuity, and the problem was not resolved until 1982, when the tenant went out of business.

At that point we had 500,000 square feet of empty warehouse and no manpower. The terminal was clearly over-designed and there wasn't enough general cargo to generate the revenue needed to maintain the facility. About that time, the govern-

ment "adjusted" the crow rate, with negative results to the traditional 60%/40% grain flow to Thunder Bay.

We decided to diversify our income and set up three self-sufficient profit centers: the port (traditionally the only profit center), Keefer Terminal, and Harbour Park.

First, we had to balance the books on Keefer. We understood two things: there wasn't enough domestic or foreign cargo to make Keefer pay, and we were required to keep Keefer a marine terminal. We evaluated the facility and determined an appropriate mix of cargo and warehousing.

For foreign and domestic cargoes handled at Keefer Terminal, the Harbour Commission negotiated stevedoring exclusivity contracts. This resulted in one exclusive agreement for foreign cargoes and another for domestic cargoes. This allowed us to more aggressively market the terminal with both operators, and made us more competitive with East Coast and West Coast ports. We have developed a team that understands what has to be done to remain viable.

We then communicated with our new partners and determined that Keefer's marine mode could function with 300,000 square feet, with the remaining 200,000 square feet reserved for non-traditional activities. Funding had to be put in place to convert the facility into warehousing and light manufacturing spaces, both heated and unheated. We wanted to attract tenants who would use the marine side and enhance shipping through the port.

We attracted paper product warehousing, light paper product manufacturing, and general warehousing. All have used the port side facilities to some degree. Of the other 200,000 square feet, we have so far developed 175,000 square feet, and by year's end will have completed the task.

Last year, Keefer terminal operated in the black for the first time since it was built in 1960. Our attention has now turned to the lands owned and/or administered by the commission.

We recently purchased a significant parcel of land and water lots as part of our long-range master plan to develop marine oriented industrial lands along Seaway-depth channels. Once

developed, the land will be leased to entrepreneurs who we hope will create facilities that enhance port activities and give us a reasonable return on our investment.

Our main thrust with respect to our third profit center, Harbour Park, is 110 acres of prime land situated behind the terminal and zoned for light industry. We intend to lease it for light industry, warehousing, and transportation-related operations—and make a profit doing it.

To date, we have four tenants and are completing a lease-back facility for another. In this case, we own the building and will recover our costs and an appropriate return on our investment for the next 20 years. We are presently negotiating for straight land leases and feel comfortable that Harbour Park will become a major profit center.

Twelve years ago, our Harbor Commission meetings were "port-related." We talked about dredging, wharves, ships, tolls, and activities related to the marine shipping industry.

Today, many of our sessions remind me of commercial development meetings. The mariners have become real estate brokers, and the ships and wharves have become strip malls, warehouses, condominiums, and office towers. I'm not sure that's bad, but I'm sure that it's different and necessary in our changing environment. ■

Discussion

Q: Are the Great Lakes port directors seeking year-round shipping, or a season extension?

Hartung: Year-round shipping is feasible from an engineering perspective, but not as a policy. We would like to extend the season to 10 or 11 months to compete effectively with the tidal coasts.

Q: We have heard good things about economies of scale and cargo consolidation. Are we seeing the end of small ports?

Stough: There has been a proliferation of small ports in the U.S. over the last 10 years, according to Kingsley Haynes.

Hartung: Several years ago we heard that key ports would become regional load centers. We haven't seen it yet.

Q: We have seen load centering for specific commodities, as smaller ports have identified a particular talent, like refrigerated cargo or automobiles. There won't be much general cargo for the ports that are left over. How many ports have a specific area in which they have the greatest expertise? There will be load centering and pecking orders, but they will be based on special needs, talents, and commodities.

Stough: Does this discussion of load centers mean that we will have only one or two ports on the Great Lakes that handle grain or coal? That seems unlikely, given the shape of the market and the service area.

Hartung: It is unlikely because of our ports have such a diverse hinterland. If a load center concept evolves on the Great Lakes, it will evolve toward diverse usage ports that draw on a number of cargo bases in service to a single region.

Brah: We are seeing many small commercial ports converted to recreational use.

Audience comment: Milwaukee is considered both a commercial and recreational port. Out of 1,400 jobs, however, only 35 are in recreation.

Audience comment: In Charlevoix, Michigan, the recreational boating industry has brought in hundreds of thousands, perhaps millions, of dollars, but it has not created any family wage jobs.

Stough: Diversity will be important for survival. It may not include much tourism, but will include a variety of other activities that are not in the portfolio of many ports today. ■

The Role of Education

*Gerald Silver, Dean
School of Professional Studies
Purdue University, Calumet*

Universities are operating in a changing environment. We're being called upon to broaden our mission, to become a resource to serve the needs of a rapidly changing economy. The shifts are dramatic. How do we educate for an interdependent world?

Education has not prepared today's corporate executives for a rapidly changing business environment. When I was going to college, my professors held up General Motors and U.S. Steel as exemplary models of success. Today, no one would point to either organization as a model of efficiency, productivity, or profitability. USX, the once mighty U.S. Steel, hardly resembles the industrial giant of yesterday.

"When I was going to college, my professors held up General Motors and U.S. Steel as exemplary models of success."

The business world today bears little resemblance to the business world of my youth. Today's business phenomena of corporate takeovers, greenmail, rapid mergers and acquisitions, grossly speculative markets in options and futures, and computer-driven buy and sell orders were not foreseen. The education we received didn't prepare us to deal with a rapidly changing business environment. The critical assumption underlying our education was that the future would grow out of the events of the past and the present.

Business education and theory lag woefully behind business practice, and have too narrow a focus. Students enroll in courses in how to do business in Yugoslavia, when they should be studying the broad international dimensions of business.

They do case studies of past successes. They receive excellent preparation for how to do business in the past.

For students in the uppermost tier of our universities, the choice of major is irrelevant. These graduates are perceived to be malleable, adaptable, and competent. They are the liberal arts graduates that CEOs and educators are talking about when they say that there are jobs for liberal arts graduates. Unfortunately, liberal arts graduates of other colleges and universities are not seen in the same light. In practice, the lofty pronouncements of the chief executives are not espoused by recruiters.

I recommend that all college students have the following ingredients in their course of study, regardless of their major:

- Oral and written communications: to write and speak well.
- Computers: to have a working knowledge of computer terminology.
- Accounting: to be able to prepare, read, and analyze financial statements.
- Business/government relations: to bring together business and liberal arts (government) students, drawing upon the expertise of the business and political arenas to identify relevant issues.
- Career planning: to examine prospective occupations and employers, strengthen interview skills, and write good resumes.
- Career-related major or minor: to ensure their studies complement each other.
- Internship or co-op experience: next to communications skills, this is the most important ingredient.

If the current generation of students acquires these skills before graduation, they'll be better prepared for the future than my generation was, although they may not be better able to predict it.

The universities create and disseminate knowledge. The ports use it. How do we bridge the gap? We have to make adult education an essential activity. We must form global connections and teach the important issues of the day.

At Purdue/Calumet, we hope to engage in activities that will help. We've started a Center for

International Research and Education. We realize that we have to do more than create and disseminate knowledge; we have to actively use that knowledge in concert with you, the practitioners, and with the greater community. I hope that Purdue University's Center for International Research and Education can provide a thrust in that direction. ■

Conclusion

James H. Hartung

As the U.S. Chairman of the International Association of Great Lakes Ports, I would be happy to recommend that the next Minnesota Sea Grant conference be held in conjunction with the annual meeting of the IAGLP. I recommend that the Sea Grant Program become a close working ally of the IAGLP, and perhaps even become its educational arm.

Maybe Minnesota Sea Grant and the IAGLP should convene a summit of Great Lakes interests. They could compile the information generated and help us move toward unity.

We have a sense of some of the economic realities associated with the Great Lakes region. Some of them are discouraging. On the other hand, we are starting to see a recovery that will draw shipping interests back into the Great Lakes. We have seen a glimmer of untapped cargo potentials and shipping trends: cost efficient, smaller vessels. That bodes well for the Seaway.

The key phrases for this conference are: seize the day, create the future, and survive.

I leave you with this: we will be back. We must continue the process that has begun. We have learned a lot. Now we have to implement a lot. ■

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Selected Publications from Minnesota Sea Grant



- Additional copies of this booklet: **Great Lakes Ports in a Changing Economy**. Conference Summary. 1989. K. Plass and N. Berini, eds. 34 pages. \$2.
- The 21st Century: The Great Lakes/Seaway System**. Proceedings. 1988. K. Plass and N. Berini, eds. 30 pages. \$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.



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