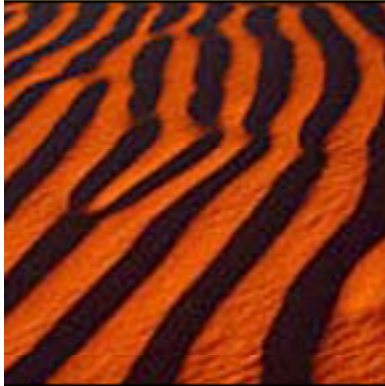
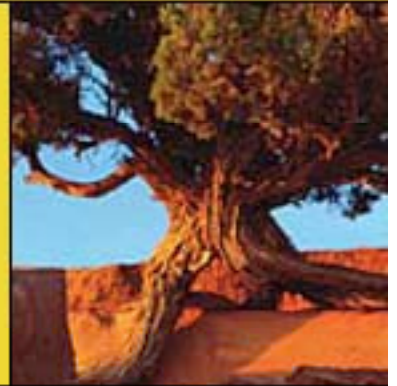


Ocean Shipping and AIS: A Great Lakes – St. Lawrence Perspective



Great Lakes Commission Annual Meeting
Quebec City, October 6, 2008





Presentation Overview

- Who is the Shipping Federation of Canada?
- St. Lawrence / Great Lakes Trade: Shipping Facts
- Our Environmental Policy:
 - Principles
 - Actions
- Case Study: Ballast Water and AIS





Who is the Shipping Federation of Canada?

- Incorporated by an Act of Parliament in 1903.
- Represents owners, operators and agents of ocean ships trading at Canadian ports, particularly in the Atlantic, St. Lawrence and Great Lakes regions.
- Core membership of 75 Canadian companies that own, operate or act as agents for over 200 international shipping lines trading to Canadian ports.
- Ships represented by Federation members transport over 90% of the trade moving between overseas ports and eastern Canada.





Shipping Federation of Canada

Committed to a safe, competitive, environmentally-responsible and quality-oriented marine transportation system.

Our primary activities:

- **Advocate** on behalf of our members;
- **Inform** members of legislative, regulatory or operational developments;
- **Support operations** (water levels, pilotage, port costs, contracts with response organizations, etc.);
- **Provide training;**
- **Increase industry's profile**





St. Lawrence / Great Lakes Shipping: Some Facts & Figures

- Annual cargo volumes (1995-2003):
 - 261 million metric tons
- Annual output:
 - More than \$4.3 billion in personal income,
 - \$3.4 billion in transportation-related business revenue,
 - \$1.3 billion in federal, state and local taxes.

Source: Great Lakes St. Lawrence Seaway System website, 2007.





Seaway Trade: Some Facts & Figures

- Over 2.2 billion tonnes of cargo (worth appx. \$350 billion) has moved through the Seaway since it opened
- Main cargoes: Iron ore, coal, limestone, grain, general cargo, cement, salt and stone aggregates
- Main vessel types:
 - Great Lakes bulk carriers (lakers)
 - Oceangoing vessels (salties)
 - Tug-propelled barges





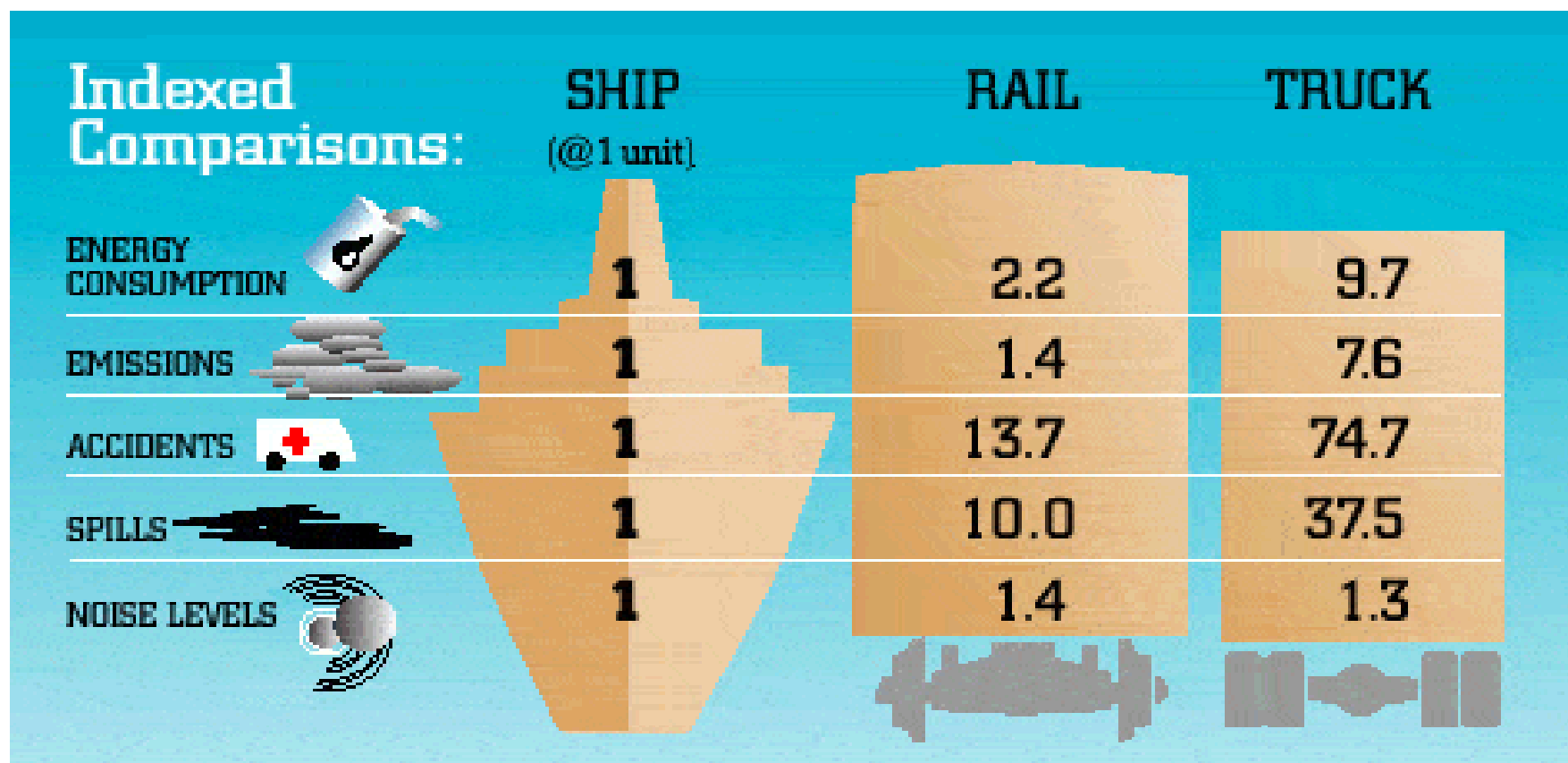
Seaway Trade: Some Facts & Figures

- 2007 Seaway Navigation Season:
 - 4450 vessel transits through the Montreal / Lake Ontario and Welland Canal
 - 43.010 million metric tonnes of cargo
- Ocean-going vessels:
 - Traffic share: 25%
 - Origins / Destinations: Europe, South America, Middle East, Africa





Environmental Advantages of Marine



Source: Great Lakes St. Lawrence Seaway System website, 2007.



Impacts of Intermodal Shifts

Effect	Ship	Rail	Truck
Fuel use – tonne-km per litre	312	181	75
Greenhouse gas emissions – grammes per tonne-km	10	17	33
NOx – g/tonne-km	0.253	0.3	0.83
VOCs – g/tonne-km	0.008	0.024	0.04
CO – g/tonne-km	0.011	0.092	0.49
PM10 – g/tonne-km	0.021	0.011	0.004
Land occupied – hectares	10,000	10-15,000	36,000
Accidents: injuries per tonne-km	0.23	3.12	13.22
Spills	L	Greater than ship	
Noise – noise depreciation cost per tonne-km	L	M	H
Congestion – delay time or \$ per tonne-km	L	M	H
Aesthetics	L	M	H
Introduction of nonindigenous species	H	Less than ship	

Source: Lawson, 2007.



Environment: A Strategic Issue

The Federation's approach to environmental issues is based on:

- Market access (including social licence to trade);
- Managing expectations & feasibility: technology vs operational viability;
- Continuous improvement: from accident avoidance, to compliance, to quality management, to best practices, to sustainability;
- Relationships with regulators, environmental groups and coastal communities;
- Communications, public image (myth vs reality), branding.





Our Approach to Environmental Issues

Guiding principles:

- International framework
- Best practices (social licence to trade)
- Continental (trade route) perspective
- Federal context
- Legal action

Our environmental policy:

- Developed in 2005;
- Combination of internal and external actions.





Ballast Water: Case Study

What is at stake:

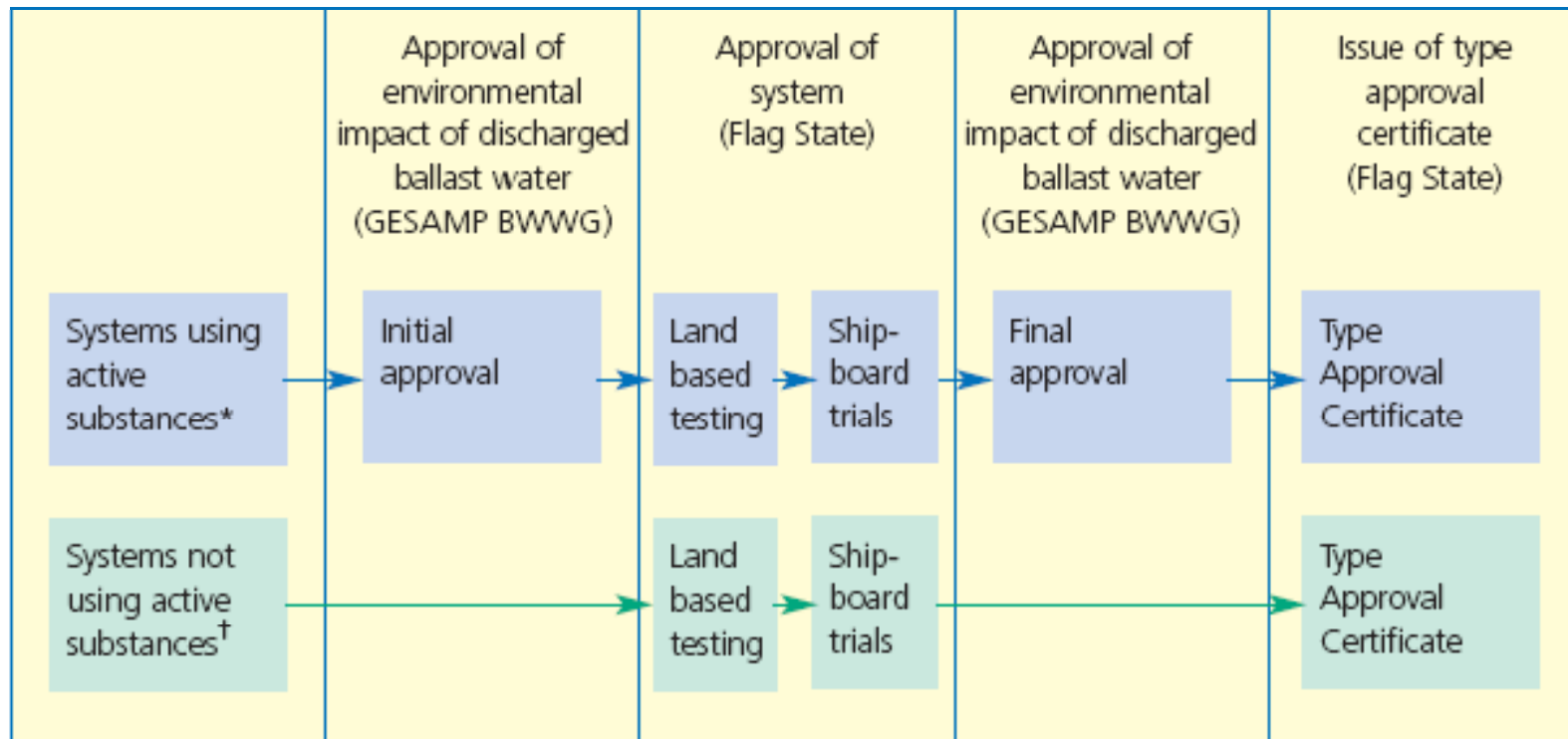
- How to protect coastal waters from shipborne aquatic invasive species without stopping ocean shipping trade?

Current Practices:

- Ballast water exchange in deep ocean waters
 - Low density population of organisms
 - Viability low in brackish, port and fresh water
- Alternative defined in the IMO Ballast Water Convention
 - Treatment system that would remove / reduce viable organisms and pathogens to level agreed by signatory nations



IMO Approval Process



* Includes chemical disinfectants, e.g. chlorine, ClO₂, ozone

† Includes techniques not employing chemicals, e.g. deoxygenation, ultrasound

Source: Lloyd's Register – Ballast Water Treatment Technology



Treatment Technologies

- **Key criteria for adopting & implementing a ballast water treatment system:**
 - It must be **safe** (operational level and crew);
 - It must be **environmentally acceptable**;
 - It must be **economically viable** (retrofits);
 - It must **work**.





Ballast Water Convention: Implementation

- Implementation Deferral:
 - Ships constructed in 2009 with ballast water capacities of less than 5000 m³ are not required to comply with the ballast water discharge standard included in Regulation D-2 until their second annual survey, but no later than December 31, 2011.





Ballast Water Exchange

- Required by Canadian, US and Seaway regulations
- Ballast water exchange efficiency proven by:
 - NOAA
 - National Academies Report
- Ballast water regulations enforcement:
 - TC, USCG, Seaway authorities





Ballast Water – SFC Actions

- **DO THE BEST YOU CAN, NOW:**

- Code of best practices (2000), integrated in Michigan legislation and Canadian regulations;
- Party to many working groups (amendments to TP, research, identification of alternative BWE zones);
- Pushed for Canadian regulations, supported new Seaway regulations;
- Developed compliance tool and training sessions;
- Participated in developing Green Marine environmental program for the St. Lawrence / Great Lakes trade route.





Green Marine Program

- Voluntary program that includes shipowners, operators, ports and terminals in the St. Lawrence / Great Lakes corridor;
- Calls for **continuous improvement** of the industry's environmental performance;
- Focuses on five key issues: AIS, air emissions, GHGs, cargo residues, oily waters;
- Evolving program that includes audit mechanisms and public reporting.





Ballast Water – SFC Actions

Build knowledge:

- Supports and promotes R&D and trials;
- Board member of the CAISN research network

Develop and implement international standards:

- Supports and advocates for the ratification of the IMO ballast water convention

Keep trade routes open:

- US State legislation, EPA permit
- Michigan legislation legal challenge

Work collaboratively:

- Green Marine, Atlantic Forum





Key Messages

- **Onboard ballast water treatment technologies are the optimal solution** (but recognize ballast water exchange as an effective mitigation measure in the interim)
- **Avoid regulatory fragmentation** - global problems need for global solutions;
- **Pool resources** (research & technology development).





Next Steps

Beyond regulatory compliance:

- Maintain social license to trade
- Demonstrate leadership & commitment to quality shipping through proactive actions



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