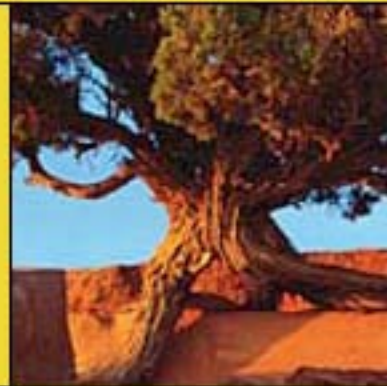


# SFC Perspective on State Ballast Water Programs



Shipping Federation of Canada  
Great Lakes Panel on Aquatic Nuisance Species  
Grand Island, June 25, 2009



# Presentation Overview

- Who is the Shipping Federation of Canada?
- Our Approach to Environmental Issues
  - Case Study: Ballast Water and AIS
- State Ballast Water Programs: An Industry Perspective
- Key Messages





# 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 profile**





# Environment: A Strategic Issue

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

- Maintaining 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)
- Building relationships with regulators, environmental groups and coastal communities
- Communications, public image (myth vs reality), branding





# 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 (2006), supported new Seaway regulations (2008)
- Developed compliance tools and training sessions
- Participated in developing Green Marine environmental program for the St. Lawrence / Great Lakes trade route





# 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





# Our Approach to Environmental Issues

## Guiding principles:

- International framework
- Best practices
- Continental (trade route) perspective
- Federal context





# Current Context

- Fragmentation of the regulatory framework:
  - New Federal permit
  - New State conditions
- Constantly evolving legislative landscape:
  - Creates uncertainty for operations





# State Ballast Water Programs

## SFC Comments:

- Consistency with the international regime (safety exemption, timeline and performance standards)
- Acknowledgement of existing regulations
- Recognition of ballast water exchange as an effective temporary solution
- Feasibility of implementation timeline
- Paperwork
- Enforcement



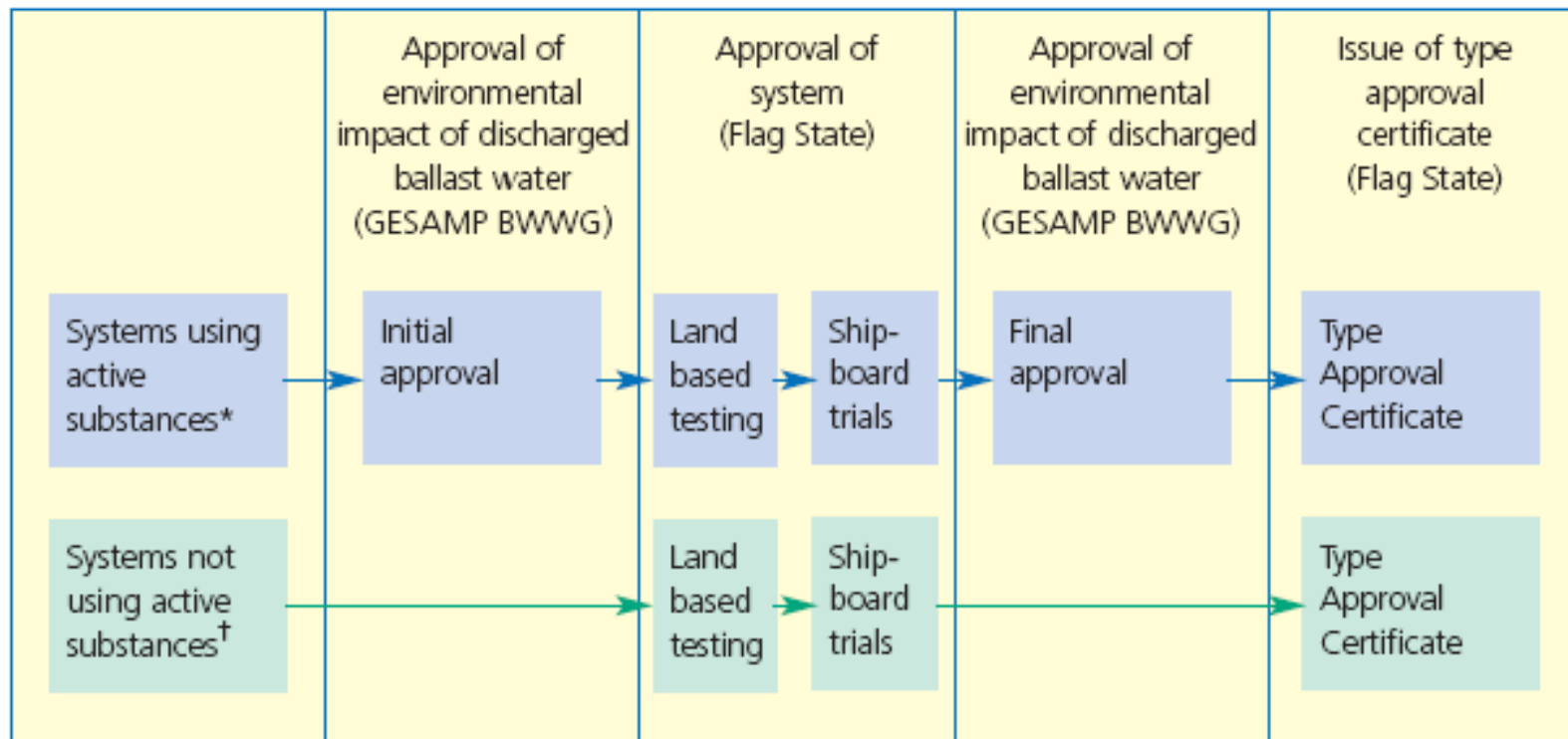


# Ballast Water Exchange

- Acknowledgement of existing regulations & recognition of ballast water exchange as an effective temporary solution:
  - Ballast water exchange is required by Canadian, US and Seaway regulations
  - Efficiency has been proven by NOAA, National Academies Report
- Enforcement of ballast water regulations by TC, USCG, Seaway authorities:
  - Screening of 100% of ballast water reporting forms
  - Sampling of 6704 ballast tanks on 364 different ships
  - Compliance rate of 98.6% (100% after corrective actions)



# IMO Approval Process



\* Includes chemical disinfectants, e.g. chlorine,  $\text{ClO}_2$ , 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 and regulatory stability)
- It must **work**





# State Ballast Water Programs - Results

- Technology developers - Uncertainty over performance standards slows technology development:
  - Size of the potential market will influence technology development and investments
- Shipowners/operators - Delays in technology investments:
  - Disconnect between technology and regulations
  - Regulatory uncertainty inhibits investments
- Industry associations – Difficulty developing consistent and coherent compliance guidelines





# Dealing with Grey Areas

## EPA Permit:

- How does the permit apply to vessels that transit irregularly in US waters?
- What inspections are required when entering the 3 nm limit?
- What reporting / recordkeeping measures are required for vessels transiting outside the 3 nm limit?

## Ballast Water State Programs:

- How can a ship be compliant with all the varying timelines, performance standards, and operational and documentation requirements?





# 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.



# The Way Forward?

## Innovation-Friendly Regulation:

- **Focus on outcomes, not technologies**
- Enact strict rather than lax regulation
- Regulate as close to the end user as practical, while encouraging upstream solutions
- Employ phase-in periods
- Use market incentives
- Harmonize or converge regulations in associated fields
- Develop regulations in sync with other countries or slightly ahead of them
- **Make the regulatory process more stable and predictable**
- **Require industry participation in setting standards from the beginning**
- **Develop strong technical capabilities among regulators**
- **Minimize the time and resources consumed by the regulatory process**

(Quoted from Porter and van der Linde)





## Reference

... quoted from: Michael Porter and Claas van der Linde. "Green and Competitive: Ending the Stalemate," Harvard Business Review, September-October 1995.

**Are we any further ahead than when the article was published?**





# How to Develop an Effective Program?

**Build on existing resources** - National Academies of Sciences' Report Recommendations:

- Create uniform standards
- Monitor compliance and remediation measures for all ships that pose a risk
- Improve monitoring for early detection of AIS and rapid response capability
- Create feedback mechanisms for improving the program





# Key Messages

- **Regulatory fragmentation can hinder technology improvements**
- **Onboard ballast water treatment technologies are the optimal solution** (but need for consistency with respect to performance standards)
- **Build on current efforts:** the result may not be ideal, but it is a step in the right direction
- **Collaboration with the regulated industry is essential:** will result in more meaningful buy-in and faster implementation



# For More Information:

## **Caroline Gravel**

Director- Environmental Affairs  
THE SHIPPING FEDERATION OF CANADA

Tel: (514) 849-2325

Fax: (514) 849-8774

[cgravel@shipfed.ca](mailto:cgravel@shipfed.ca)

[www.shipfed.ca](http://www.shipfed.ca)





# Ballast Water Timeline

- 1989: - Voluntary provisions for ballast water exchange for vessels travelling to the Great Lakes.
- 1991: - Ballast exchange guidelines were introduced by the International Maritime Organization (IMO) – these were revised in 1997 as resolution A.868(20), *Guidelines for the Control and Management of Ships Ballast Water to Minimize the Transfer of Harmful Aquatic Organisms and Pathogens*;
- 1993: - US Coast Guard introduced mandatory regulations that required ballast exchange for vessels traveling to the Great Lakes.
- 2000: - **Development of the SFC's Code of Best Practices for Ballast Water Management.**  
- Application of the Canadian guidelines was expanded to cover all waters under Canadian jurisdiction and renamed *Guidelines for the Control of Ballast Water Discharge from Ships in Waters under Canadian Jurisdiction, TP 13617.*  
- **SFC requested Transport Canada to extend Voluntary Guidelines to all waters, including East Coast of Canada.**  
- Establishment of CMAC National Ballast Water Working Group and consultations begin on implementing Ballast Water Management on Canada's Atlantic coast.
- 2002: - The Seaways amended their joint Practices and Procedures to make compliance with the SFC's Code of Best Practices a mandatory prerequisite for transit of the Seaway system.





# Ballast Water Timeline

- 2004: - IMO finalized the *International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004*.  
- Amendment of the USCG regulations that required ballast exchange for vessels traveling to the Great Lakes to make reporting mandatory for all US waters.
- 2005: - Second amendment of the USCG regulations that required ballast exchange for vessels traveling to the Great Lakes to make ballast water management mandatory for all US waters.  
- CMAC consultations on Canadian ballast Water Regulations concluded.
- 2006: - Entry into force of the Canadian *Ballast Water Control and Management Regulations*.
- 2007: - Development of the SFC's *Instructions to Masters* and related training sessions on Canadian Regulations.
- 2008: - The Seaways makes saltwater flushing of NOBOB tanks a mandatory prerequisite for transit of the Seaway system.

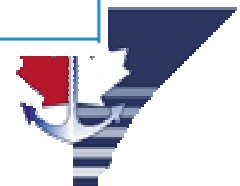




# Convention Implementation (original timeframe)

Ballast capacity	Year of ship construction*			
	Before 2009	2009+	2009-2011	2012+
< 1500 m <sup>3</sup>	Ballast water exchange or treatment until 2016 Ballast water treatment only from 2016	Ballast water treatment only		
1500 – 5000 m <sup>3</sup>	Ballast water exchange or treatment until 2014 Ballast water treatment only from 2014	Ballast water treatment only		
> 5000 m <sup>3</sup>	Ballast water exchange or treatment until 2016 Ballast water treatment only from 2016		Ballast water exchange or treatment until 2016 Ballast water treatment only from 2016	Ballast water treatment only

Source: Lloyd's Register – Ballast Water Treatment Technology



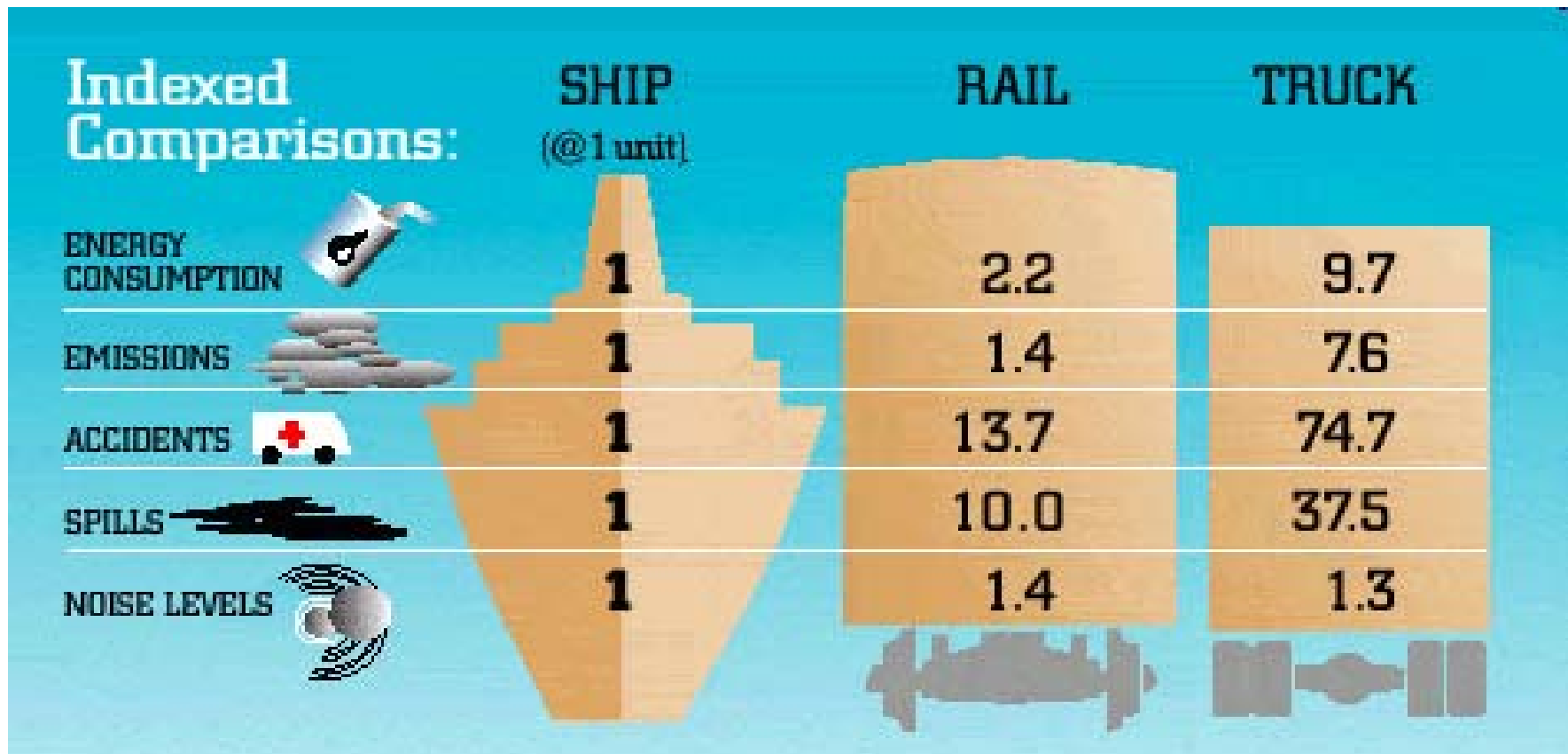


# Ballast Water Convention: Implementation

- Implementation Deferral:
  - Ships constructed in 2009 with ballast water capacities of less than 5000 m<sup>3</sup> 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.



# Environmental Advantages of the Marine Mode



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