



***ADVANCING ENVIRONMENTAL
EXCELLENCE***

**A VOLUNTARY ENVIRONMENTAL CERTIFICATION PROGRAM
FOR THE MARITIME INDUSTRY**

www.green-marine.org

GREEN MARINE IS...



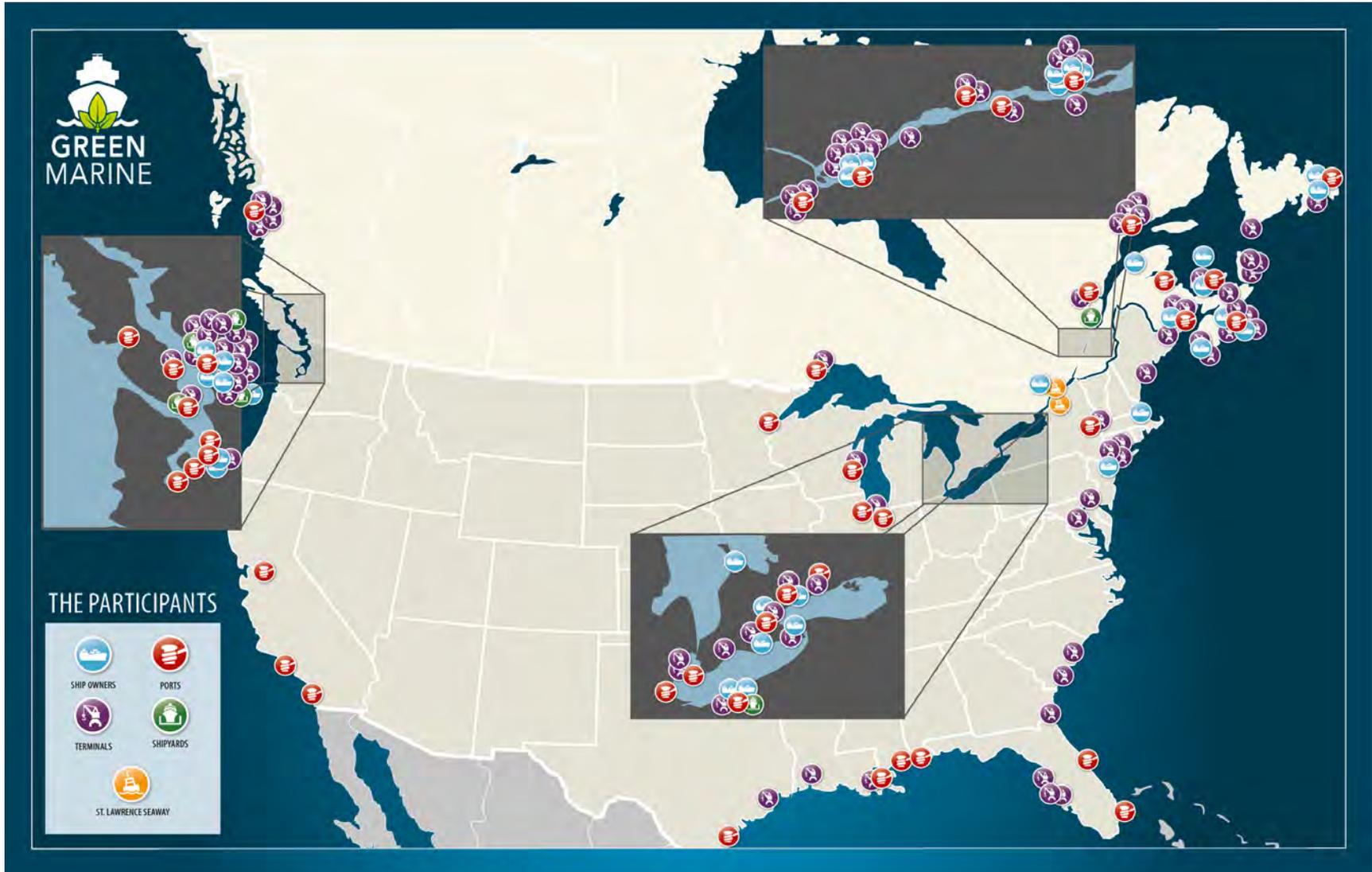
A **voluntary certification program** to reduce environmental footprint of marine operations by

- exceeding regulatory compliance
- promoting a culture of continuous improvement

A **benchmarking tool** to measure performance

A **partnership** initiative involving stakeholders

127 PARTICIPANTS IN U.S. AND CANADA



DIVERSIFIED MEMBERSHIP



33 ship owners / operators

44 ports



50 terminals

As of August 14, 2018

CERTIFIED VESSEL TYPES



MEMBERSHIP GROWTH 2007 – 2018



	2007	2018
PARTICIPANTS	34	127
PARTNERS	23	82
SUPPORTERS	19	69
ASSOCIATIONS	7	23
TOTAL	83	301



THE PARTICIPANTS



ST. LAWRENCE SEAWAY



A UNIQUE MODEL OF COLLABORATION





WHY GREEN MARINE?

The **most comprehensive** environmental program for the marine industry that exists today:

- ✓ Participants include **widest range of marine stakeholders** – ship owners, port authorities, terminal operators, shipyards
- ✓ Action plan currently addresses **key environmental issues** with **12 performance indicators**
- ✓ Opportunity for **NGO and governmental participation**
- ✓ Certification scheme with **independent verification**
- ✓ **Public reporting** of individual company results

VALUE PROPOSITION

- ✓ **Roadmap and Action Plan** to benchmark and improve environmental performance
- ✓ **Cost-effective** way to implement a third party sustainability initiative
- ✓ **Recognition and visibility** for sustainability efforts
- ✓ Tap into a **network** of environmental best practices
- ✓ Maintain **social license** to operate

PROGRAM CRITERIA



ENVIRONMENTAL PERFORMANCE INDICATORS

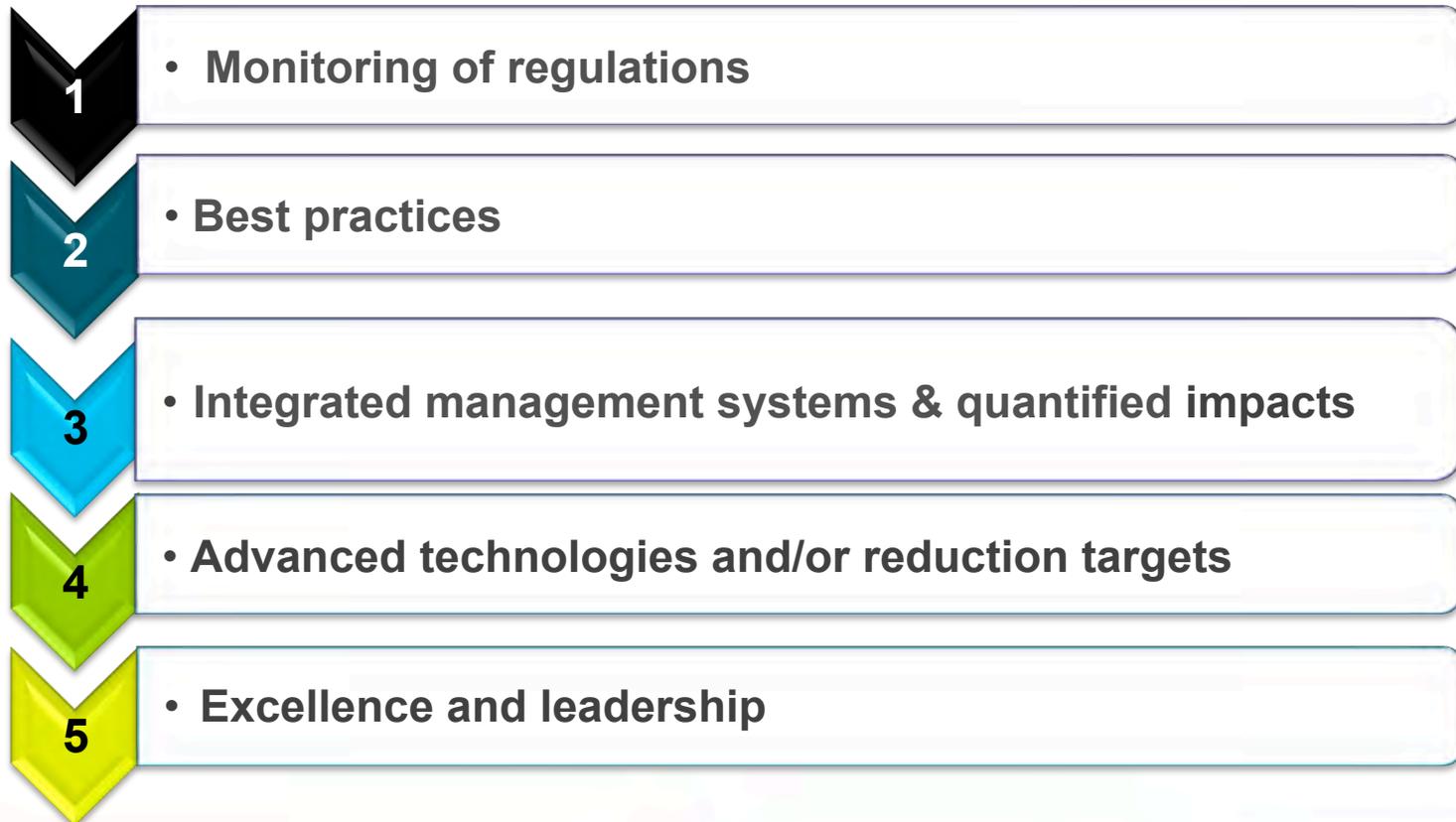
PERFORMANCE INDICATORS	SHIP OWNERS	PORTS & SEAWAY	TERMINALS & SHIPYARDS
Aquatic invasive species			
Community impacts			
Dry bulk handling and storage			
Environmental leadership			
Garbage management			
Greenhouse gas emissions			
Oily water			
Pollutant air emissions NOx			
Pollutant air emissions SOx & PM			
Prevention of spills and leakages			
Underwater noise			
Waste management			



BENCHMARKING PERFORMANCE



For each environmental issue, performance is evaluated from Level 1 to Level 5:



ANNUAL CERTIFICATION PROCESS & CONFERENCE



Evaluation Process

- Annual self-evaluation requiring CEO sign-off



External Verification

- Third party verification every two years



Results Publication

- Annual Report
- Website



Certification

- Exceeding regulatory compliance
- Demonstrating continuous improvement

PROGRAM SUMMARY



Green Marine
Environmental
Program

2018



Performance
Indicators for Ports
& St. Lawrence
Seaway
Corporations

GREEN MARINE ENVIRONMENTAL PROGRAM
Performance Indicators for Ports & St. Lawrence Seaway Corporations - 2018

2. GREENHOUSE GASES AND AIR POLLUTANTS

OBJECTIVE: To reduce greenhouse gas (GHG) and air pollutant emissions.

LEVEL 1	
Monitoring of regulations	
LEVEL 2	
2.1 Implement policies and communications that discourage idling of vehicles powered by Internal Combustion Engines. Include, at minimum, participant's own road, off-road, and unlicensed vehicles.	
2.2 Promote sustainable transportation practices by employees. Example: Incentives for public transport and carpooling, reorganization of business travel, installation of bicycle racks, etc.	
2.3 Implement measures to reduce congestion and idling during periods of heavy activity. Note: This relates to truck traffic.	
Ports only:	
2.4 Implement policies and communications that inform or, when necessary, issue warnings to ships which emit excessive amounts of smoke.	
LEVEL 3	
3.1 Complete an annual report on GHG emissions. Note: The report only refers to GHG emissions resulting directly from the participant's activities. Note: See Annex 1-A.	
AND	
3.2 New criterion, OPTIONAL FOR 2018 Within the last 5 years, complete a detailed inventory for all Port and terminal operator owned/leased, and operated fleets, such as vehicle, off-road, and locomotives. Note: Include equipment's model year and engine's model year and/or emissions standard/iter, if available. Other data requirements may include hp and annual hours of operation.	3.3 New criterion, OPTIONAL FOR 2018 Implement a voluntary program to transition to lower emission equipment through cleaner fuels, engine repowers, or equipment replacements. This can be through direct incentives, rebates, or coordination of outside funding sources.
OR →	
LEVEL 4	
4.1 Complete a detailed inventory of GHGs and air pollutants emitted on the participant's entire area of jurisdiction within the last 5 years. Inventory should include key GHGs: CO ₂ , CH ₄ , and N ₂ O and criteria air pollutants, such as NO _x , SO _x , VOC, and PM. Note: Ports that are in nonattainment areas or that have potential "hotspots" should place a priority on an inventory of their relevant criteria air pollutants. Criteria air pollutants refer to those that are reported in Environment Canada's National Pollutant Release Inventory (NPRI) or U.S. EPA's National Emissions Inventory (NEI).	
4.2 Adopt a GHG performance plan for air emissions resulting directly from the participant's activities. In the plan, define reduction measures and establish reduction targets. Note: See Annex 1-B.	
LEVEL 5	
5.1 Publicly disclose GHG and relevant criteria air pollutant reduction targets and timeframe. Demonstrate continuous reduction of the participant's direct GHG emissions (in intensity), achieved by implementing the measures described in the energy performance and air pollutant reduction plan. Note: Each participant defines its own baselines for measuring continuous improvement.	

SELF EVALUATION GUIDE



SELF EVALUATION 5 - COMMUNITY IMPACTS		
<h2>5</h2> <p>COMMUNITY IMPACTS</p> <p>LEVEL 3</p>		
HAS THE PARTICIPANT FULFILLED THE FOLLOWING CRITERIA?	STATUS	PROOF / JUSTIFICATION
<p>5.3.1 Adopt a plan for managing community issues, which formally incorporates all applicable the best practices, set out in level 2. Such a plan is to include a procedure for handling complaints. <i>Note: See Annex 3-A.</i></p>	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> N.A.	
<p>5.3.2 Have a documented procedure for handling complaints.</p>	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> N.A.	
<p>5.3.3 Have in place a procedure to verify sound levels of operations on a regular basis (at least annually).</p>	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> N.A.	
<p>5.3.4 Have a procedure for evaluating environmental and social aspects of new projects, activities or types of operations including handling of new products, if there is uncertainty around the potential for environmental and social effects and where mitigation measures are not known to be effective and established. <i>Note: See Annex 3-B.</i> <i>Note: Not applicable to projects that are subject to an environmental assessment under existing regulation.</i></p>	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> N.A.	
<p>5.3.5 Establish and implement a nuisance mitigation plan during works and/or operations. <i>Note: For ports, mitigation measures must be systematically part of all service contracts and communicated to tenants.</i></p>	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> N.A.	
<p>5.3.6 If applicable, adopt and communicate a policy that deals with noise from vessels at anchor, and/or collaborate with the competent authorities to establish and communicate procedures for dealing with noise from vessels at anchor (e.g. operation of auxiliary or back-up engines, maintenance work, etc.).</p>	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> N.A.	

1-Page SUMMARY REPORT FORM



- Due by March 15
- Signed by CEO
- \geq Level 1 in all environmental issues plus one issue at \geq Level 2
- Continual Improvement by one level each year until \geq Level 2 in all environmental issues

GREEN MARINE ENVIRONMENTAL PROGRAM
2017 EVALUATION SUMMARY REPORT FORM

PORTS SEAWAY

PRINT RESTORE

ENVIRONMENTAL ISSUES	LEVEL ACHIEVED
1) AQUATIC INVASIVE SPECIES (Ports only) <i>Note: The AIS practices are not part of a performance indicator, and participants are therefore not required to link their performance with any particular level.</i>	
A) SAMPLINGS	YES NO N.A.
B) REGISTRY OF SPECIES	YES NO N.A.
2) GREENHOUSE GASES AND AIR POLLUTANTS	
3) SPILL PREVENTION	
4) DRY BULK HANDLING AND STORAGE <i>Note: Applicable only for ports operating dry bulk terminals</i>	
5) COMMUNITY IMPACTS	
6) ENVIRONMENTAL LEADERSHIP	
7) WASTE MANAGEMENT	
8) UNDERWATER NOISE *OPTIONAL FOR 2017 <i>Note: Applicable only for ports located on salt water.</i>	

I hereby confirm that the information contained in the Evaluation Summary Report Form matches the levels that the company has attained on the above environmental issues covered by the Green Marine Environmental Program. **This form must be signed by the president of the company or the company's most senior executive.**

Name of the signatory: _____
Title: _____ Company: _____
Signature: _____ Signed on: _____

Please complete, print and sign the Evaluation Summary Report Form and return it to the Green Marine Secretariat **before March 15, 2018**: By mail to 25, du Marche-Champlain, suite 402, Québec City (Québec) Canada G1K 4H2; by fax to (418) 476-1906 or by e-mail (scanned file) to the Program Manager of your region: (US & West Coast) eleanor.kirtley@green-marine.org; (Great Lakes & East Coast) thomas.gregoire@green-marine.org; (St. Lawrence) veronique.nolet@green-marine.org.

EXTERNAL VERIFICATION



On-site verification with 3rd party accredited verifier

Due May 4

Repeated every other year

21 Accredited Verifiers

- Experienced with Vessel Ops, ISM / ISO Compliance Auditing, and Environmental
- Initial training and exam required to obtain accreditation; Annual training to maintain accreditation

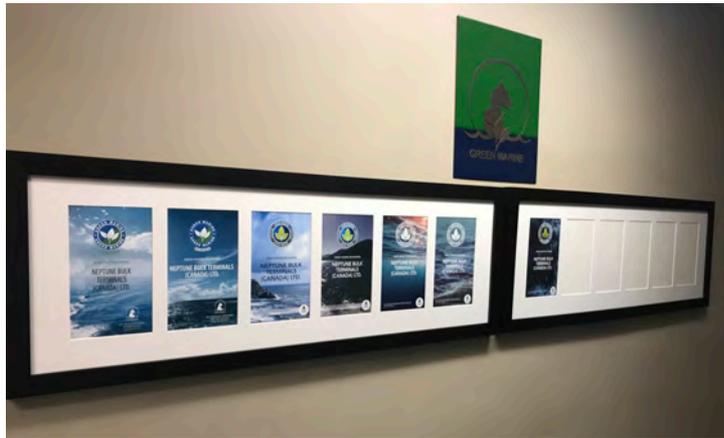


Quality control process

CERTIFICATION



- Certification Ceremony at GreenTech every year
- Printed Certificate



- Right to use the Green Marine certified logo



PUBLICATION OF RESULTS



PORT AUTHORITIES 	GHG & AIR POLLUTANTS	SPILL PREVENTION	DRY BULK HANDLING AND STORAGE	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
Alabama State Port Authority	1	2	2	2	2	2
Béconac West Port Industrial Park	4	2	n.a.	2	4	2
Bellefleur Port Authority*	1	2	1	1	1	1
Canaveral Port Authority	2	5	n.a.	2	2	2
Cleveland-Cuyahoga County Port Authority	3	4	3	2	4	2
Duluth Seaway Port Authority	5	5	5	5	5	2
Greater Victoria Harbour Authority	3	5	n.a.	5	3	3
Halifax Port Authority	4	5	n.a.	4	5	4
Hamilton Port Authority	3	3	n.a.	4	2	3
Montreal Port Authority	5	5	n.a.	5	5	4
Nanaimo Port Authority	2	2	n.a.	2	3	2
Northwest Seaport Alliance	3	2	n.a.	2	3	2
Oshawa Port Authority	2	3	n.a.	4	2	2
Port of Montreal	2	2	n.a.	2	1	1
Port Everglades	5	5	3	2	5	2
Port of Albany	2	1	n.a.	2	2	1
Port of Corpus Christi	1	2	1	1	2	1
Port of Everett	1	2	2	2	2	2
Port of Galveston	2	3	2	2	2	2
Port of Huusma	3	5	n.a.	5	5	4
Port of Indiana - Buffalo Harbor	2	3	n.a.	3	2	2
Port of Milwaukee	3	2	n.a.	2	3	2
Port of Montreal	2	2	2	2	2	2

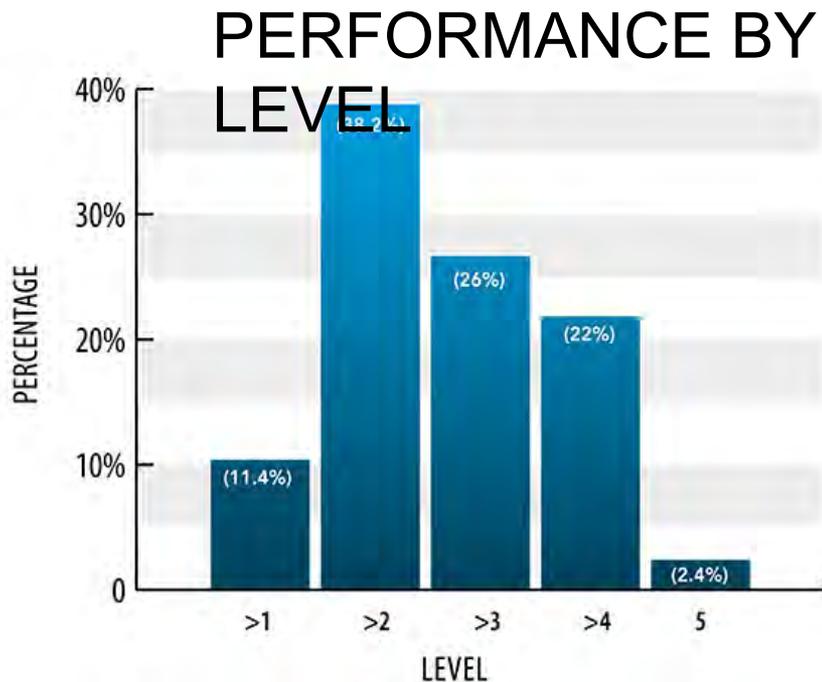


Performance report posted online: www.green-marine.org/certification/results/

2017 ANNUAL RESULTS



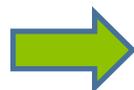
- **10%** more evaluation reports received (123 versus 112 for 2016)
- Global average in 2017 maintained at **3.1**
- **50%** of the participants achieved an average **Level 3 or higher** rating
- Greatest increase: Waste management **16 levels up** from 2016



ANNUAL COLLABORATION & PROGRAM DEVELOPMENT



WORKGROUPS



Ad-hoc for particular issue with subject matter experts among all members



TECHNICAL COMMITTEES

Each participant gets a seat



ADVISORY COMMITTEES

Directs program revision and development priorities. Includes all four member categories: participant, supporter, partner and association. And a verifier.



BOARD OF DIRECTORS

ANNUAL COLLABORATION & PROGRAM DEVELOPMENT



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UNOLS APPLICABILITY – VESSEL TYPE



- One Research Vessel Green Marine certified
- *Corialis II*
- Based in the St. Lawrence Estuary



U.S. Domestic fleet

- CSL America
- Interlake
- Great Lakes Towing
- Puget Sound Pilots

UNOLS APPLICABILITY – PROGRAM DEVELOPMENT



2018 PROGRAM REVISION:

Expansion of the SO_x & PM performance indicator at Levels 3, 4, and 5 to include criteria specific for vessels regulated by the EPA *Act to Prevent Pollution from Ships* (APPS)

Prescribed normalizer for *RV* vessel type to estimate GHG intensity:

- hours of operation
or
- science days at sea



UNOLS APPLICABILITY ?



Vessel type

Geographic scope

Criteria

Ship Owner vs Operator

ANNUAL CONFERENCE



- 2008 ➔ Montreal
- 2009 ➔ Toronto
- 2010 ➔ Montreal
- 2011 ➔ Chicago
- 2012 ➔ Quebec City
- 2013 ➔ Vancouver
- 2014 ➔ Saint-John
- 2015 ➔ Seattle
- 2016 ➔ Quebec City
- 2017 ➔ Fort Lauderdale
- 2018 ➔ Vancouver, B.C.

GreenTech 2019:
Cleveland, Ohio
June 5 – 7, 2019

STAY IN TOUCH



Green Marine Magazine

Published twice a year

<https://www.green-marine.org/news/magazines/>



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