



**GREEN
MARINE**

2017

**PERFORMANCE
REPORT**

CHAIRMAN'S ADDRESS



It's hard to believe this is already my swan song as chair of Green Marine's board of directors. I have thoroughly enjoyed my time as chair over the past three years, and as a member of the board for the three years prior to that. Time has sailed quickly with the directors, staff and numerous participants, partners and supporters actively involved in expanding the program's sustainability mission and overall membership.

Green Marine's stronger American presence is particularly gratifying. The organization's incorporation within the United States, the opening of the West Coast office in Seattle, Washington, and the number of U.S. participants more than tripling during my tenure have solidified Green Marine as the environmental certification program for North America's maritime industry.

I hope participants take as much pride as I do in being involved in an industry-launched and -led initiative that continues to embrace new environmental challenges to further improve maritime transportation's sustainability through science-based research, best management practices, and new technologies.

As you'll read in this report, this past year has been one of many firsts in terms of the location and type of participants joining the program, as well as Green Marine's research and reporting on new environmental issues. It's great to have these milestones to begin the program's second decade.

Green Marine is now recognized as a change leader of maritime sustainability and the organization's expertise is regularly sought by the industry, governments and other relevant stakeholders. Frankly, I'm amazed at how much the small Green Marine staff accomplishes and gratefully acknowledge all of their help during my directorship.

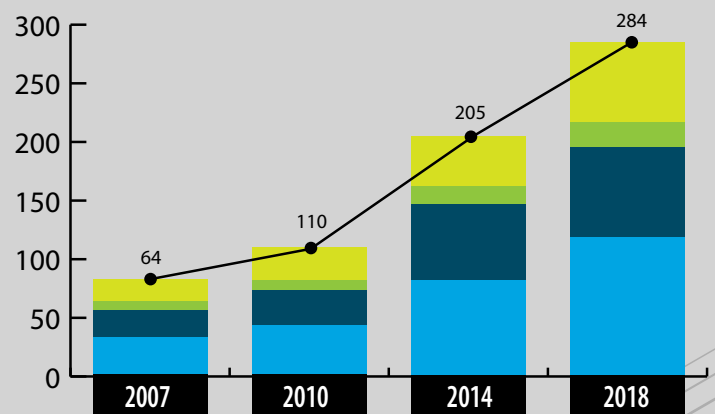
In the previous report, I noted the challenge facing Green Marine to continue to raise the bar as the industry becomes more sustainable. The organization has not disappointed in this regard. Not only has the volunteer membership made the program's criteria more exacting but it has embraced new issues, specifically underwater noise and waste management.

As I bid you farewell as Green Marine's chair, I assure you that I will keep watch over this unique organization to ensure it holds course towards the broader horizons essential to improving the world.

Paul Gourdeau

EXPANDING MEMBERSHIP

Both Green Marine participants and staff placed significant focus last year on expanding the membership by informing maritime enterprises and other relevant stakeholders about the program's merits and progress to date. As a result, Green Marine increased its overall membership to 284 (as of May 2018) with **119** of those being **participants**. That's quadruple the original membership! The addition of four U.S. participants among the 10 that joined in 2017 strengthened Green Marine's American presence to further solidify Green Marine as the premier environmental certification program for North America's maritime industry.



2017: A YEAR OF FIRSTS

Improved assessments

Green Marine initiated and welcomed a number of firsts in 2017 in terms of the program's criteria, membership and outreach:

The organization completed its first greenhouse gas (GHG) reporting in 2017 to quantify the GHG reductions of its ship owners since the environmental program's founding a decade earlier. The aggregated results show an average annual reduction in GHG intensity of 1.4%. Two thirds of those eligible to report (ship owners that achieved Level 3 or higher in the five-level performance indicator for GHG in the 2016 results) volunteered their data. They represent more than 270 vessels and made this reporting the first of its kind to be done by such a diversified group of vessel owners (i.e. tug, passenger and cargo ferry, bulker, self-unloader, tanker, containership, and articulated tug and barge). Participants' significant operational measures to improve fuel efficiency, such as hull cleaning, weather routing, load and trim optimization, speed reductions and preventive engine maintenance, successfully achieved quantifiable GHG emissions reductions.

Landside, Green Marine integrated the Port Emissions Inventory Tool (PEIT) software. Licensed from Transport Canada by Green Marine, it gives port and terminal participants a standardized method to calculate air emissions with the goal of further reducing them. The PEIT now forms part of the criteria at Level 4 for port and terminal air emissions. The steps to prepare the membership for the PEIT rollout included a working group, a workshop and panel presentation at Green Marine's annual conference (GreenTech 2017), as well as a webinar for all interested ports in early 2018.

Key membership firsts

Green Marine welcomed several firsts in terms of membership in 2017. They include the first U.S. domestic ship owner and first American shipyard as participants, as well as the first pilotage organization to upgrade from partner to participant and the first naval auxiliary vessel. The broadening membership reflects the encompassing framework of the Green Marine certification program that holds all to the same standards but welcomes diverse elements of the industry with the shared commitment to continual environmental improvement.

Global engagement

Steering the industry's environmental stewardship has led to significant worldwide recognition of the Green Marine certification program. Green Marine's executive director presented the program's new underwater noise performance indicators at the International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC) 72nd session in London, England. David Bolduc was also invited to present at a workshop during the Asia-Pacific Economic Cooperation Green Port Awards Program in Beijing, China. Closer to home, Green Marine's in-house marine biologist and program manager, Véronique Nolet, serves on the Ship Strikes Steering Committee of the Canada-U.S. Independent Advisory Committee for Right Whale Recovery. West Coast program manager Eleanor Kirtley is serving on both the Board of Pilotage Commissioners for the State of Washington and on the steering committee for Washington Maritime Blue, the state's strategy for a sustainable maritime industry.

PARTICIPANTS

Participants are ship, port, terminal, shipyard and seaway owner/operators that benchmark their annual environmental performance, have their results verified, and commit to transparency and continual improvement to earn their Green Marine certification.

ASSOCIATIONS

Maritime associations that promote the Green Marine certification program.

PARTNERS

Partners supply services, products, technology and/or equipment that offer environmental advantages or opportunities to Green Marine participants to improve their environmental performance.

SUPPORTERS

Environmental NGOs, research institutes, and government agencies that support and bolster Green Marine's efforts to improve maritime transportation's sustainability.

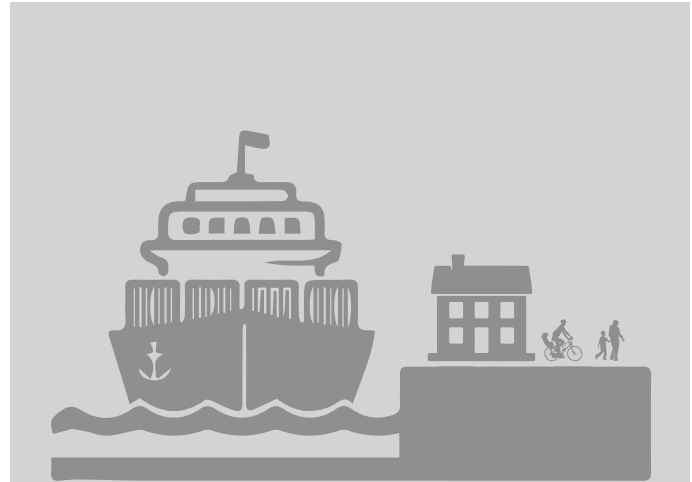
RIISING TO THE CHALLENGE

A total of 123 annual environmental performance reports were submitted for 2017, compared to 112 for the previous year. Even with the 10% increase in the number of reports and a more stringent program, the global average of the participants remained steady at 3.1 on the program's 1-to-5 scale. From 2016 to 2017, performance criteria were added and strengthened, making it more difficult to achieve the same levels as in past years.

Ship owners had to meet more demanding criteria to achieve Level 5 for the greenhouse gas performance indicator. International vessels and harbour craft had to satisfy tougher criteria well beyond the demands of regulations now governing sulphur content in fuel. Harbour craft were also required to broaden their reporting. Their inventory scope now covers the same air pollutant criteria (nitrogen oxides, sulphur oxides, and particulate matter) as other ship owners. Meanwhile, ports and terminals had to deal with various changes in the revised criteria for spill prevention, as well as for the community impacts performance indicator.

Maintaining the 3.1 global average is great news given the addition of new reporting participants in 2017, whose initial ranking tends to be lower. New participants typically require some time to familiarize themselves with the program's demands and to gather the resources to meet its higher criteria levels. Once new participants become involved in the Green Marine program, however, they generally remain long term and seriously commit towards improving their standing year over year. As a result, exactly half (50%) of the participants achieved an average Level 3 or higher rating in their 2017 environmental performance. Significant effort is required to reach Level 3: companies must identify and quantify their current environmental impacts in a concrete way approved by the Green Marine program. Once these impacts are identified and measured, the participants must integrate appropriate environmental responses within their day-to-day operations to reduce and/or mitigate the effects of their activities.

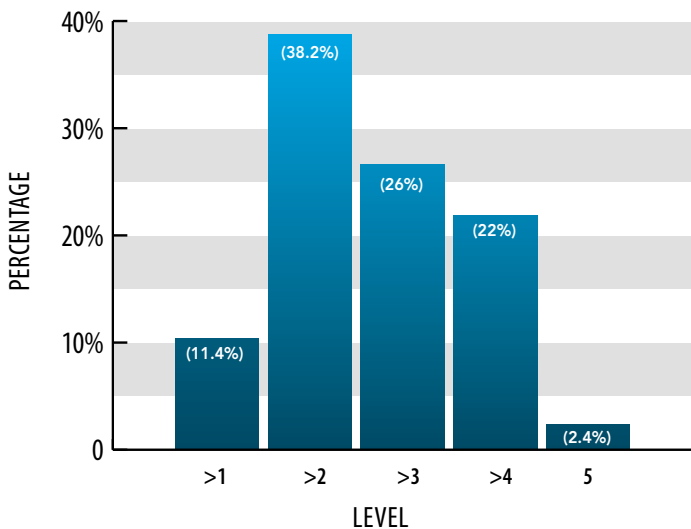
NEW INDICATORS IN THE WORKS



Green Marine's participants strive to exceed current and forthcoming environmental regulations as part of their day-to-day operations. The program's criteria are reviewed annually in relation to existing and imminent regulations and revised as necessary to maintain ambitious but feasible goals at each of the higher performance levels. The annual criteria review ensures that each tier above Level 1 is beyond compliance, sufficiently challenging, and reflects improved best practices and emerging technologies that can improve environmental performance.

The certification program additionally continues to expand its scope in response to emerging issues or better insight into current environmental challenges. Workgroups are currently developing the criteria for a new performance indicator that will split and replace the existing indicator for community impacts into two, with one addressing noise, light, dust and other nuisances, as in the past, and the other new one relating to community relations. Additionally, a separate workgroup is establishing the basis for a new indicator for ship recycling. These new issues have been established based on membership input and where Green Marine could make the biggest positive difference.

PERFORMANCE BY LEVEL

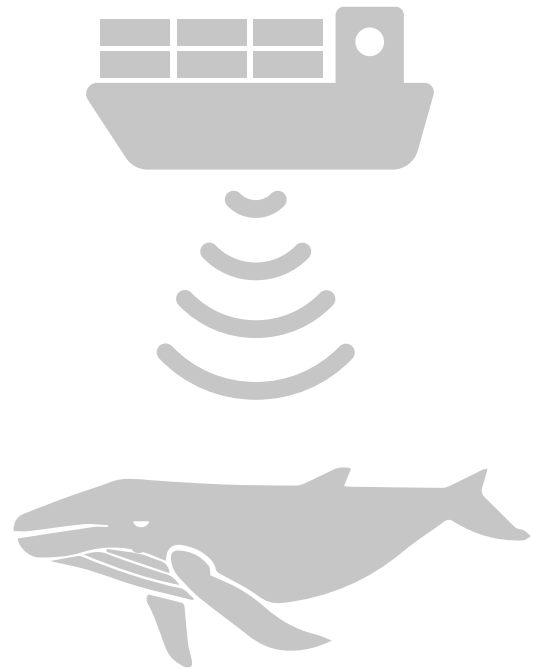
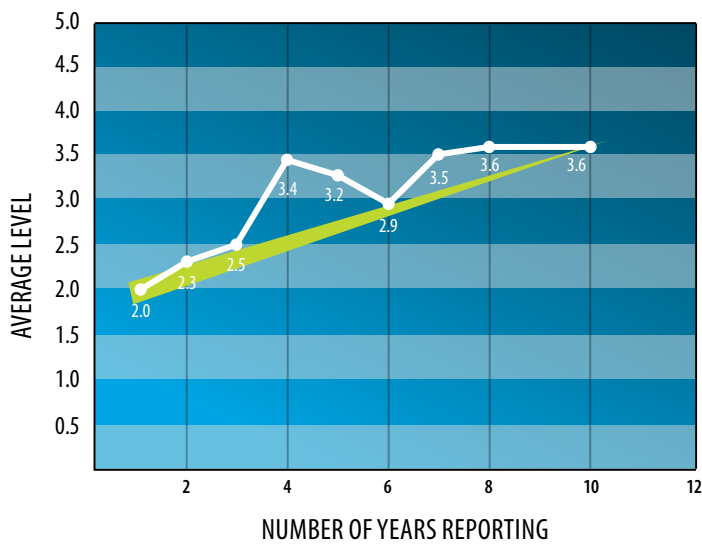


Performance by level: Percentage of all reporting participants with an average at or above levels 1, 2, 3, 4, and 5

CONTINUAL IMPROVEMENT

Even with all of these new challenges, participants still improved or maintained their overall standing since joining the program. In fact, the very first group of participants to report back in 2008 notably improved their average standing to 3.6 in 2017 from 3.4 the prior year, indicating their determination and success in reaching a bar that Green Marine regularly sets higher. The performance of long-term members after a decade of reporting reflects a demonstrable commitment to continual improvement.

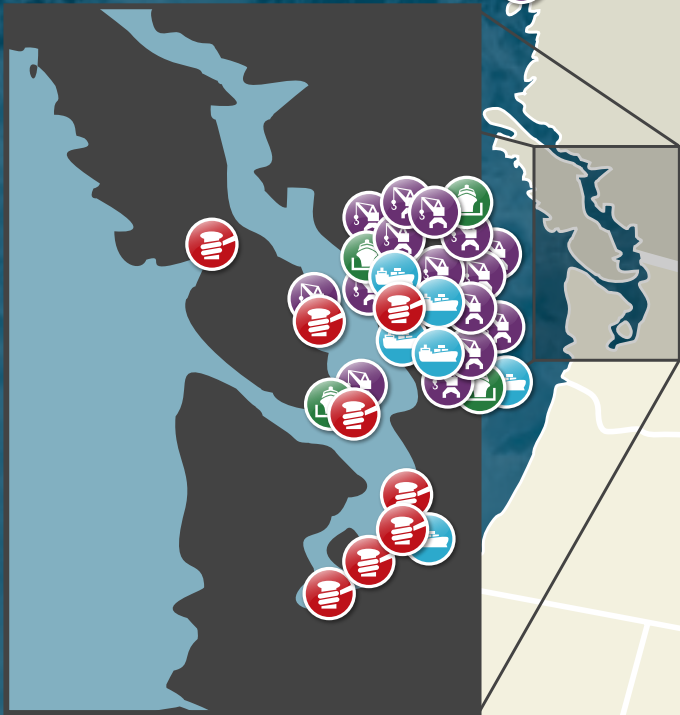
In 2017, the first-year participants averaged 2.0. The level reflects the program extending a welcome mat to all maritime enterprises regardless of size and available environmental resources as long as they already comply with all existing regulations and commit to year-over-year improvement. This commitment is evidenced by the participants that reported for the first time in 2016 subsequently improving their overall average to 2.3 in 2017 from 2.0 a year earlier.



An impressive proportion of the participating membership voluntarily reported on underwater noise during the initial optional year for these new performance indicators, reflecting how seriously they regard this issue. Half (50%) of the ship owners in the program filed a voluntary report (achieving a Level 2 global average), while 87% of application ports filed (attaining a 1.4 average level). The voluntary reporting gives participants a good idea of what is required to relate their performance accurately for new indicators when they become obligatory as the underwater noise indicator will be for 2018 results.

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			



THE PARTICIPANTS



SHIP OWNERS



PORTS



TERMINALS



SHIPYARDS



ST. LAWRENCE SEAWAY



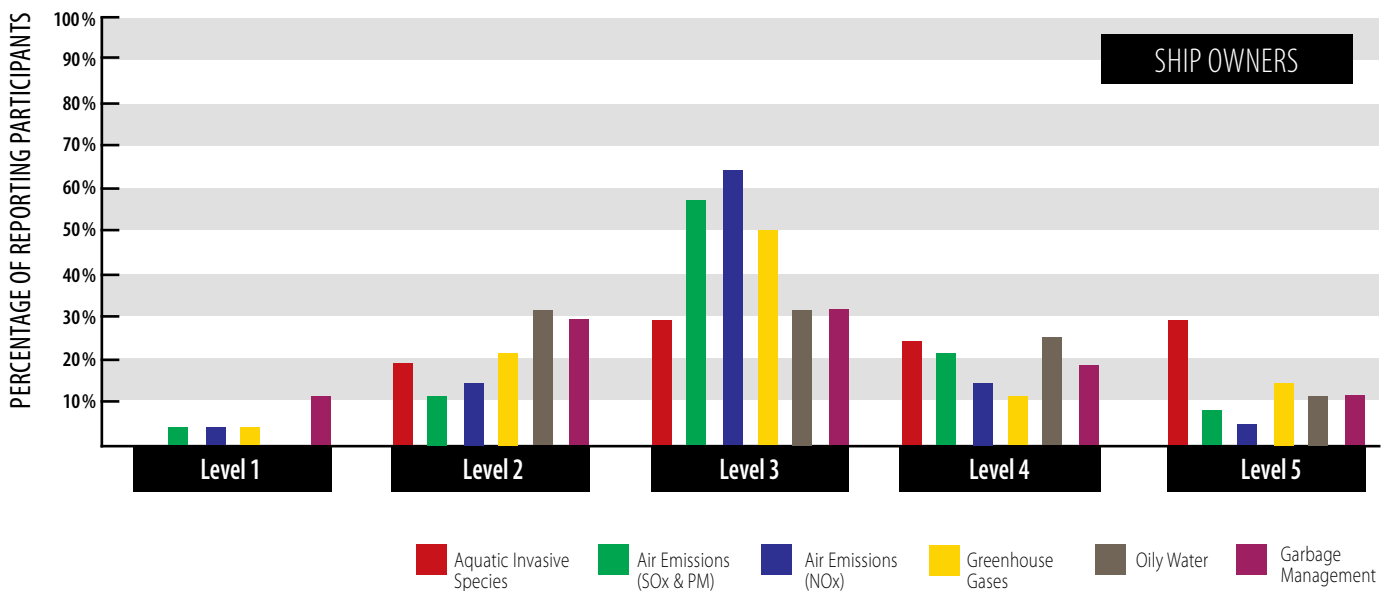
MARKED IMPROVEMENT

The greatest improvement in 2017 by number of increased levels was achieved by the port and terminal participants in their waste management performance indicator. They raised their overall average from 2.3 in 2016 to 2.5 in 2017, the second year of mandatory reporting for this issue.

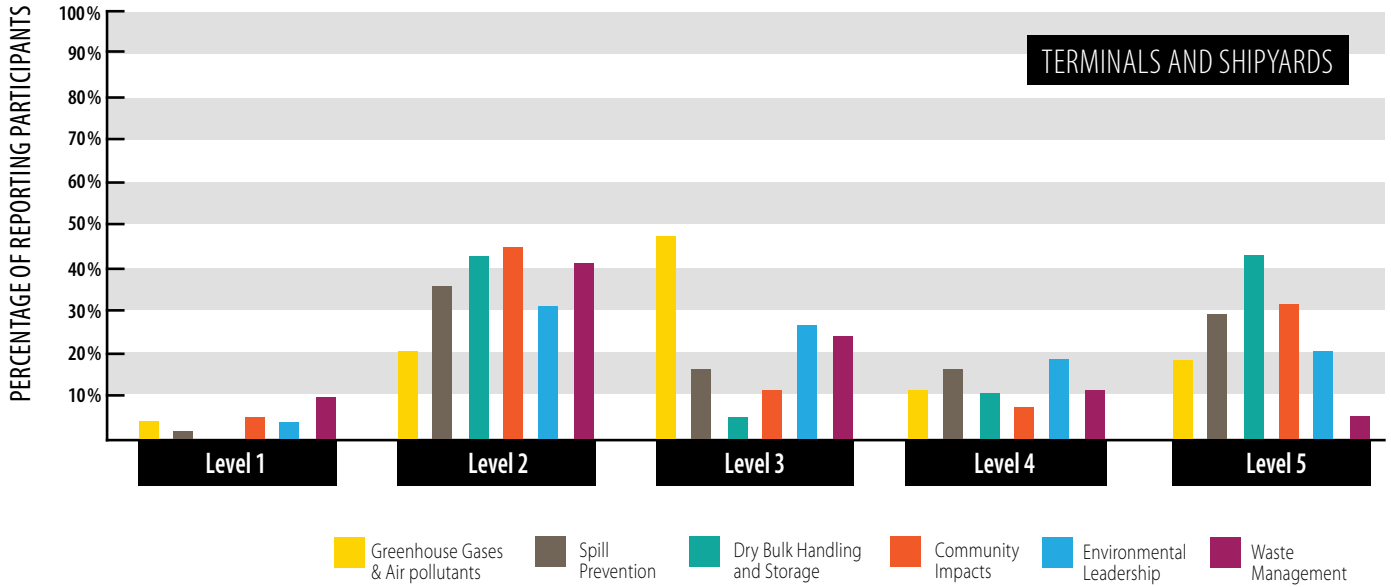
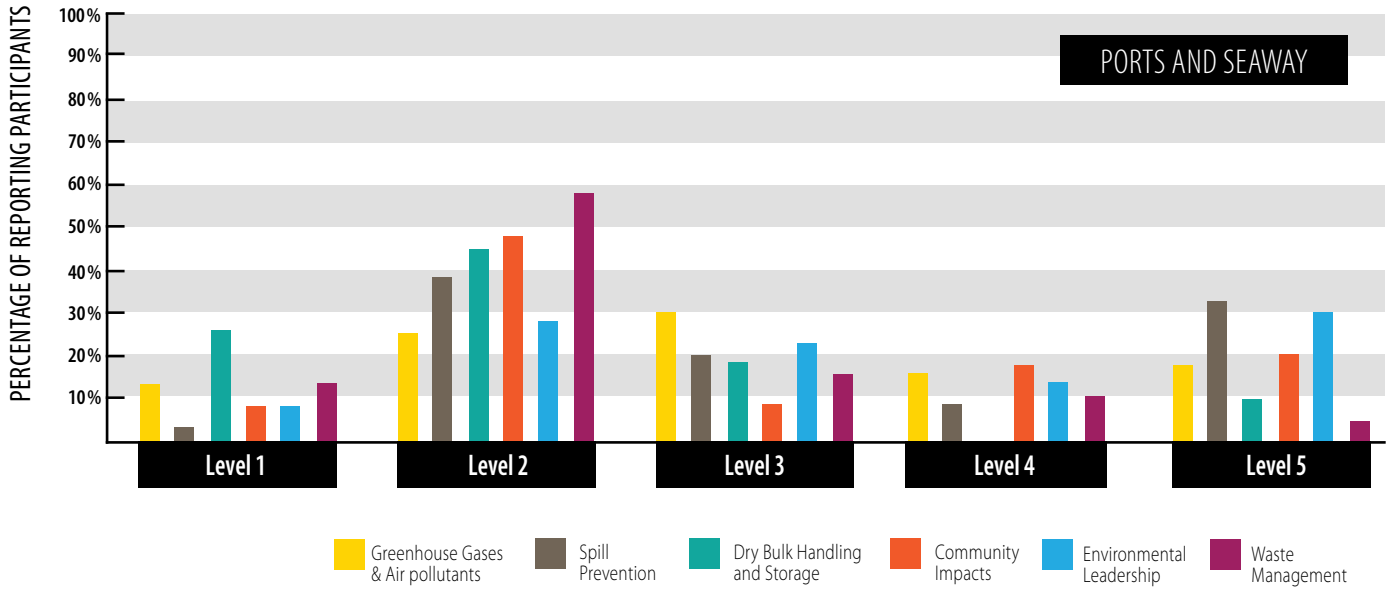
The second-best improvements for ports and terminals occurred in relation to greenhouse gases and air pollutants, while third-best related to their

performance in spill prevention. These higher levels were achieved even though new criteria had to be met for the higher performance levels for both the GHG emissions and spill prevention indicators.

The following graphs illustrate the percentage of reporting participants at each of the program's five achievement levels for each of the 12 performance indicators based on the 2017 self-evaluations.



All the graphs and statistics are based on the results submitted by participants as of May 10, 2018. Minor updates due to late verification confirmations will be made in the online version of the report after the GreenTech 2018 conference.



2017 RESULTS

1

Monitoring of regulations

2

Best practices

3


Formally adopted management plan and a quantitative measurement of environmental impacts

4

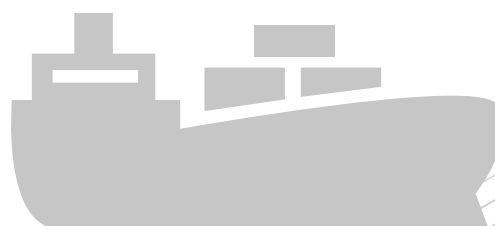
Advanced technologies and/or reduction targets


5

Excellence and leadership

SHIP OWNERS 	AQUATIC INVASIVE SPECIES	AIR EMISSIONS (SO _x & PM)	AIR EMISSIONS (NO _x)	GREENHOUSE GASES	OILY WATER	GARBAGE MANAGEMENT
Algoma Central Corporation	4	4	4	4	5	4
Atlantic Towing Limited	5	5	3	5	3	4
British Columbia Ferry Services Inc.	n.a.	3	3	3	4	2
Canada Steamship Lines	4	5	4	5	4	5
Canfornav Inc.	5	3	3	5	5	5
Croisières AML	2	3	3	3	3	2
CSL International	5	3	3	3	4	4
Fednav Limited	5	4	4	4	4	3
Great Lakes Towing Company	n.a.	1	1	1	2	1
Groupe CTMA	2	3	2	2	2	2
Groupe Desgagnés Inc.	5	4	5	5	4	5
Horizon Maritime	3	3	3	3	5	3
Interlake Steamship Company	4	2	2	2	2	1
Ledcor Resources and Transportation LP	n.a.	2	2	2	2	1
Lower Lakes Towing Ltd.	3	3	3	2	2	2
Marine Atlantic Inc.	n.a.	3	3	2	2	3
McAsphalt Marine Transportation Ltd.	4	3	3	3	3	3
McKeil Marine Limited (Cargo Carriers & Cruise Ships)	3	3	3	3	4	4
McKeil Marine Limited (Tugs and Ferries)	3	3	3	3	3	4
North Arm Transportation Ltd.	n.a.	3	3	3	4	3
Ocean	n.a.	4	3	4	4	2
Oceanex Inc.	3	3	3	3	3	3
Owen Sound Transportation Company	n.a.	2	2	2	2	2
Reformar	2	3	3	3	2	3
Saam Smit Canada	n.a.	3	3	3	2	2
Seaspan ULC	n.a.	4	4	3	3	4
Société des traversiers du Québec	n.a.	3	3	3	3	2
Svitzer Canada Ltd.	n.a.	4	3	3	3	3
TBS Ship Management Inc.	3	3	3	3	3	3

n.a.: non applicable




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
Bécancour Waterfront Industrial Park	4	2	n.a.	2	4	2
Belledune 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 Alberni Port Authority	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 Gulfport	2	3	2	2	2	2
Port of Hueneme	3	5	n.a.	5	5	4
Port of Indiana - Burns Harbor	2	3	n.a.	3	2	2
Port Milwaukee	3	2	n.a.	2	3	2
Port of Monroe	2	2	2	2	2	2
Port of New Orleans	2	4	n.a.	2	5	2
Port of Olympia	1	3	1	1	1	1
Port of Seattle	5	3	n.a.	3	5	5
Port of Valleyfield	3	2	n.a.	2	3	2
PortsToronto	4	2	2	2	4	2
Prince Rupert Port Authority	4	5	n.a.	5	5	3
Quebec Port Authority	5	5	n.a.	5	5	3
Saguenay Port Authority	3	5	n.a.	4	3	2
Saint John Port Authority, NB	3	2	n.a.	2	2	2
Sept-Îles Port Authority	3	3	n.a.	3	4	3
St. John's Port Authority, NL	3	3	n.a.	4	3	2
Thunder Bay Port Authority	4	2	n.a.	2	3	2
Trois-Rivières Port Authority	3	4	n.a.	2	4	2
Vancouver Fraser Port Authority	5	5	n.a.	5	5	3
Windsor Port Authority	2	2	n.a.	4	3	2

n.a.: non applicable

* New participant whose results have not yet been verified.




2017 RESULTS


TERMINALS AND STEVEDORING COMPANIES 	GHG AND AIR POLLUTANTS	SPILL PREVENTION	DRY BULK HANDLING AND STORAGE	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
ABC Recycling Ltd.	2	2	n.a.	2	2	1
British Columbia Ferry Services Inc.	2	3	n.a.	2	3	2
Ceres Terminals Inc. (Baltimore, Charleston, Halifax, Houston, and Savannah)	3	5	n.a.	3	4	3
DP World Prince Rupert Inc.	3	5	n.a.	2	2	2
Empire Stevedoring Co. Ltd. (Montreal)	3	3	n.a.	3	2	2
Federal Marine Terminals Inc. (Burns Harbor, Cleveland, Hamilton, Milwaukee, Thorold, Albany, Eastport, Port Manatee, Tampa, Lake Charles)	5	5	5	5	4	2
Fraser Surrey Docks	5	4	5	5	4	2
G3 Canada Limited (Quebec)	4	4	4	3	3	1
G3 Canada Limited (Trois-Rivières)	3	2	2	2	3	2
GCT Global Container Terminals Inc. (GCT Bayonne)	5	5	n.a.	5	5	4
GCT Global Container Terminals Inc. (GCT Deltaport)	5	5	n.a.	5	5	4
GCT Global Container Terminals Inc. (GCT New York)	4	5	n.a.	5	5	4
GCT Global Container Terminals Inc. (GCT Vanterm)	4	5	n.a.	5	5	4
Glencore (Quebec)	3	4	5	5	5	3
Groupe Desgagnés Inc. (Relais Nordik, Sept-Îles)	3	4	n.a.	2	2	3
Groupe Somavrac – Porlier Express (Sept-Îles)	3	3	n.a.	2	3	2
Groupe Somavrac – Servitank (Bécancour)*	1	2	n.a.	1	2	2
Halterm Container Terminal Limited	2	3	n.a.	2	3	2
Iron Ore Company of Canada	3	5	5	5	5	4
Kildair Service ULC*	2	2	n.a.	2	2	1
Kinder Morgan Canada (Westridge Terminal)	3	3	n.a.	3	4	3
Logistec Corporation Canada (Montreal, Contrecoeur, Halifax, Saint John, Sydney, Trois-Rivières, Rideau Bulk, Sept-Îles, Thunder Bay, Toronto)	5	3	5	4	3	3
Logistec USA Inc. (Balterm, Brunswick, New London, Port Manatee)*	2	4	4	2	2	2
Marine Atlantic Inc.	3	3	n.a.	4	3	3
McAsphalt Industries Ltd. (Eastern Passage, Valleyfield, Oshawa, Hamilton, Port Stanley)	2	3	n.a.	4	3	3
Montreal Gateway Terminals Partnership	5	4	n.a.	5	5	3
Neptune Bulk Terminals (Canada) Ltd.	5	5	5	5	5	4
New Orleans Terminal LLC	2	5	n.a.	2	3	2
Norcan Petroleum Group Inc.	3	3	n.a.	2	3	2
Northern Stevedoring Company Inc. (Sept-Îles)	3	2	n.a.	2	2	2
Pacific Coast Terminals Co. Ltd.	3	4	5	5	4	2
Pinnacle Renewable Energy Inc.	3	2	3	3	2	1
QSL (Anse au Foulon)	3	2	2	2	3	3
QSL (Beauport)	3	2	2	2	3	3
QSL (Bécancour)	3	2	2	2	2	2
QSL (Grande-Anse)	3	2	2	2	3	2
Ridley Terminals Inc.	5	5	5	5	5	3
Rio Tinto (Port Alfred)	5	5	5	5	5	5
Squamish Terminals Ltd.	4	2	n.a.	5	4	3
Sterling Fuels Limited	3	5	n.a.	3	4	3
Termontré Inc.	2	2	n.a.	2	2	2
Tidal Coast Terminals Ltd.	3	2	2	2	2	2
Tymac Launch Service Ltd.	3	2	n.a.	2	2	2
Valero Energy Inc. (Jean-Gaulin Refinery)	5	5	n.a.	5	5	5
Valero Energy Inc. (Montreal East)	2	2	n.a.	2	3	2
Valleytank Inc.	3	4	n.a.	2	2	2
Valport Maritime Services	3	2	2	2	2	2
Waterfront Petroleum Terminal Company	2	2	2	1	1	1
West Coast Reduction Ltd.	4	5	n.a.	2	2	2
Westshore Terminals Ltd.	3	2	2	5	2	2
Yellowline Asphalt Products Limited	3	5	n.a.	5	4	2

n.a.: non applicable

* New participant whose results have not yet been verified.

SAINT LAWRENCE SEAWAY 	GHG AND AIR POLLUTANTS	SPILL PREVENTION	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
Saint Lawrence Seaway Development Corporation / St. Lawrence Seaway Management Corporation †	4.1	5	4.1	5	4.1

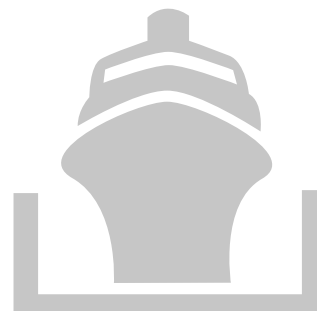
† Each Seaway corporation filed an individual self-evaluation report to Green Marine and had its results separately verified, but they both opted to publish their results jointly to reflect their allied efforts in achieving environmental excellence. The published results are the weighted average of the individual results based on the number of locks managed by each Seaway corporation.

SHIPYARDS 	GHG AND AIR POLLUTANTS	SPILL PREVENTION	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
British Columbia Ferry Services Inc.	2	2	2	2	2
Great Lakes Shipyard	1	1	1	1	2
Ocean Industries Inc.	3	2	2	3	2
Seaspan Shipyards and Terminals	4	4	4	4	5

INTERPRETATION NOTES

The term n.a. (non applicable) appears several times in the report's tables because the environmental issues addressed by the program do not necessarily apply to all participants. For example, most tugs and ferries do not discharge ballast water. An n.a. denotation could also refer to a situation in which a participant does not have full control over the operations on its premises. For example, a port cannot apply the Green Marine criteria where a terminal operator is in charge of facilities. Most port authorities oversee the leasing of port property and do not themselves operate terminals.

The published results indicate each participant's self-reported and verified performance within the Green Marine program's indicators. While the program's self-evaluation is comprehensive, it is not an exhaustive assessment of all environmental matters related to a participant's maritime operations. Green Marine has not itself evaluated the environmental performance of the participating enterprises. Each participant is required to submit all of the documentation for the performance level claimed for each indicator to an external verifier every two years for an in-depth review.



FACTS & FIGURES

94%

of the participating ship owners have an energy efficient lightbulb replacement program

2%

annual reduction in GHG intensity – new, more ambitious target for ship owners to achieve level 5

100%

of the Canadian port authorities are Green Marine participants

47%

53%

American and Canadian ports respectively within the membership

87

participants (71% of all the reporting participants) have completed a GHG emissions inventory

1,000+

 Twitter followers @GMarine_Averte

350%

increase in participants since the program's inception, a 23% average yearly rise in participating membership

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