



**GREEN
MARINE**

**PERFORMANCE
REPORT**

2021





TABLE OF CONTENT

Chair's address	3
Membership growth	5
Green Marine timeline	8
2021 results overview	10
Ship owners highlights.....	12
Ports and Seaway highlights.....	13
Shipyards highlights	14
Terminals highlights	15
2021 Results distribution by participant type	16
Green Marine participants map	18
2021 Program updates	20
Ongoing program development.....	22
Communications	24
2021 Individual participants results tables	27
Green Marine Europe	34
Our team	35

GREEN MARINE BY THE NUMBERS



All the statistics and analysis in this report are based on the results as of May 20, 2022.

CHAIR'S ADDRESS



Can you believe it? Green Marine turns 15 this year! It seems like yesterday that a small group of maritime industry leaders had gathered to discuss a few environmental issues arising from our daily operations.

Have we ever come a long way since 2007! The program now addresses 14 key areas that include community relations and environmental leadership

with precise criteria that measure progress beyond regulations. The program has also just been revised to undertake the immense challenge of charting the progress that must be made to achieve full decarbonization by 2050, which surpasses the International Maritime Organization's goal.

Our membership has significantly broadened in numbers and scope to the point where we have been able to hire another new program manager based in the United States. The Green Marine team still only numbers seven full-time employees, and I am continually impressed by how much they manage to do.

Like all of us, the staff had to pivot when the COVID-19 pandemic hit, but they were already savvy at covering a lot of territory from their satellite offices. They have truly made the most of online technologies to connect with each other, the membership, and new recruits.

In fact, recruitment has remained strong despite the challenges of gathering in person during the pandemic. We now count more than 430 members in Green Marine as participants, supporters, associations, or partners. There are 171 participants throughout Canada and the United States, compared to 34 when the program launched. Of particular note is the recent doubling of shipyards as participating members as well.

This steady growth is in good part due to the organization's ability to continue to reach out to others throughout the pandemic, as well as the membership's willingness to do

things differently. For instance, GreenTech 2021 had to be held online, but everyone rallied to make it a virtual success! We had 25 sponsors, 31 exhibitors, 39 speakers and 419 attendees.

It's the kind of information conveyed at these presentations, as well as through resources such as the revamped website and brand-new digital magazine that word has spread far and wide about Green Marine's reputation for rigour, transparency and measurable progress.

As a result of that credibility, Green Marine was called upon by the Conference of Great Lakes and St. Lawrence Governors and Premiers to prepare a study outlining the best practices of Green Marine's participants as well as to identify opportunities to improve sustainability within the region's maritime transportation system.

The collaborative, results-oriented framework is also what prompted the Surfrider Foundation to reach out to Green Marine to license the program. This new partnership led to the launch of Green Marine Europe, which is now expanding with gusto. Having started out just a month after all the March 2020 pandemic restrictions, Green Marine Europe already has an impressive list of ship owners as participants, with shipyards next on the invitation list.

What's also interesting is the wonderful collaboration that is now happening across the Atlantic between everyone involved in managing the programs to share resources, seize synchronistic opportunities, as well as bolster each other's efforts. This cross-Atlantic collaboration has not only strengthened Green Marine's recognition globally but has led to both programs taking the pioneering steps of issuing an environmental performance indicator that lays out the five-level criteria toward achieving the IMO's 2050 decarbonization objective.

I could not be prouder to have served as chair during this unprecedented time in Green Marine's still relatively short but game-changing history. I hope you will agree with me about the impressiveness of our industry's efforts in advancing environmental excellence when you read the rest of the facts and figures in this annual performance report.

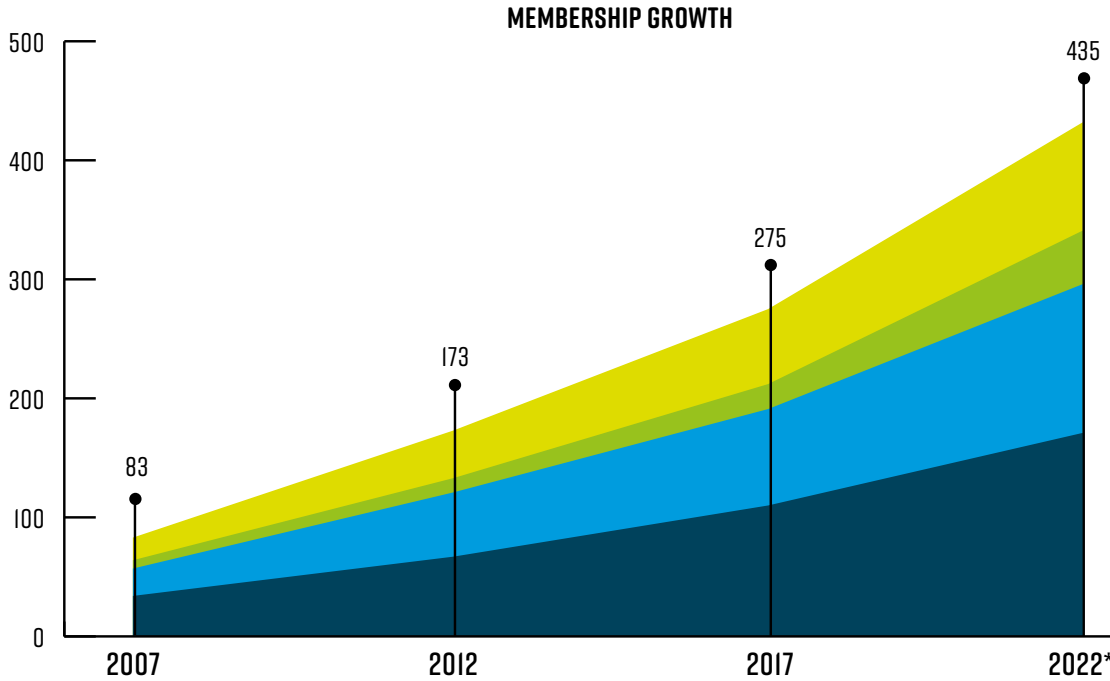
A handwritten signature in black ink, appearing to read "M. Fratianni".

Michael Fratianni



MEMBERSHIP GROWTH: A VAST AND VARIED NETWORK

Green Marine welcomed 60 new members since its last performance report was published in June 2021 – a recruiting record for a 12-month span! The record number was achieved despite the hindrances that COVID-19 presented in being able to meet new people in person. Green Marine’s established credibility has definitely served as a strong calling card ahead of time and subsequently online in relating the program.



Green Marine’s membership has significantly increased in all categories.
* Membership as of May 20, 2022



PARTICIPANTS

Green Marine’s **171 participants** are ship owners, port authorities, terminal operators, shipyard managers and the Seaway corporations.



ASSOCIATIONS

The **45 association members** serve as ambassadors by promoting Green Marine’s efforts and successes and by encouraging their own members to join.



PARTNERS

The **125 partners** are businesses that assist participants in improving their environmental performance through maritime-related expertise, innovative technologies, equipment and services.



SUPPORTERS

Green Marine’s **94 supporters** encourage and bolster the sustainable development initiatives undertaken by the industry. They help to review and shape the program.

MEMBERSHIP GROWTH: HIGHLIGHTS

The new membership reflects a strong interest by the maritime industry in having an established framework to measurably improve its sustainability with a step-by-step approach determined by peers to achieve measurable improvements. A third of the new members over the last 12 months were participants.

PARTICIPANTS

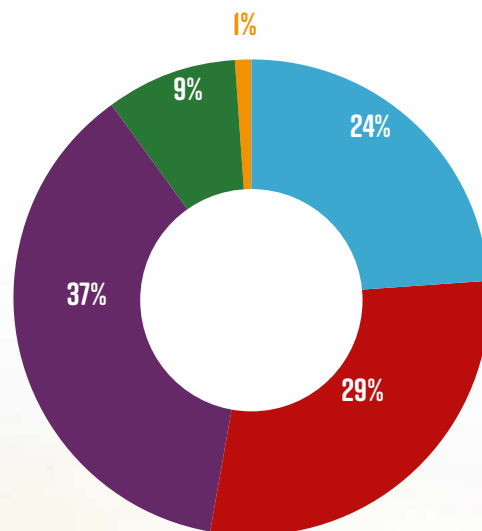
The program's overall membership continues to vary in terms of geographic location with the welcoming of a greater number of U.S. participants from new areas. The newest participants include the fourth largest American port, the Georgia Ports Authority, and major terminal operators such as Ports America, which operates 70 terminals at 33 ports, and SSA Marine with its presence in 10 countries. Ports America's Baltimore terminal is its first certified location, with the group intending to enrol its other terminals incrementally over the next few years. Similarly, SSA will be seeking certification for two California terminals next year to pilot the program and, if successful, will engage in a broader rollout within the Green Marine program.

Green Marine's largest growth in terms of participants over the past year has been in the shipyards category. The program now has 15 shipyard participants with operations at 18 locations within Canada and the United States.

Robust involvement in the program continues to be reflected by the balanced representation of the different types of participants that comprise the North American industry. With the notable exception of the 1% representing the Canadian and U.S. Seaway corporations, the other categories are fairly equal, the other three categories of ports, terminals, and ship owners are fairly equal. Though ship owners are about a quarter of the participants, **Green Marine's ship owners represent well over 550 vessels** with more on the way through fleet renewal and expansion plans (see p. 12 for a breakdown of Green Marine's ship owner fleets).

- Valero Energy (Gaspé Terminal)
- Fincantieri ACE Marine
- Fincantieri Marinette Marine
- Georgia Ports Authority
- Greater Lafourche Port Commission/Port Fourchon
- Groupe Somavrac - Fonbrai (Grande-Anse)
- Hendry Marine Industries
- Irving Shipbuilding Inc. - Halifax Shipyard
- Lindblad Expeditions
- Metro Ports - Galveston
- Oceanex (terminal)
- Ports America
- R.J. MacIsaac Construction Ltd.
- Shaver Transportation
- Shelburne Ship Repair
- Société portuaire du Bas-Saint-Laurent et de la Gaspésie
- Southern Fleet & Logistics Group, LLC (SFL Group)
- SSA Marine, Inc.
- Viking Cruises

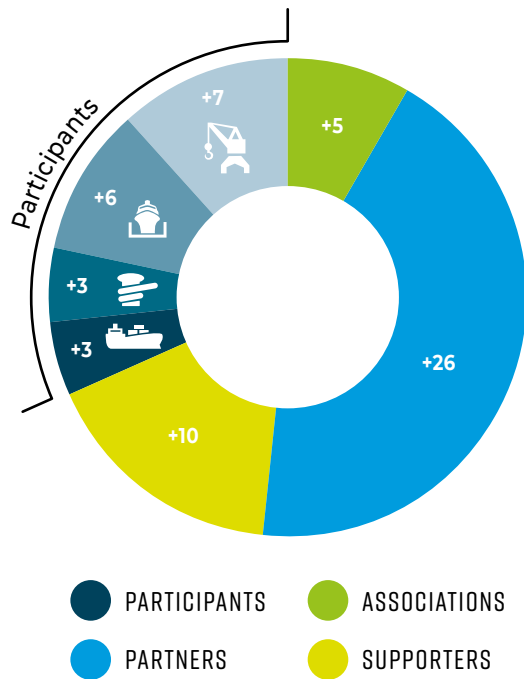
DISTRIBUTION OF ALL PARTICIPANT TYPES



	SHIP OWNERS		SHIPYARDS
	PORTS		SEAWAY
	TERMINALS		



COMPOSITION OF THE NEW MEMBERSHIP



SUPPORTERS

Green Marine appreciates the endorsement of the **94 supporters** from various environmental organizations, governmental agencies and research entities. These members provide valuable insights on the program's direction, priorities, and feasible but demanding environmental performance criteria.

- BC-Smart
- California State University Maritime Academy
- Canadian Water Resources Association
- Eco Canada
- Great Lakes Research Collaborative
- Institute of Marine Engineering, Science & Technology
- Maryland Environmental Service
- Ocean Frontier Institute
- Ocean School
- South Shore Clean Cities

ASSOCIATIONS

The new association members align well with Green Marine's focus on the decarbonization efforts within the program's development. Having the Canadian Marine Industries and Shipbuilding Association join this past March as one of Green Marine's five new association members is also great news in terms of contributing to the industry's greater efforts to build for a future that has Green Marine's participating ship owners focused on a vessel's lifecycle from cradle to grave.

- Blue Sky Maritime Coalition
- Canadian Marine Industries and Shipbuilding Association
- PortVision50
- St. Lawrence Cruises
- Vancouver Maritime Centre for Climate

PARTNERS

Green Marine's increasing array of **125 partners** reflects the greater expanse of challenges being undertaken by the participants with newly available expertise in the realms of monitoring and management, as well as continually evolving technologies that significantly increase efficiencies as they reduce environmental impacts. The range of partners also reflects a keen awareness of the potential to continue to innovate for an industry vital to achieving the required clean and quiet modes of transportation.

- Alterum
- AmmPower Corp.
- Anchor Sandblasting and Coatings
- B2B Industrial, Inc.
- BCA Environmental Consultants, LLC
- Bilge Clean Ltd
- EA Engineering
- EConcrete
- FuelTrust
- Kamelot Marine Services, LLC
- Lucent Water, LLC
- Mirapakon
- Nanotech Eco Solutions CDN Inc.
- Novaport
- OneOcean Group
- Opsealog
- Phoenix Lighting
- Republic Services
- Rise-x.io
- SCADALLIANCE
- Shield Group
- SLR Consulting (Canada) Ltd.
- Soft dB
- Tritium Technologies, LLC
- Universal Environmental Solutions, LLC
- Waterford Energy Services Inc.

TIMELINE



2007

- **OCTOBER**
Green Marine is officially launched in Quebec City!

2008

- **JANUARY**
The Green Marine Management Corporation is established.
- **FEBRUARY**
GreenTech 2008 - Green Marine's first annual conference - is held in Montreal.
- **OCTOBER**
The first self-evaluation guides are released covering six initial indicators.

2009

- **MAY**
Annual results are published for the first time for Green Marine's founding participants.
- **NOVEMBER**
The inaugural edition of Green Marine Magazine is published.

2010

- **JANUARY**
Green Marine appoints an Executive Director.
New indicator: Environmental Leadership for ports.
- **OCTOBER**
Green Marine opens its membership to all maritime companies operating in Canada and the United States.

2011

- **JANUARY**
Two new indicators: Prevention of Spills and Leakages, Dry Bulk Handling and Storage.

2012

- **JANUARY**
New indicator: Garbage Management for ship owners.
- **APRIL**
Green Marine signs a Memorandum of Cooperation with Transport Canada.

2014

- **NOVEMBER**
Green Marine hires a West Coast Program Manager and opens a new office in Seattle, Washington.

2015

- **JANUARY**
New indicator: Waste Management for ports and terminals.

2016

- **FEBRUARY**
The program's 100th participant is welcomed.
- **NOVEMBER**
Green Marine hires an East Coast Program Manager and opens a new office in Halifax, Nova Scotia.

2017

- **JANUARY**
New indicator: Underwater Noise for ports and ship owners.

2019

- **NOVEMBER**
The creation of a second staff position in communications.

2020

- **JANUARY**
Launch of the Smart Guide as a pilot project.
- **MARCH**
New indicator: Ship Recycling for ship owners.
- **APRIL**
Green Marine Europe is officially launched!

2021

- **JANUARY**
New indicator: Community Relations.
- **MARCH**
New North Atlantic Advisory Committee holds its first meeting.
- **SEPTEMBER**
The hiring of a second U.S. based program manager.

2022

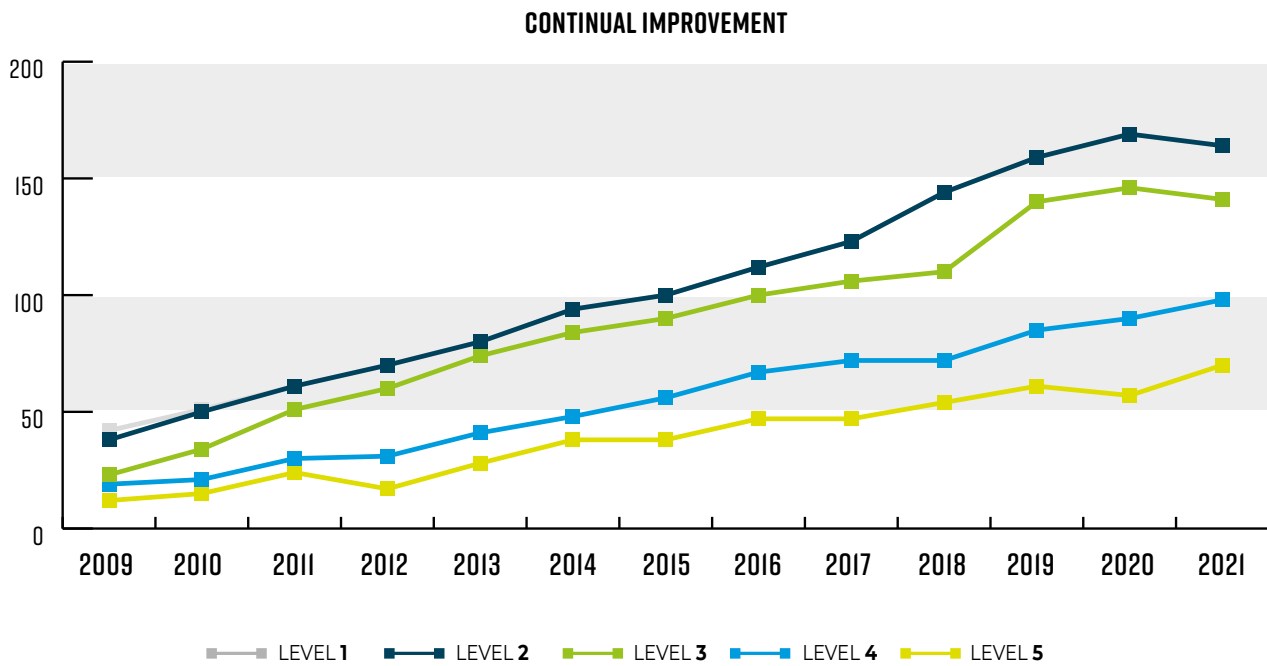
- **MAY**
New website!
- **JUNE**
The 15th edition of GreenTech (in Montreal).
- **OCTOBER**
The 15th anniversary of the environmental certification program.



CONTINUAL IMPROVEMENT

The **overall average for the 2021 environmental performance by Green Marine participants is once again at 3.0**. This is great news after three consecutive years at 2.9. The slightly higher average is noteworthy given the substantial development of the environmental certification program in 2021. This slim but solid overall improvement was achieved in the context of a

larger participating membership (with new additions typically needing some time to familiarize themselves with all the program's criteria), a broader scope of addressed issues, and tougher requirements for certain performance indicators to keep them sufficiently demanding at each of the incremental levels beyond the required Level 1 monitoring of regulations.



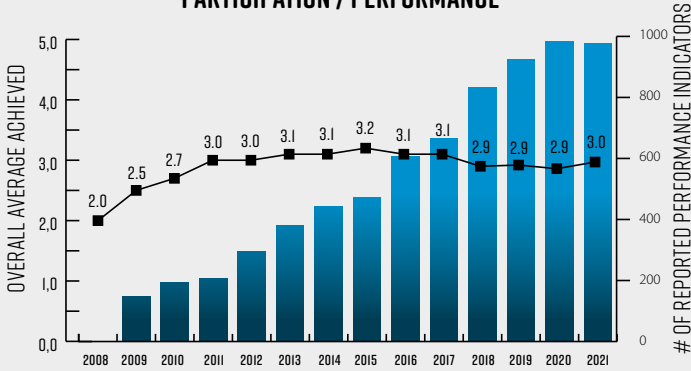
The upward curves for the light blue and yellow lines are a tangible sign that Green Marine participants improve their performance year over year, as they illustrate the increasing number of participants reaching higher levels (see p. 27 for the scale of levels description and all the individual results).

The 2021 results include 11 new participants reporting on their environmental performance for the first time. They contributed to an annual average increase of 11% in the number of submitted reports over the past 14 years of Green Marine's self-evaluation process.

While the number of reporting participants increased in 2021, the net number of summary report forms decreased from

170 to 164. The slight reduction stems from some terminal operators choosing to consolidate the performance reporting for their terminals rather than filing an assessment for each operation and/or location. When a participant decides to aggregate operations or locations in a summary report form, the result is always based on the lowest level achieved within the reported cluster.

PARTICIPATION / PERFORMANCE

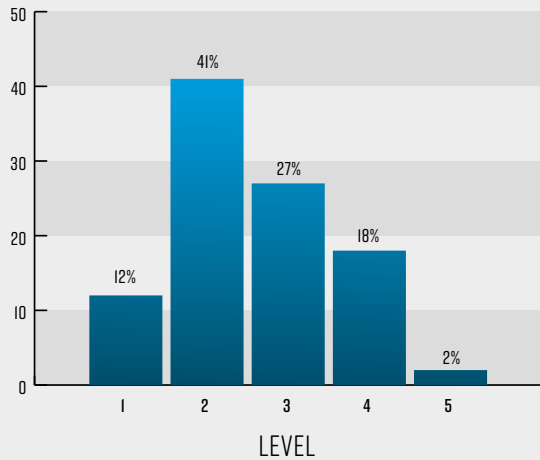


PERFORMANCE WELL BEYOND REGULATIONS

A total of 976 performance levels were reported for 2021. Overall, the percentage of participants with an average of or above Level 3 and 4 rose by 7% in 2021. It went from 22% to 27% for Level 3, and from 16% to 18% for Level 4, indicating the continued improvement of the participating membership.

With **88% of the participants on average reaching Level 2 and almost half (47%) on average at Level 3 or higher**, it is clearly evident that the Green Marine environmental certification program leads to performance well beyond regulations (which corresponds to Level 1).

PERCENTAGE OF PARTICIPANTS WITH AN AVERAGE AT OR ABOVE LEVELS 1, 2, 3, 4 AND 5

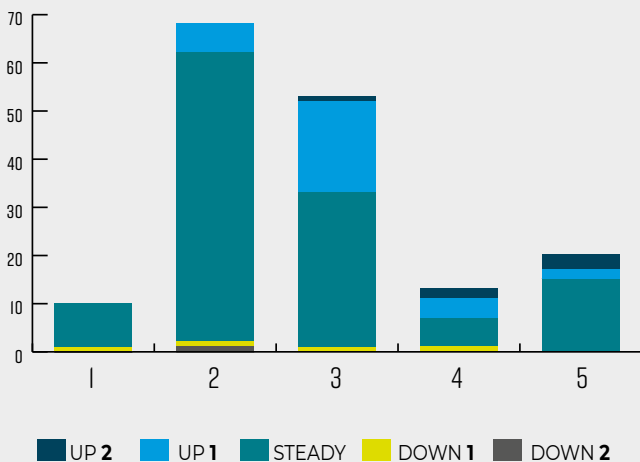


GHG MEASUREMENT

A core principle of the Green Marine program is that you cannot properly manage what you don't measure. It is good to see this approach put into action with 60% of all the participants achieving Level 3 or higher for the greenhouse gas emissions performance indicator, with ship owners conducting a **fleet-wide GHG inventory**, and landside participants reporting on the GHG emissions of their operations.



WASTE MANAGEMENT COMPILED LEVELS REPORTED BY IMPROVEMENT



BIGGEST IMPROVEMENT: WASTE MANAGEMENT

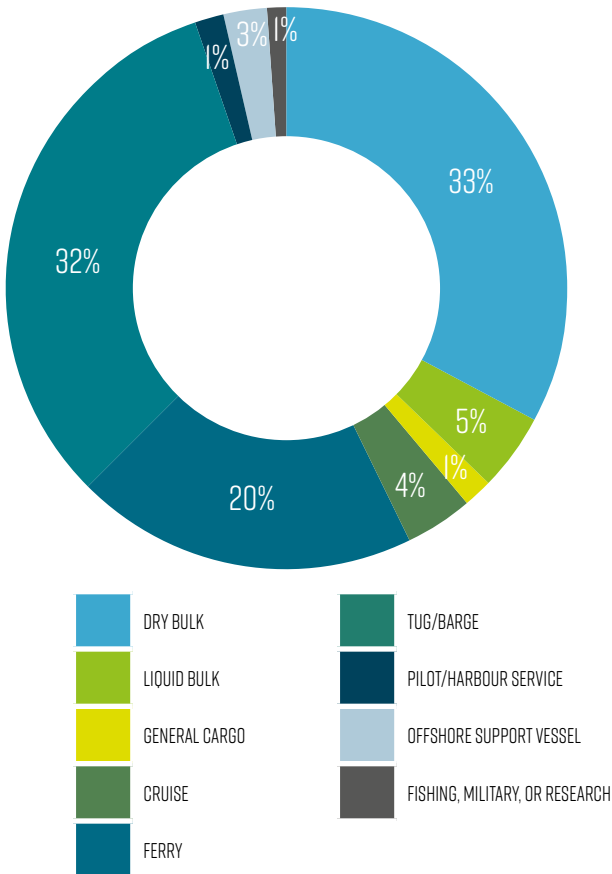
The biggest overall improvement in 2021 related to the waste management performance indicator that applies to all participants. Together, the participants achieved a net increase of 36 levels across all sectors (43 levels up on the 164 reported levels and only 7 levels down: see the compiled table on the left).

By participating category, ship owners and ports each went up 10 levels, terminals rose by 19 levels, and shipyards were 4 levels higher in the waste management performance indicator.

HIGHLIGHTS SHIP OWNERS



A TOTAL OF **42 SHIP OWNERS** ARE CURRENTLY GREEN MARINE PARTICIPANTS, REPRESENTING A **FLEET OF WELL OVER 550 VESSELS** OPERATING IN A WIDE RANGE OF FUNCTIONS.



56%

More than half (56%) of the participating ship owners have an **average at or above Level 3** for their 2021 reporting.



For the initial year of mandatory reporting for the new **ship recycling performance indicator**, well over a third of the ship owners (39%) met or surpassed Level 2, thereby exceeding the regulatory requirements, and implementing best practices.

HIGHLIGHTS SEAWAY



BOTH SEAWAY CORPORATIONS HAVE INVESTED IN TECHNOLOGICAL IMPROVEMENTS TO **REDUCE THEIR ENVIRONMENTAL IMPACTS AND IMPROVE OPERATIONAL EFFICIENCIES.**

While a hands-free mooring system was primarily installed to improve safety, it also decreased the time that it takes to go through the system's locks, thereby also reducing vessel fuel use and the related emissions.

-69%

Major investments in cleaner technologies furthermore **reduced** the St. Lawrence Seaway Management Corporation's **carbon emission by 69%** compared to 2005 levels, putting it ahead of the 40% to 45% reduction target of the Canadian government by 2030.

COLLECTIVELY, GREEN MARINE'S LANDSIDE PARTICIPANTS – I.E., PORTS, TERMINALS AND SHIPYARDS – ACHIEVED NET POSITIVE IMPROVEMENTS FOR EACH APPLICABLE PERFORMANCE INDICATOR.

HIGHLIGHTS PORTS



THE ADDITION OF QUITE A NUMBER OF U.S. PORTS IN RECENT YEARS HAS PRODUCED A **BINATIONAL BALANCE** WITH A TOTAL OF 52 PORTS NOW PARTICIPATING IN THE PROGRAM: 28 IN THE U.S. AND 24 CANADIAN PORTS.

The ports achieved their highest performance level – a 3.5 average – for the **spill prevention and stormwater management** performance indicator. Two-thirds of the ports reached Level 3 or higher, while more than half (52%) obtained Level 4 or Level 5.

80%

For **environmental leadership**, 80% of the ports obtained **Level 3 or higher.**

24%

In line with the principle of measuring to manage better, it is also good to see that almost a quarter of the ports (24%) are **conducting a port-wide inventory of greenhouse gas emissions.**

HIGHLIGHTS SHIPYARDS



SHIPYARDS ARE THE CATEGORY WITH THE **BIGGEST GROWTH AND MOST IMPROVEMENT!** A TOTAL OF 14 SHIPYARD OPERATORS WERE CERTIFIED FOR THEIR 2021 REPORTING COMPARED TO NINE FOR 2020 – A 55% INCREASE.

The outstanding growth of this category of participants reflects a new era for shipyard owners/managers who are clearly seeking a formalized template to measure their environmental progress. As a result, Green Marine is now in the process of establishing a distinct program specifically for them rather than continuing to have them assess their performance based on the same criteria as for terminal operators. This work is already under way and expected to be completed in time to report on their 2023 performance.

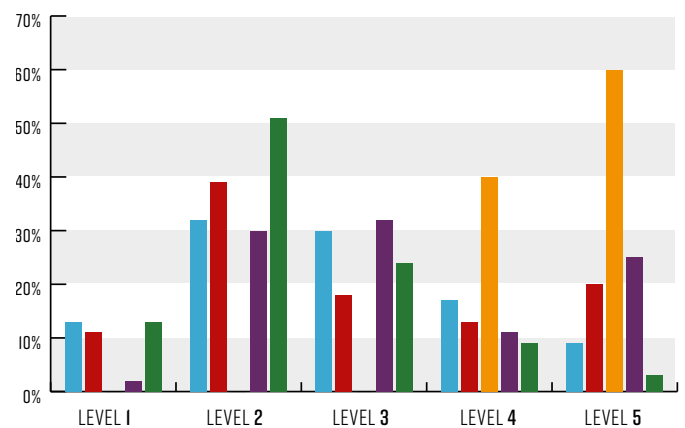


The best improvement for the shipyard category was made for the **spill prevention and stormwater management** performance indicator where shipyards went up by 4 levels.

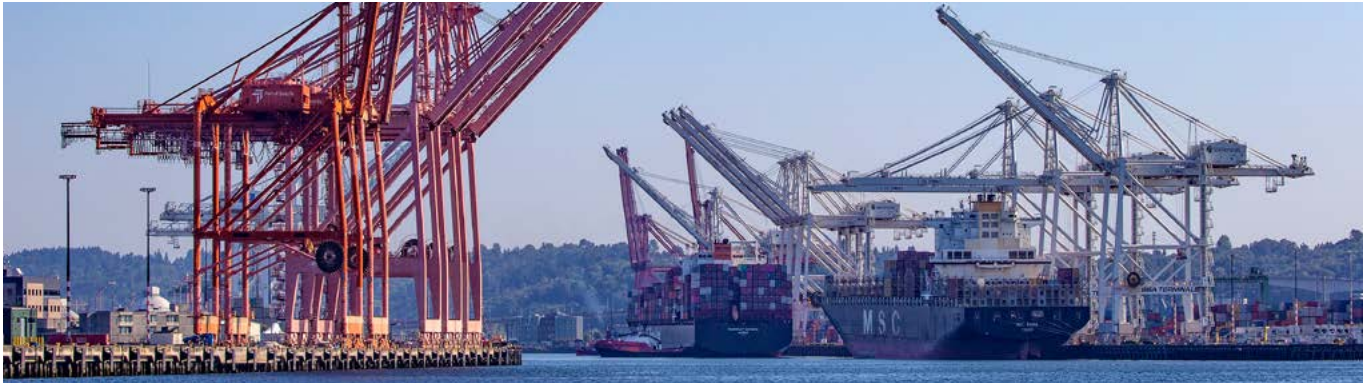


This group of participants achieved a milestone with shipyards reaching the program's highest **Level 5** – reflecting excellence and leadership – for the first time, and not just for one but two performance indicators! These achievements were made for spill prevention and stormwater management, as well as for waste management.

DISTRIBUTION OF AVERAGE LEVEL ACHIEVED ACROSS ALL PERFORMANCE INDICATORS PER PARTICIPANT TYPE



HIGHLIGHTS TERMINALS



TERMINAL OPERATORS – INCLUDING FERRY TERMINALS – FORM THE **LARGEST GROUP OF GREEN MARINE PARTICIPANTS** WITH 60 EVALUATIONS SUBMITTED FOR THE 2021 ENVIRONMENTAL PERFORMANCE.

Uniquely, terminal operators have the option of reporting either as a corporate entity with all their locations within a single set of results, or on the basis of individual terminals. If reporting as a corporate entity, the lowest level reached at one of the terminals among all of the company's locations is the one that must be reported.

The individual certification option involves each participating terminal submitting its own set of results and having each location undergo the required external verification.

In the interest of either streamlining their reporting and/or seeking an overall view of their company's efforts, a number of terminal operators choose to report as a corporate entity. This explains why **the 60 self-evaluation reports submitted for 2021 relate to 194 terminals in Canada and the United States.**

68%

A majority (68%) of terminal operators have a **cumulative average at or above Level 3**, which means they are making efforts beyond best management practices, such as conducting inventories to measure their impacts, and implementing management plans.



As the the largest group of participants, **terminals also moved up the most levels – 84 in all.** This works out to all of the terminals improving by one to two levels on average.



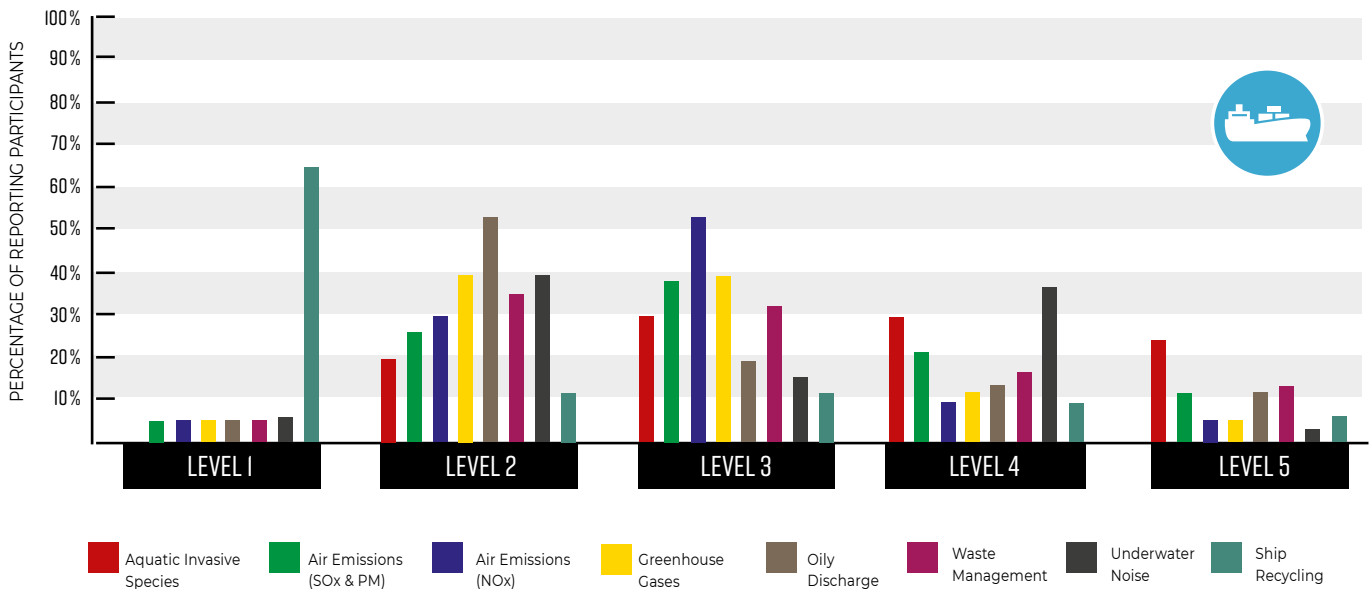
They also progressed in terms of **environmental leadership** with a 10-level overall improvement, as well as going up 9 levels overall for the **greenhouse gases and air pollutants** performance indicator.



RESULTS BY TYPE OF PARTICIPANT FOR EACH PERFORMANCE INDICATOR

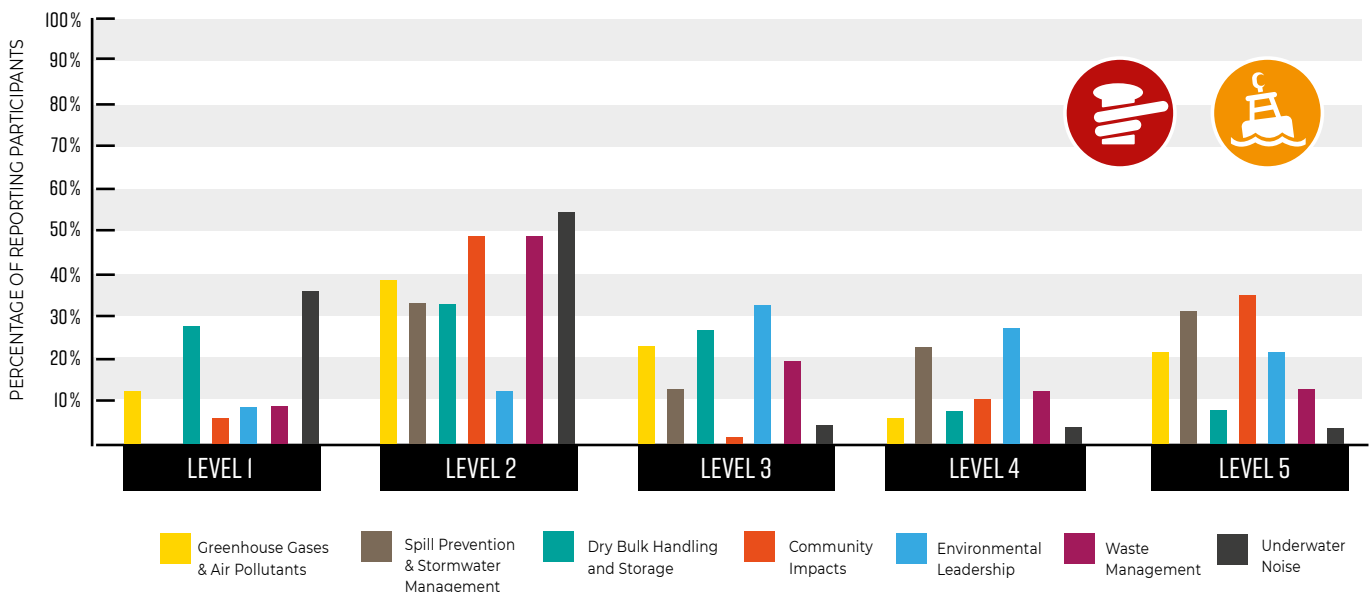
SHIP OWNERS

The program's success over time is reflected in this group's highest level of performance being achieved for the **aquatic invasive species** indicator established within the program's original scope in 2007. All 21 of the ship owners to whom the AIS indicator is applicable exceeded Level 1. In fact, **81% achieved Level 3 or higher with more than half (52%) at Level 4 or above.**



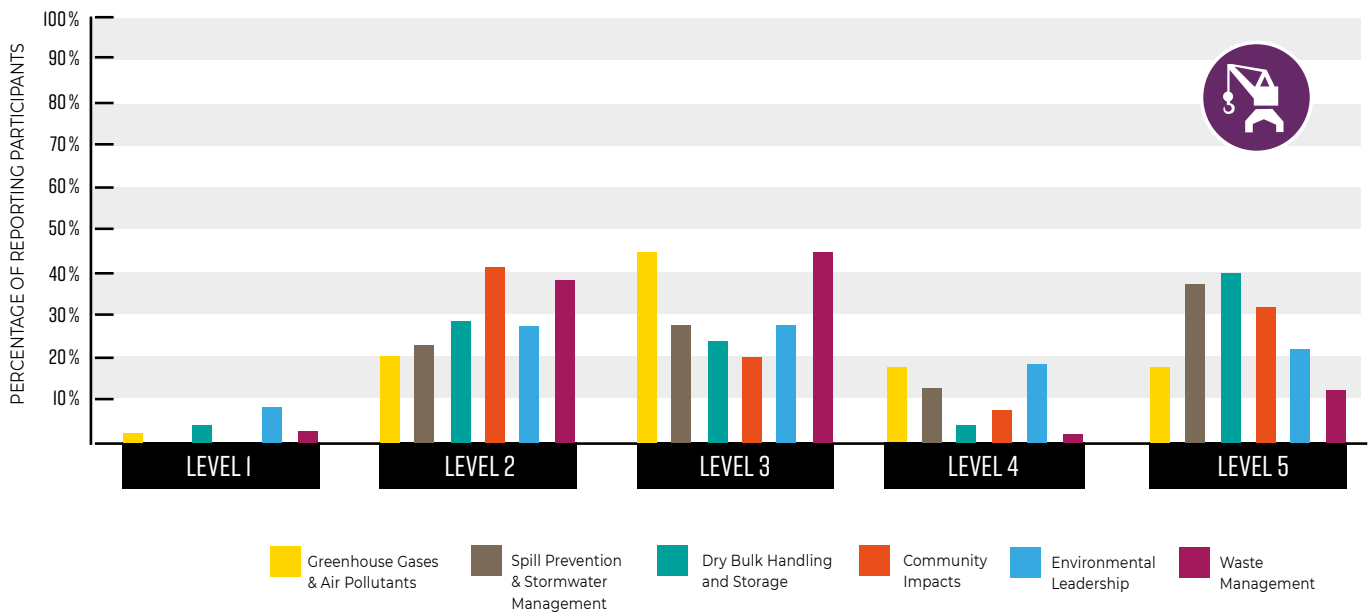
PORTS & SEAWAY

More than half of the ports (51%) have an average at or above Level 3. Both the Canadian and U.S. Seaway corporations continue to jointly report an overall average above Level 4 with that level or higher maintained for all their applicable performance indicators.



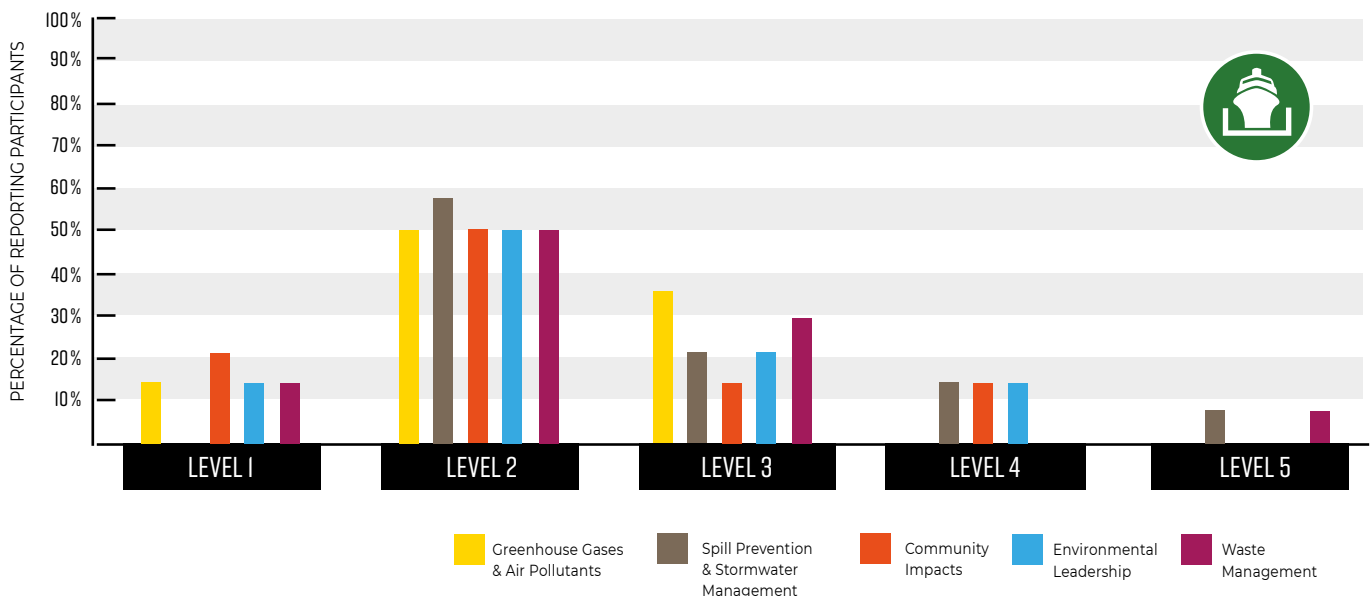
TERMINALS

Terminals showed the second-best improvement after shipyards in terms of their 2021 environmental performance. Best improvements were made in terms of **spill prevention and stormwater management** with terminals increasing their performance by 19 levels.

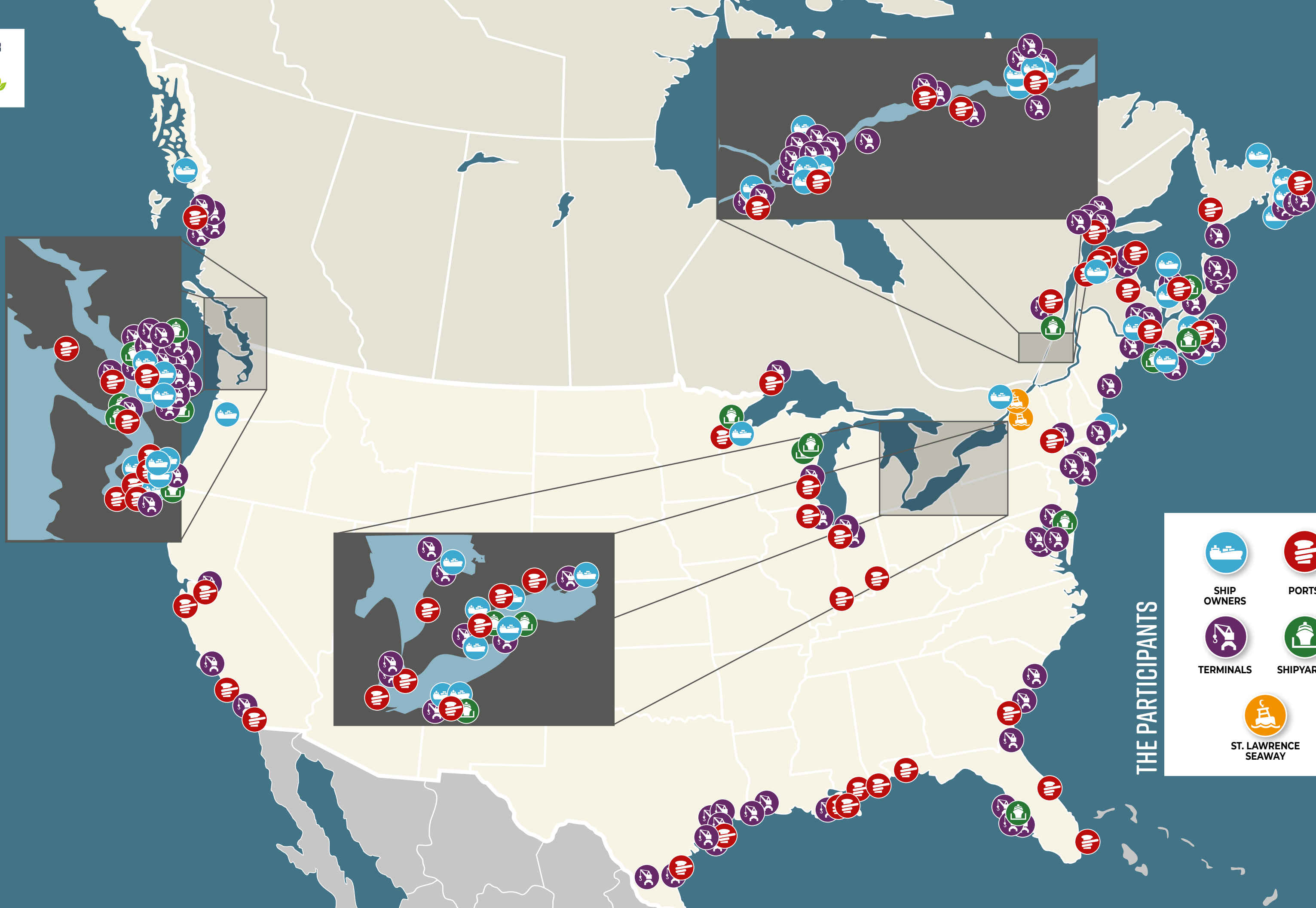


SHIPYARDS

The shipyard category of participants **improved the most in 2021** by 15 levels for an overall average of 1.7 improved levels per shipyard participant over 2020.



All the graphs shown in this report are based on the results as of May 20, 2022.



THE PARTICIPANTS



SHIP OWNERS



PORTS



TERMINALS



SHIPYARDS



ST. LAWRENCE SEAWAY



PROGRAM DEVELOPMENT

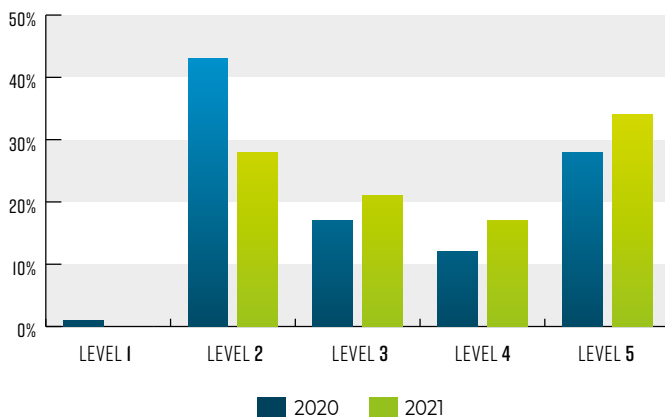
The **3.0 overall average** obtained by Green Marine's participants for their 2021 environmental performance **reflects significant effort and achievement** given the program's constant evolution. Green Marine has continued to broaden the scope of challenges assumed by its participants. The program now has 14 performance indicators instead of the original six introduced when the initiative was launched 15 years ago, with more on the way.

Additionally, the criteria for each performance indicator regularly undergo review to ensure they are sufficiently challenging at each of the four levels beyond the base Level 1 monitoring of regulations as new policies and legislation come into play.

2021 LANDSIDE UPDATES

Major changes were carried out for the 2021 self-evaluation process. On the landside, a substantial revision of the **spill prevention and stormwater performance** indicator involved a thorough review of the U.S. regulatory baseline and current practices. The addition of the word **stormwater** to this indicator now properly encompasses this aspect of the indicator's scope. Despite the indicator's major revision, every landside participant reported satisfying criteria beyond the Level 1 monitoring of regulations necessity. As a result, this is the **only landside performance indicator with no participants remaining at Level 1 in 2021**. Participants also improved at the higher levels despite the indicator's considerable revisions. Approximately one-third of the landside participants (ports, terminals, and shipyards) attained Level 5 in 2021, compared to one-quarter of them doing so for the previous reporting year – a significant increase!

**PERCENTAGE OF PARTICIPANTS AT EACH LEVEL
SPILL PREVENTION & STORMWATER MANAGEMENT**



NEW PERFORMANCE INDICATOR

A majority (65%) of landside participants also voluntarily reported on the new **community relations** performance indicator with the proportion being even higher (80%) among ports. This benchmarking in preparation for mandatory reporting on 2022 efforts is a big step in terms of the program's evolution.

The new community relations performance indicator stretches the boundaries of the certification program. It requires landside participants to go beyond addressing strictly environmental issues to continually improving their related communications, social licence and partnership approach to enhancing community with the neighbouring public and other key stakeholders. The voluntary benchmarking familiarizes participants with all of the new criteria and provides Green Marine with helpful feedback that could be used to further clarify or refine the new performance indicator.

2021 SHIP OWNER UPDATES

After a voluntary year of reporting in 2020, ship owners were required to evaluate their performance for the **ship recycling** performance indicator that became mandatory as of the reporting on 2021 performance.

Ship owners also had the criteria for the **aquatic invasive species** performance indicator updated in regard to ballast water management applicability, which added recognition for logging and sharing data on the use of a ballast water treatment system.

Updates were also made to the **oil discharge** performance indicator for ship owners in terms of improving the criteria's applicability, and ensuring that it sufficiently exceeds regulations at each performance level. Level 5 criteria were expanded to eliminate any stern tub oil-to-sea interface, as well as to prohibit any discharge in sensitive areas.

2022 PROGRAM



AQUATIC INVASIVE SPECIES



CARGO RESIDUES



COMMUNITY IMPACTS



COMMUNITY RELATIONS



DRY BULK HANDLING AND STORAGE



ENVIRONMENTAL LEADERSHIP



GREENHOUSE GAS EMISSIONS



OILY DISCHARGE



POLLUTANT AIR EMISSIONS NOx



POLLUTANT AIR EMISSIONS SOx & PM



SHIP RECYCLING



SPILL PREVENTION / STORMWATER MANAGEMENT



UNDERWATER NOISE



WASTE MANAGEMENT



Ship owners



Ports and Seaway



Terminals and shipyards





PROGRAM DEVELOPMENT WHAT'S IN THE WORKS?

Following Green Marine's signature approach of collaboration, the working groups, advisory committees, and board of directors all have their work cut out for them leading up to reporting on 2022 efforts.



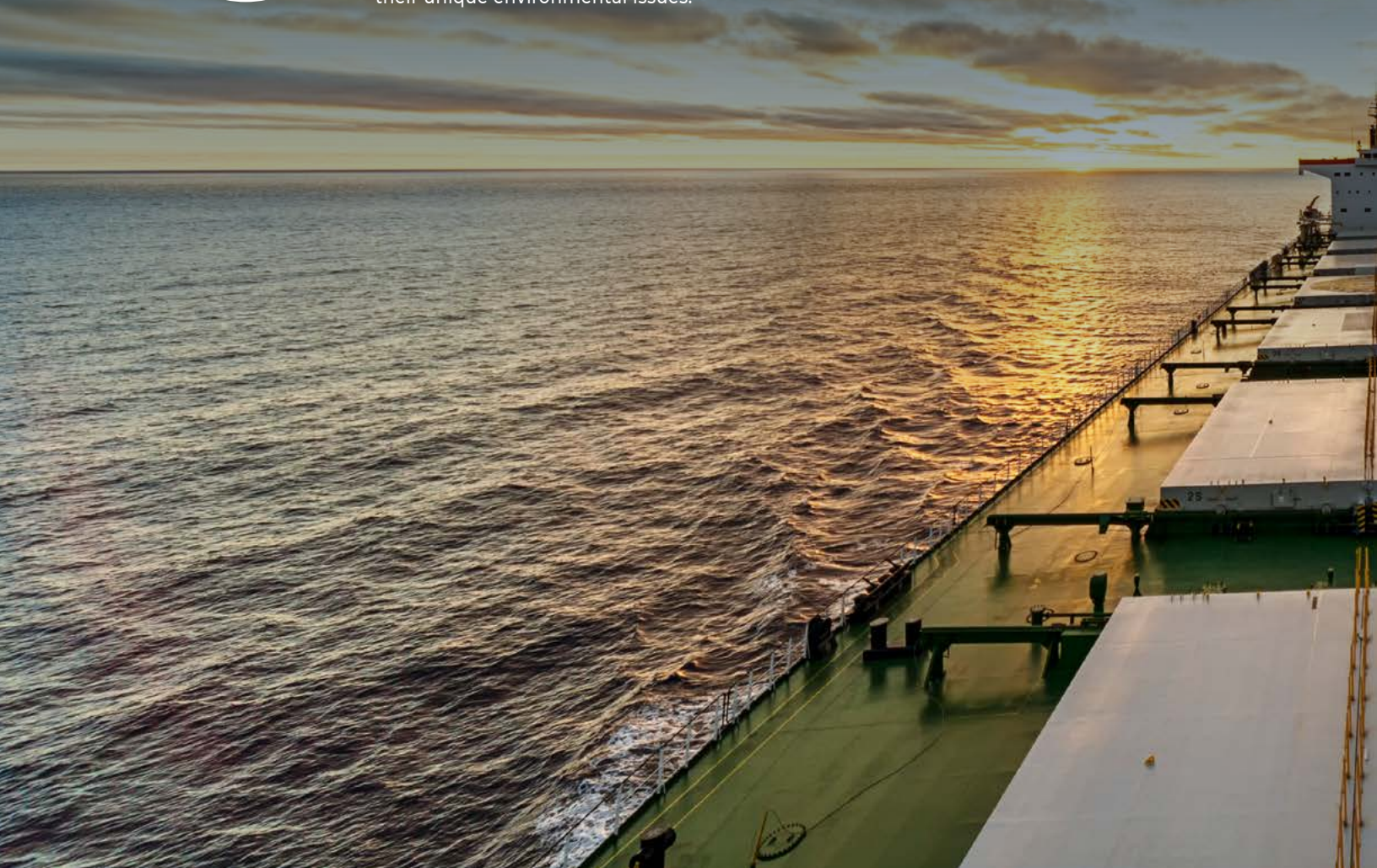
Ship owners will be introduced to a **new performance indicator on environmental leadership** as of next year. This new performance indicator, as with the one for landside participants, aims at encompassing significant green initiatives that are not part of the program's other indicators.

The work focused on charting the route to decarbonization by 2050 is also complex. For the 2022 program, Green Marine revised the greenhouse gas emissions performance indicator and increased **reduction targets** at its highest level that **exceed the International Maritime Organization's decarbonization targets for 2050**. To achieve Level 5, ship owners can achieve Level 5 by demonstrably reducing their carbon emissions by 2.4% on average yearly since 2008, which aligns with the trajectory leading to complete decarbonization by 2050.



On the landside, Green Marine is working to further address biodiversity issues with the **new performance indicator on aquatic ecosystems** being developed for ports. The new criteria will involve the health and characterization of aquatic ecosystems as well as shoreline protection.

As mentioned elsewhere in this report, a working group is also looking at distinguishing the shipyard criteria from the requirements for terminals so that the increasing number of shipyard participants have their own distinct criteria and eventually new performance indicators targeting their unique environmental issues.



COLLABORATIVE ENDEAVOUR

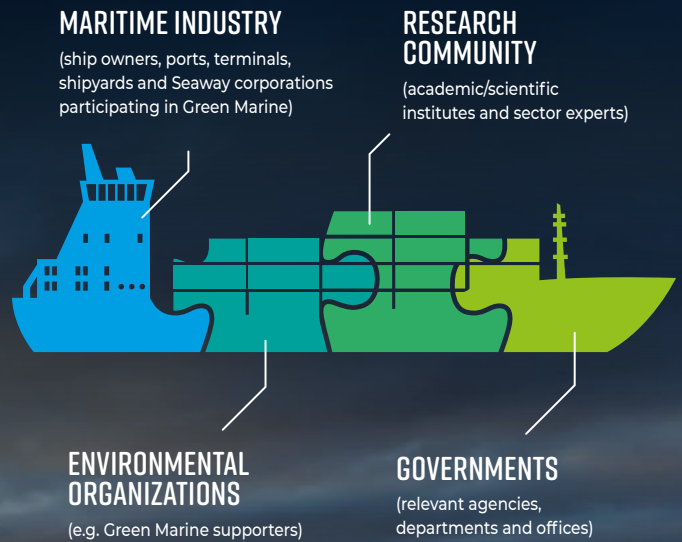
Since its very conceptualization and then launch 15 years ago, Green Marine has kept on course in terms of taking a collaborative approach to everything. The program's continued success is firmly hinged on this cooperative industry-led synergy that seeks out the best advice from relevant stakeholders and experts and then works together until they agree upon a progressively challenging but still feasible course of action to address a prioritized issue.

As always, the program development process involves working groups that include Green Marine's supporters (representing environmental groups, governmental agencies, and/or academic research facilities) discussing and drafting the criteria. It is then reviewed by each of the advisory committees whose members can make additional recommendations. All participants have a chance to review and comment on the proposed criteria before the performance indicator is submitted to Green Marine's board of directors for approval.

If there's one thing for sure, the pandemic has made us all embrace online technologies in an unprecedented way to share information and exchange important views. The Green Marine team is also quick to pick up the phone when necessary and to start to meet in person again with members when visits are warranted.

Online technology continues to facilitate the gathering of each of the four regional advisory committees whose members pay attention to regional concerns in addition to the program's overall direction. The many other working groups and meetings likewise transcend locations and time limitations through online gatherings.

The energy, time, expertise, resources and thoughtful reflection that so many among the overall membership (participants, associations, supporters and partners) commit to advancing the environmental certification program year after year is nothing short of astounding. **Our members are the reason why Green Marine has been able to achieve so much over the past 15 years.**



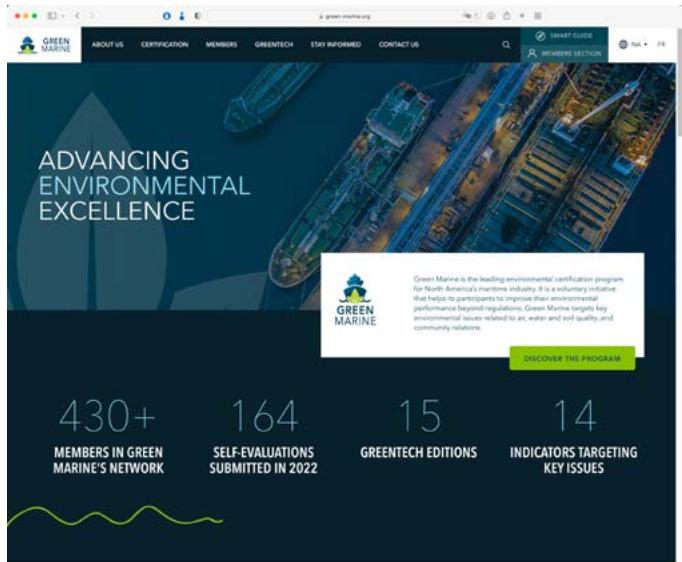
35+ MEETINGS
(MAY 2021 – MAY 2022)

-  **Board of Directors (4)**
-  **Advisory Committees (7)**
-  **Technical Committees (3)**
-  **Information Sessions for Participants (4)**
-  **Working Groups (15)**
-  **Ferry Forum (1)**
-  **Verifiers' Debrief and Training (2)**



ENGAGING COMMUNICATIONS

It has been a busy year in terms of enhancing Green Marine's various forms of outreach. For starters, if you haven't already, check out Green Marine's totally **revamped website at green-marine.org** where it is now easier to navigate your way to finding out whatever you need about the environmental certification program, the yearly performance of the participants, as well as information about the overall membership. The new website encompasses the the program's **international scope** as it now offers a geographic option that makes it easy for users to navigate between the information related to Green Marine and to Green Marine Europe, with the respective performance indicators, membership, results and much more in both French and in English for each side of the Atlantic.



SOCIAL MEDIA

Social media presence is also on the rise. In September 2021, Green Marine coordinated a week-long social media campaign to encourage participants to showcase their environmental commitment in the process of building awareness regarding the program. **The social media campaign consisted of five posts highlighting key Green Marine messages.**

Nearly a third of participants (48 in all) shared at least one campaign post on one or more social media platforms (Twitter, LinkedIn, and/or Facebook).

A total of 219 posts were shared (279 if we count those who shared posts in English and French).



SOCIAL MEDIA CAMPAIGN: GREEN MARINE'S DIRECT POSTINGS PERFORMANCE



103,199
Impressions
(the number of times
a post was viewed)



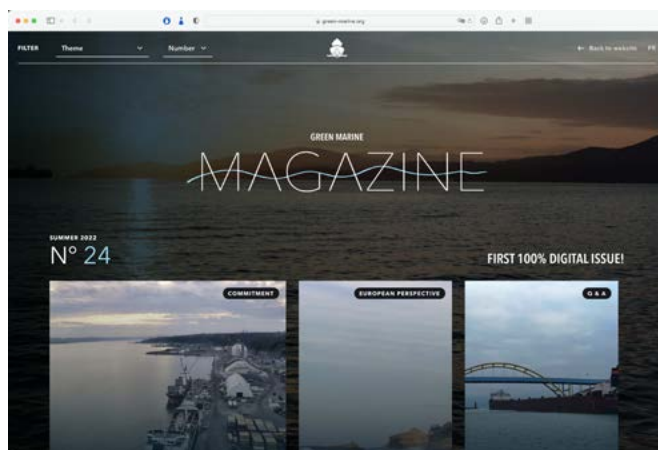
409
Engagements
(likes, comments, shares)



1,042
Clicks
(links)

LESS PAPER, MORE NATURE

The spring/summer issue of **Green Marine Magazine** was the first exclusively digital edition of this publication! The magazine still carries in-depth coverage on various matters relating to the program and its membership, but in a convenient format to read at a desk computer or on-the-go with a phone. The digital format responds to the surveyed membership's request to reduce paper use. (By the way, this report is printed on a certified eco-friendly paper. Please do recycle it eventually but share it with others first).



CARBON OFFSET

Still on the subject of minimizing Green Marine's environmental footprint, all of the operations carried out by the program's offices and staff – including all the online work and presence such as newsletters, emails, video calls and the virtual gatherings of committees and working groups – have been offset by purchasing high-quality gold standard credits to earn the organization a carbon neutral business certification.



PROUD INVOLVEMENT

For some time now, Green Marine has been encouraging its participants to showcase their certification in the **#BragAboutIt** newsletter column. More and more of the participants have answered this call. For example, it was great to have Green Marine among the flags raised aboard the vessels of participant **Washington State Ferries** during 2022 Earth Day.





GREEN MARINE
ADVANCING ENVIRONMENTAL
EXCELLENCE

2021 RESULTS

The results share each participant's environmental performance in 2021 within each applicable performance indicator on the program's 1-to-5 scale.

SCALE OF LEVELS



COMPREHENSIVE VERIFICATION

With Green Marine's performance indicators and related criteria always undergoing annual review and revision when required, nothing and nobody can remain stagnant.

This equally applies to the external verifiers who make certain every two years that each participant has correctly reported performance levels for every applicable indicator and has the data and/or documentation to support that level. To ensure that the **third-party independent verifiers** themselves fully understand all of the program's changing requirements, Green Marine undertakes to conduct regular training with them as well as holding question and answer sessions when new topics or particular concerns arise. Green Marine has also implemented a quality assurance process to make certain that the verification is carried out with the same consistent rigour by all of the accredited verifiers.

Last year, the pandemic and its related travel restrictions forced Green Marine to develop new guidelines for its accredited verifiers to conduct their verifications remotely with the compulsory face-to-face discussion taking place through videoconferencing if an in-person or on-site visit by the verifier was deemed unsafe. The revised guidelines ensured that the verification process was done in the same thorough and rigorous manner.

With some pandemic restrictions still in place during the early months of 2022, Green Marine allowed for the remote verification process again. Nevertheless, a majority (53%) of verified participants were visited on site by the verifier.

SMART REPORTING

The Smart Guide, which is Green Marine's online reporting tool for participants, must also be regularly updated to provide accurate responses and subsequent data. Fully rolled out for verifiers in time for the reporting on 2021 performance, it has made it easier for verifiers and participants to share detailed information in confidence ahead of a site visit. This behind-the-scenes work has brought its share of technical challenges but is ultimately worth it to be able to offer this convenience to participants, and for Green Marine to have the ability to better assess and utilize the gathered information for overall data reporting.

INTERPRETATION NOTES

The term n.a. (not applicable) appears several times in the report's tables because the issues addressed by the program do not necessarily apply to all participants. For example, a container terminal doesn't handle dry bulk commodities. 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. Many port authorities oversee the leasing of port property and do not themselves operate terminals.

The published results indicate each participant's self-evaluated and subsequently verified performance for each of the Green Marine program's applicable 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.



SHIP OWNERS

	AQUATIC INVASIVE SPECIES	AIR EMISSIONS (SOX & PM)	AIR EMISSIONS (NOX)	GREENHOUSE GASES	OILY DISCHARGE	WASTE MANAGEMENT	UNDERWATER NOISE	SHIP RECYCLING
Alaska Marine Highway System	3	2	2	2	2	3	3	1
Algoma Central Corporation	4	4	3	4	5	4	4	4
Atlantic Towing Limited	3	4	3	3	3	4	4	2
Bay Ferries Limited	n.a.	2	2	2	2	2	2	n.a.
British Columbia Ferry Services Inc.	n.a.	3	3	3	2	2	4	1
Canada Steamship Lines	5	4	4	5	4	5	4	4
Canfornav	5	4	3	4	5	5	4	3
Coastal Shipping	2	3	2	2	2	3	2	2
Croisières AML	n.a.	3	3	3	4	4	4	1
CSL International	4	4	3	3	4	5	4	3
CTMA Group	2	3	3	2	2	3	3	1
Federal Fleet Services	3	2	3	3	2	4	2	5
Fednav Limited	5	3	4	4	4	5	4	5
Fishermen's Finest, Inc.	2	2	1	1	1	1	1	1
FRS Clipper*	n.a.	3	2	2	2	2	1	1
Great Lakes Towing Company	n.a.	2	2	2	3	2	n.a.	1
Groupe Desgagnés	5	5	5	5	4	5	5	4
Horizon Maritime	4	3	3	3	5	3	4	3
Interlake Steamship Company	4	2	2	2	2	2	n.a.	1
Laurentian Pilotage Authority	n.a.	3	2	2	2	3	4	1
Lower Lakes Towing Ltd	3	4	3	2	2	2	2	1
Marine Atlantic Inc.	n.a.	3	3	3	2	3	3	2
McAsphalt Marine Transportation Ltd.	5	5	3	3	3	3	2	1
McKeil Marine Limited	4	1	3	2	2	3	3	1
NEAS	4	3	3	3	3	3	3	2
North Arm Transportation Ltd.	n.a.	3	3	3	3	3	2	1
Northumberland Ferries Limited	n.a.	2	2	2	2	2	2	n.a.
Ocean Group – Ocean Towing and Marine Transportation	n.a.	5	3	2	2	2	2	1
Oceanex	3	4	4	3	5	4	4	1
Ontario Ministry of Transportation	n.a.	2	2	2	1	2	n.a.	1
Owen Sound Transportation Company	n.a.	2	2	2	2	2	n.a.	1
Puget Sound Pilots	n.a.	2	2	2	2	2	2	1
Reformar	3	3	3	3	2	3	2	1
Saam Towage Canada Inc.	n.a.	4	3	3	2	2	2	1
Seaspan Marine Transportation	n.a.	5	5	4	3	4	4	1
Secunda	3	2	2	2	2	3	2	2
Shaver Transportation Company	2	1	1	1	2	1	n.a.	1
Société des traversiers du Québec	n.a.	3	3	3	3	2	2	1
Washington State Ferries	n.a.	3	3	3	2	3	3	1

n.a.: non applicable

* New participant whose results have not yet been verified.





	GHG & AIR POLLUTANTS	SPILL PREVENTION & STORMWATER MANAGEMENT	DRY BULK HANDLING AND STORAGE	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT	UNDERWATER NOISE
Alabama State Port Authority	4	2	2	2	3	3	n.a.
Bécancour Waterfront Industrial Park	3	2	n.a.	2	3	2	n.a.
Belledune Port Authority	1	3	n.a.	1	2	2	2
Canaveral Port Authority	2	5	n.a.	2	3	2	2
Duluth Seaway Port Authority	3	5	n.a.	5	4	2	n.a.
Greater Lafourche Port Commission/Port Fourchon	1	2	n.a.	1	1	1	1
Greater Victoria Harbour Authority	2	4	n.a.	5	4	3	1
Halifax Port Authority	5	5	n.a.	4	5	5	2
Hamilton-Oshawa Port Authority	3	4	n.a.	4	4	4	n.a.
Illinois International Port District	1	4	n.a.	2	4	2	n.a.
Montréal Port Authority	5	4	n.a.	5	5	5	n.a.
Nanaimo Port Authority	3	2	n.a.	4	4	2	2
Northwest Seaport Alliance	5	4	n.a.	2	4	3	2
Port Alberni Port Authority	2	2	n.a.	2	3	3	1
Port Everglades	4	5	n.a.	5	4	4	4
Port Milwaukee	3	3	n.a.	2	3	2	n.a.
Port of Albany	2	2	n.a.	2	3	2	n.a.
Port of Anacortes	2	3	2	2	3	2	1
Port of Cleveland	3	5	n.a.	2	4	2	n.a.
Port of Corpus Christi	5	5	5	2	4	3	2
Port of Everett	1	4	3	2	3	2	1
Port of Galveston	2	2	n.a.	2	3	3	2
Port of Goderich	2	3	1	2	1	1	n.a.
Port of Gulfport (Mississippi State Port Authority)	2	3	1	2	3	1	1
Port of Hueneme	5	5	n.a.	5	5	5	2
Port of Monroe	2	2	4	2	3	4	n.a.
Port of New Orleans	3	5	n.a.	5	5	3	n.a.
Port of Olympia	1	4	3	2	2	2	1
Port of Pensacola	2	4	1	2	1	2	1
Port of Redwood City	1	2	1	1	1	1	1
Port of San Diego	5	5	n.a.	5	5	4	2
Port of Seattle	5	5	n.a.	5	5	5	2
Port of Stephenville	2	2	2	2	2	2	1
Port of Stockton	3	5	3	5	4	2	n.a.
Port of Valleyfield	2	2	n.a.	2	3	2	n.a.
Port Saint John	2	2	n.a.	2	4	5	2
Ports of Indiana - Burns Harbor	2	4	n.a.	4	3	2	n.a.
Ports of Indiana - Jeffersonville	2	2	n.a.	2	2	2	n.a.
Ports of Indiana - Mount Vernon	2	3	n.a.	2	2	2	n.a.
PortsToronto	2	2	2	2	4	2	n.a.
Prince Rupert Port Authority	5	4	n.a.	5	5	4	3
Québec Port Authority	5	5	n.a.	5	5	5	n.a.
Saguenay Port Authority	3	4	n.a.	5	3	3	2
Sept-Îles Port Authority	3	3	3	3	4	3	2
St. John's Port Authority, NL	2	2	n.a.	4	3	2	2
Summerside Port Corporation	2	2	2	2	2	2	2
Thunder Bay Port Authority	3	2	n.a.	2	3	2	n.a.
Trois-Rivières Port Authority	3	5	n.a.	4	4	2	n.a.
Vancouver Fraser Port Authority	5	5	n.a.	5	5	3	5
Windsor Port Authority	2	5	n.a.	5	3	2	n.a.

n.a.: non applicable







TERMINALS

	GHG & AIR POLLUTANTS	SPILL PREVENTION & STORMWATER MANAGEMENT	DRY BULK HANDLING AND STORAGE	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
ABC Recycling Ltd.	4	2	n.a.	2	3	2
AltaGas	5	5	n.a.	5	5	3
Bay Ferries Limited	2	2	n.a.	2	3	2
British Columbia Ferry Services Inc.	2	2	n.a.	2	3	3
Ceres Terminals Inc. (Baltimore MD, Bayonne NJ, Benicia CA, Brunswick GA, Charleston SC, Duluth MN, Galveston TX, Houston TX, Jacksonville FL, Miami FL, New Orleans LA, Port Canaveral FL, Port Hueneme CA, Stockton CA, Tampa FL, and Vancouver BC)	3	5	5	3	5	3
Centre for Ocean Ventures & Entrepreneurship (COVE)	1	2	n.a.	2	1	1
DP World Prince Rupert Inc.	3	5	n.a.	4	1	1
Federal Marine Terminals Inc. (Burns Harbor, Hamilton, Milwaukee, Thorold, Albany, Eastport, Port Manatee, Tampa, Lake Charles)	3	3	2	2	3	2
G3 Canada Limited (Hamilton)	4	4	5	5	4	2
G3 Canada Limited (Québec)	4	3	3	2	3	2
G3 Canada Limited (Thunder Bay)	4	4	5	5	5	3
G3 Canada Limited (Trois-Rivières)	3	4	4	2	4	2
G3 Terminal Vancouver	5	5	5	5	5	5
GCT Global Container Terminals Inc. (GCT Bayonne, GCT Deltaport, GCT New York, GCT Vanterm)	5	5	n.a.	5	5	4
Glencore (Québec)	4	5	5	5	5	3
Groupe Desgagnés (Relais Nordik Sept-Îles)	3	3	n.a.	2	2	5
Groupe Somavrac - Fonbrai (Saguenay)	2	2	n.a.	2	1	2
Groupe Somavrac - Porlier Express (Sept-Îles)	3	3	n.a.	3	3	3
Groupe Somavrac - Servitank Inc. (Bécancour)	3	4	n.a.	2	2	2
Gulf Stream Marine, Inc. (Corpus Christi, Manchester, Care, Freeport, Brownsville)	3	3	n.a.	3	3	3
Kildair Service ULC	3	5	n.a.	2	3	3
Logistec Corporation Canada (Contrecoeur, Corner Brook, Halifax, Montréal, Port Colborne, Rideau Bulk, Sept-Îles, Thunder Bay, Trois-Rivières)	3	3	3	3	3	3
Logistec Corporation USA Inc. (Balterm, Brunswick, Crossglobe, Port Manatee)	3	3	3	3	3	3
Marine Atlantic Inc.	3	3	n.a.	5	4	3
McInnis Cement Inc.	4	3	3	3	3	3
MetroPorts - Burns Harbor	2	2	1	2	1	1
Montreal Gateway Terminals Partnership	5	4	n.a.	4	5	3
Neptune Bulk Terminals (Canada) Ltd.	5	5	5	5	5	5
New Orleans Terminal LLC	3	5	n.a.	5	4	2
Norcan Petroleum Group Inc.	3	3	n.a.	3	3	3
Northumberland Ferries Limited	2	2	n.a.	2	3	2
Oceanex (St. John's)	2	2	n.a.	2	2	2
Owen Sound Transportation Company	2	2	n.a.	2	2	2
Pacific Coast Terminals Co. Ltd.	3	5	5	5	4	3
Patriot Stevedoring + Logistics	2	5	2	3	1	2
Picton Terminals	4	5	5	5	4	5
Ports America Group (Baltimore)	3	4	n.a.	2	2	2
PSA Halifax	5	5	n.a.	2	4	3
QSL AMERICA (NASCO, Empire Stevedoring New Orleans, Houston)	2	3	3	2	2	2
QSL CANADA (Anse au foulon, Argentinia, Baie-Comeau, Beauport, Bécancour, Belledune, Côte Ste-Catherine, Grande-Anse, Gros-Cacouna, Hamilton, Matane, Montreal - Terminal Bickerdike, Oshawa, Sept-Îles, Sorel-Tracy)	3	3	3	2	2	2

n.a.: non applicable

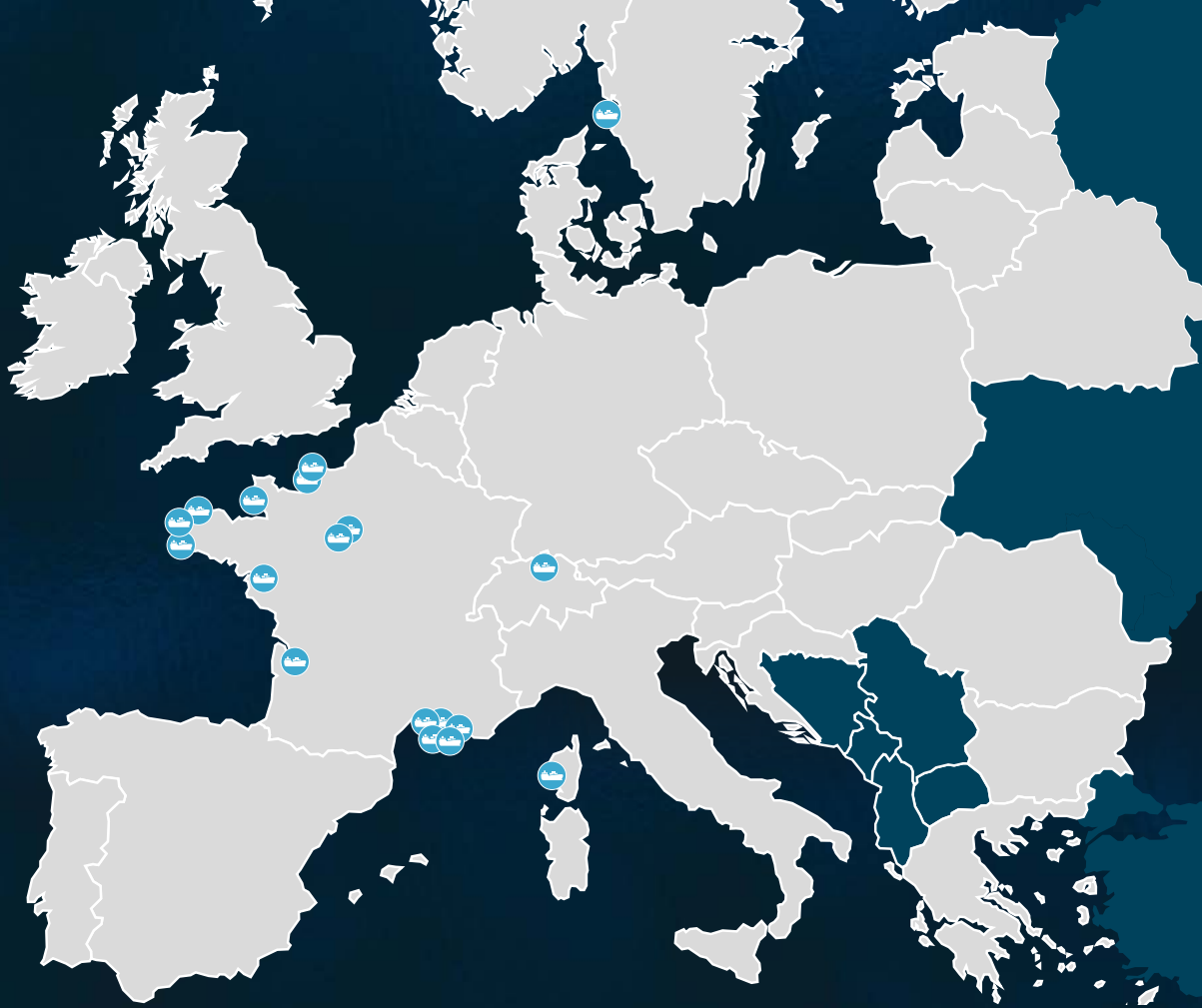
TERMINALS 	GHG & AIR POLLUTANTS	SPILL PREVENTION & STORMWATER MANAGEMENT	DRY BULK HANDLING AND STORAGE	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
Rio Tinto (Port-Alfred)	5	5	5	5	5	3
Squamish Terminals Ltd (Member of The Western Group)	4	4	n.a.	5	5	5
Sterling Fuels Limited (Windsor Terminal)	3	5	n.a.	3	4	3
Termont Montréal	5	2	n.a.	2	3	2
Tidal Coast Terminals Ltd.	3	2	2	n.a.	2	3
Trans Mountain (Westridge terminal)	3	3	n.a.	3	4	3
TraPac (Los Angeles)	5	5	n.a.	3	2	3
Trigon	5	5	5	5	5	5
Tymac Launch Service Ltd.	3	2	n.a.	2	2	2
Valero Energy (Jean-Gaulin Refinery)	4	4	n.a.	5	5	3
Valero Energy (Montreal-East Terminal)	3	4	n.a.	4	4	3
Valleytank	3	5	n.a.	2	2	2
Valport Maritime Services Inc.	3	2	2	2	2	2
Washington State Ferries	3	3	n.a.	2	3	3
Waterfront Petroleum Terminal Company	2	3	2	2	3	2
Waterson Terminal Services LLC	2	3	2	2	2	2
West Coast Reduction Ltd.	3	5	n.a.	5	2	3
Western Stevedoring Co. Ltd. (Lynnterm)	3	4	n.a.	4	4	3
Westshore Terminals	3	2	2	5	2	2
Yellowline Asphalt Products Ltd.	2	5	n.a.	5	2	2

SHIPYARDS 	GHG & AIR POLLUTANTS	SPILL PREVENTION & STORMWATER MANAGEMENT	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
Blount Boats	2	2	2	2	2
British Columbia Ferry Services Inc.	3	3	3	4	3
Great Lakes Shipyard	2	2	2	3	2
Hedde Shipyards	2	2	2	2	2
Hendry Marine Industries (Gulf Marine Repair)	1	2	1	1	1
Fincantieri ACE Marine	2	2	2	1	2
Fincantieri Marinette Marine	2	2	1	2	1
Motive Power Marine	2	3	2	2	3
Ocean Group - Ocean Industries Inc.	3	2	2	2	2
Point Hope Maritime Ltd.	2	5	4	3	2
RJ MacIsaac Construction	3	4	2	2	3
Seaspan Shipyards	3	4	4	4	5
Shelburne Ship Repair	1	2	1	2	2
Washington State Ferries	3	3	2	3	3

SEAWAY 	GHG & AIR POLLUTANTS	SPILL PREVENTION & STORMWATER MANAGEMENT	COMMUNITY IMPACTS	ENVIRONMENTAL LEADERSHIP	WASTE MANAGEMENT
Great Lakes St. Lawrence Seaway Development Corporation / Saint Lawrence Seaway Management Corporation †	4.1	4.9	5.0	4.9	4.1

n.a.: non applicable

† Each Seaway corporation filed an individual evaluation 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.



GREENMARINE EUROPE HIGHLIGHTS

Green Marine Europe is taking hold since being launched by Green Marine and the Surfrider Foundation in April 2020. The program has **doubled its membership in one year** and now has 18 certified ship owners whose fleets include cargo ships, cruise lines, ferries, cablers and research vessels.

A key catalyst has been the political support given to Green Marine Europe at the International Union for the Conservation of Nature (IUCN) World Congress held in conjunction with the Government of France in September 2021.

While hosting the One Ocean Summit in February as part of his six-month European Union French President, Emmanuel Macron also expressed his strong wish for ship owners to integrate Green Marine Europe into their sustainability efforts and praised CMA CGM for joining the program.

Another remarkable advance is the **recognition by the European Union of Green Marine Europe and Green Marine's waste management performance indicator** as a means to verify whether vessels are eligible for discounts on harbour dues as per the European Commission's January directive that will require ports to offer reductions to ship owners in recognition of their efforts in minimizing waste.

Increased membership and a broader scope are also on the horizon for Green Marine Europe which is in the process of developing performance indicators for shipyards in response to a request by some of them to join the program.



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