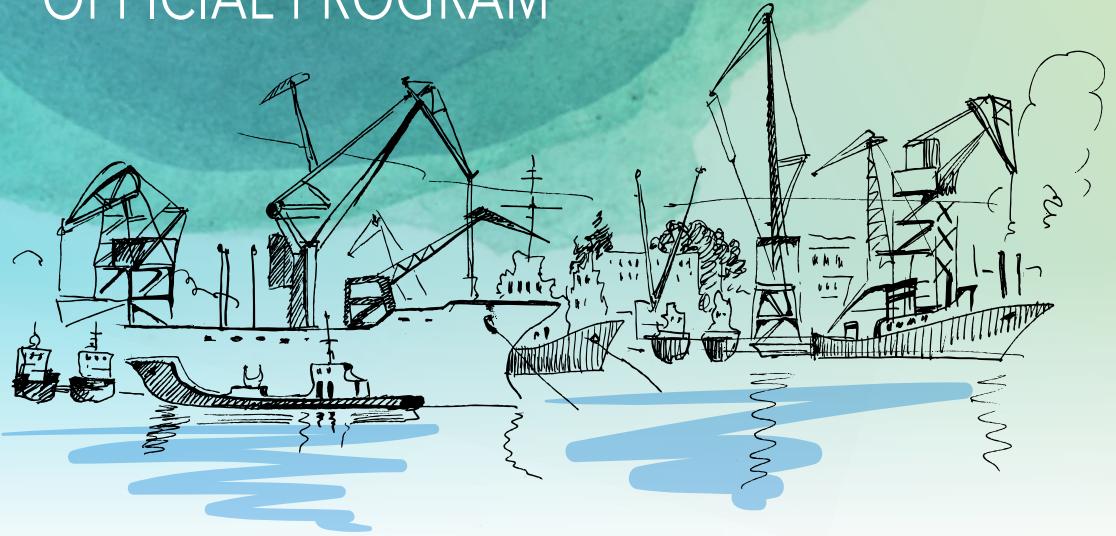




GREEN
MARINE

GREEN TECH2017

OFFICIAL PROGRAM





David Bolduc

Green Marine
Executive Director

Directeur général
de l'Alliance verte

Hello, everyone!

I am delighted to welcome you to GreenTech 2017 – Green Marine's tenth annual conference and the first one to be held in the American South! We're so pleased to be here.

GreenTech has become a must for everyone keen to make the maritime transportation industry more sustainable by sharing information about emerging issues, improved benchmarking, greener technologies, and evolving best practices.

This year's conference is no exception! Our stellar lineup of nearly 30 speakers will provide us with pivotal knowledge about the most recent emerging issues related to our industry. The plenary roundtables and parallel breakout sessions will give us time to discuss some of the key challenges and opportunities to reduce our industry's environmental footprint.

Having this year's conference in Port Everglades permits us to tap into the region's expertise to address some topics for the first time. For example, we'll discuss storm readiness in the presence of port authorities that have developed the know-how to deal with tropical storms.

With Port Everglades ranked among the world's three top cruise ports, this is also the ideal place and time to discuss the environmental challenges facing the cruise industry and some of the potential solutions.

Other presentations will focus on clean ship innovations, underwater noise, and port air emissions. The conference will also feature a special workshop for ports for the first time to explain in detail the new Ports Emissions Inventory Tool that Green Marine has licensed from Transport Canada for use by all of our member ports in the United States and Canada.

I also have to say that it's a treat to have this year's conference at a beautiful resort hotel with a bright atrium, lush gardens, and the ocean just a short walk away.

I believe that the strong relevance of this year's program – along with the first tropical location for GreenTech – will make this 10th annual conference particularly memorable. And the connections that are made or further strengthened here will serve Green Marine well over the next 10 years in continually advancing environmental excellence within the maritime transportation industry.

I wish you all a great conference!



Bonjour à tous!

Je suis très heureux de vous accueillir ici à l'occasion de GreenTech 2017, le 10e colloque de l'Alliance verte. Il s'agit d'une première pour nous dans le sud des États-Unis, et nous sommes ravis d'être ici!

GreenTech est devenu un incontournable pour qui souhaite le développement durable de l'industrie maritime, en partageant de l'information sur les enjeux émergents, les méthodologies d'inventaire, les technologies innovatrices et les pratiques exemplaires.

Cette année ne fait pas exception à la règle ! Nous avons un impressionnant groupe d'une trentaine de conférenciers qui sauront partager leur savoir sur les enjeux émergents au sein de notre industrie. Que ce soit en plénière ou encore lors des sessions parallèles, nous pourrons discuter des défis et opportunités auxquels fait face l'industrie maritime pour réduire son empreinte environnementale.

Puisque le colloque se tient cette année à Port Everglades, nous nous inspirerons de l'expertise régionale pour traiter de certains enjeux pour la première fois à GreenTech. Par exemple, nous aborderons la question de l'état de préparation aux tempêtes en présence de divers intervenants portuaires qui ont acquis un savoir-faire pour contrer les tempêtes tropicales.

Port Everglades figure aussi parmi les trois plus importants ports de croisière au monde. L'occasion est donc idéale pour discuter des défis environnementaux auxquels est confrontée l'industrie des croisières, et d'évaluer certaines pistes de solution.

D'autres présentations porteront sur les avancées environnementales du secteur maritime, le bruit sous-marin, ainsi que les émissions atmosphériques portuaires. Pour la première fois, le colloque propose également un atelier spécial afin d'exposer en détail le nouvel Outil d'inventaire des émissions portuaires que l'Alliance verte propose à tous ses membres du secteur portuaire au Canada et aux États-Unis, après avoir acquis la licence de Transports Canada.

Et comment ne pas mentionner notre chance d'avoir ce magnifique centre de villégiature comme décor au colloque, avec un atrium ensoleillé et des jardins luxuriants, et tout cela à quelques pas de l'océan.

C'est la première fois que GreenTech se tient dans un cadre tropical, et je suis convaincu que cet aspect conjugué à notre programme des plus pertinents conféreront un caractère tout particulier à ce dixième rendez-vous annuel. Les relations que nous pourrons créer et consolider ici favoriseront certainement l'excellence environnementale du secteur du transport maritime bien au-delà de l'horizon des dix prochaines années. . .

Je vous souhaite un excellent colloque!

TUESDAY MAY 30

**1 pm
to
4 pm**

Exhibitors set-up & move-in
-Crystal Ballroom Atrium

**2pm
to
4pm**

Pre-registration for all GreenTech participants, speakers, and exhibitors
-Crystal Ballroom Atrium

Arrive early to get the best choice of amusing ribbons for the delegate nametags and distinguish yourself!

5 pm

Opening Cocktail Reception & Exhibition Visit
-Crystal Ballroom

WEDNESDAY MAY 31

7:30 am REGISTRATION & BREAKFAST

8:45 am WELCOMING ADDRESS & ANNUAL RESULTS

- DAVID BOLDUC, Executive Director, Green Marine

9:00 am CHARTING THE COURSE

- STEVEN CERNAK, CEO Port Everglades
- HEIKE DEGGIM, Senior Deputy Director of the Sub-Division for Protective Measures of the Marine Environment Division, International Maritime Organization

10:00 am COFFEE BREAK & EXHIBITION VISIT

10:30 am CLEAN SHIP INNOVATIONS

- **Biofouling risk and biofouling management**
- GEOFFREY SWAIN, Florida Institute of Technology
- **Demonstration of Terragon's Electrochemical WETT-0 Bilgewater Treatment System aboard a Group Ocean tugboat based in Trois-Rivières, QC**
- NICOLE POIRIER, Terragon
- **Transport Canada's Clean Marine R&D Initiative**
- HOWARD POSLUNS, Transport Canada

COUNTING CARBON – MANAGING EMISSIONS

- **Air quality metrics for voluntary port programs**
- KENNETH ADLER, Environmental Defense Fund
- **New climate partnerships: accelerating climate action at the Vancouver Fraser Port Authority**
- CHRISTINE VANDERWILL, Climate Smart
- **Highlights from EPA's Ports Initiative**
- MIKE MOLTZEN, U.S. Environmental Protection Agency

12:00 pm LUNCH [[Windows on the Green](#)]

1:30 pm PLENARY SESSION: DUAL FUEL AND LNG

- **LNG, a solution for the shipping industry** - ÉTIENNE CHAMPAGNE, Gaz Metro
 - **Case study: the use of hybrid technology for a fleet tow boat** - JAN FLORES, Netsco
 - **Small scale LNG bunkering in North America** - CAITLIN HARDY, Foss
 - **LNG today in Jacksonville** - DAVID STUBBS, Port of Jacksonville
- Followed by a discussion on where are we now, and what's on the horizon?*

3:30 pm COFFEE BREAK & EXHIBITION VISIT

4:00 pm PORT EMISSION INVENTORY TOOL - WORKSHOP

Green Marine, SNC-Lavalin, Transport Canada, Port of New Orleans, Port of Prince Rupert

6:00 pm CERTIFICATION

Cocktail Reception where Green Marine participants will receive their annual certificate [[Hyatt Pier Top](#)]

*Please note all sessions and exhibits are located in the Crystal Ballroom

THURSDAY JUNE 1

7:45 am BREAKFAST & EXHIBITION VISIT

GROWING RESILIENTLY

- **Using Port expansion efforts as a means of improving the environment**
- JONATHAN DANIELS, Port of Gulfport
- **Carbon credits: a marine industry first**
- JOHN MANGANO, International Paint
- **Increasing port and community resilience in Broward County**
- SAMANTHA DANCHUK, Broward County

8:30 am

THE CIRCLE OF SUSTAINABILITY IN THE CRUISE SHIP INDUSTRY

- **Environmental sustainability in the cruise industry: An industry association perspective**
- DONALD L. BROWN, Cruise Lines International Association (CLIA)
- **Corporate Social Responsibility**
- ELAINE HELDEWIER, Carnival Corporation
- **Translating sustainability into operations**
- DENISE MCCAFFERTY, Royal Caribbean Cruise Line
- **Third-party validation/verification**
- GINGER GARTE, Lloyd's Register, Marine & Offshore

10:00 am COFFEE BREAK & EXHIBITION VISIT

PRACTICAL UNDERWATER NOISE SOLUTIONS

- **BC Ferries and the southern resident killer whales: leading change in the short sea shipping industry**
- LESLIE JAMES, BC Ferries
- **Ship-generated underwater noise: Actions and technologies to achieve greater stewardship**
- MIKE BAHTIARIAN, Noise Control Engineering
- **NOAA and the Ocean Noise Strategy**
- JASON GEDAMKE, NOAA

10:30 am

MITIGATION OF PORT DEVELOPMENT

- **Marine ecosystems and port development at Port Everglades**
- ERIK NEUGAARD, Port Everglades
- **The greening of infrastructure; overcoming challenges to create award-winning projects**
- WILLY YUNG, Vancouver Fraser Port Authority
- **Dust mitigation for ship loading and unloading using dry fog**
- RICHARD POSNER, Dust Solutions, Inc.
- CARLOS GONZALEZ, Lehigh Cement

12:00 pm LUNCH [Garden Terrace]

PLENARY SESSION: LEADERS IN SUSTAINABILITY

- **Port environmental initiatives -- the vessel perspective** - LEE KINDBERG, Maersk Line
- **Maritime Emissions Portal: creating visibility and accountability** - KRIS FUMBERGER, RightShip
- **Changing industry behaviour to reduce emissions** - JOHN ATKINS, GCT USA

1:30 pm

Followed by a discussion on environmental improvements in the shipping industry: is there enough synergy between ports, shipping companies and government to implement innovative initiatives?

3:15 pm RECAP & CLOSING REMARKS

- DAVID BOLDJUC, Executive Director, Green Marine

3:30 pm GRAB & GO COFFEE BREAK

4:00 pm CRUISE TOUR (Sponsored by Port Everglades)

Island Adventure Water Taxi.



May 31

DAY 1

8:45 am

WELCOMING ADDRESS & ANNUAL RESULTS

- DAVID BOLDUC
Executive Director, Green Marine

9:00 am - 10:00 am

CHARTING THE COURSE

- **Doing it the right way: How Port Everglades is building for the future**
STEVEN M. CERNAK, Port Everglades

Steven Cernak, the Chief Executive and Port Director of Port Everglades, will welcome GreenTech attendees to his backyard where a thriving cruise, cargo and petroleum seaport co-mingles with a bustling tourism industry in Broward County's ecologically sensitive community. He will address how the port is integrating environmental sustainability into a critical, multifaceted infrastructure expansion program. He will talk about the port's 20-year ongoing project with the U.S. Army Corps of Engineers to deepen and widen navigational channels and the efforts to minimize impacts to coral reef habitat, mangroves and seagrasses. What makes Port Everglades a success is no secret, but it does involve forward-thinking plans and a commitment to doing things the right way.

- **IMO's work towards sustainable shipping – an overview**
HEIKE DEGGIM, International Maritime Organization (IMO)

Shipping is the most efficient and cost-effective method of international transportation for most goods and about 90% of world trade is carried by ships. This raises the challenge to ensure that, in the spirit of the Paris Climate Change Agreement, international shipping moves towards cleaner energy, reduces its emissions, and supports the UN-adopted Sustainable Development Goals. Recent developments at the IMO demonstrate its strong commitment to ensuring that shipping meets its environmental obligations, and the presentation will give an

overview of current work in this regard. This includes the adoption of MARPOL Annex VI requirements concerning mandatory technical and operational energy-efficiency measures for ships; recording and reporting of the fuel oil consumption of ships; the introduction of a global cap of 0.50% for the sulfur content of the fuel oil used by ships; as well as the approval of a roadmap for developing a comprehensive IMO strategy on the reduction of greenhouse gas emissions from ships.

10:30 am - 12:00 (noon)

CLEAN SHIP INNOVATIONS

— Biofouling risk and biofouling management

DR. GEOFFREY SWAIN, Center for Corrosion and Biofouling Control at the Florida Institute of Technology

Biofouling in some form or manner is ubiquitous to all marine environments. Its manifestation is dependent on the biogeographical setting, season, aquatic setting, structure, substrate and operational characteristics of that environment. Understanding the type of fouling that may occur is essential to estimating risk and implementing a biofouling management solution. It enables decisions to be made at the design phase of projects and also to better manage fouling control during operations. For example, what is the design life, what are the operational requirements, what are the environmental conditions, what regulations apply, and what are the economic limitations? Examples of how an understanding of biofouling risk may be used to enhance biofouling management will be given.

— A demonstration of Terragon's Electrochemical WETT-O Bilgewater Treatment System aboard a Group Ocean tugboat based in Trois-Rivières, Quebec

DR. NICOLE A. POIRIER, Terragon

Terragon Environmental Technologies has developed WETT-OTM, a novel bilge water treatment system based on a highly effective electrochemical approach. The system is the world's first electrochemical Type Approved Oily Water Separator (OWS), after being certified by the U.S. Coast Guard and Transport Canada to the IMO MEPC.107 (49) resolution. In 2016, WETT-O was the winner in the Innovation category of the Lloyd's List North American Awards. A shipboard demonstration of WETT-O was carried out in partnership with Ocean Group, a recognized leader in integrated marine services throughout Quebec and Eastern Canada. WETT-O operated successfully for nearly 700 hours between March and July 2016. Depending on ship operations and bilge water availability, the system was left to run for multiple consecutive days without interruption. The system successfully treated all of the bilge water generated by the tug and produced a treated effluent that did not exceed five parts per million.

— Transport Canada's Clean Marine R&D and Innovation Initiative

HOWARD POSLUNS, Transport Canada's Transportation Development Centre (TDC)

The Government of Canada is supporting the reduction of emissions in the transportation sector through its Clean Transportation Initiative. Transport Canada's Transportation Development Centre (TDC) is leading the Marine R&D component through its Clean Marine R&D and Innovation Initiative. This initiative explores and supports the development of new and advanced technologies, procedures and systems that will lead to reduced emissions from the marine sector. The exploration of these new technologies provides the government with scientific-based data and results to support potential policy and regulatory development. An overview of the Clean Marine R&D and Innovation Initiative will be presented and will include the principal drivers behind it, a description of the initiative's various R&D projects being undertaken by academia, research organizations and the private sector, and will conclude with a summary of what has been accomplished to date along with plans for future research.



10:30 am - 12:00 (noon)

COUNTING CARBON – MANAGING EMISSIONS

— Air-quality metrics for voluntary port programs

KENNETH ADLER, Environmental Defense Fund (EDF)

Seaports provide a critical gateway for importing and exporting cargo, and they are a major source of local jobs and economic growth. In response to the adverse impacts that seaports can have on air quality and global warming, however, Green Marine and others have increased their focus on the development of air-quality performance metrics and emissions inventories to help the port industry develop programs and target limited resources to mitigate these impacts. Numerous stakeholders have been included in these discussions, including ports, port customers, community groups, government agencies and non-profits. The purpose of this presentation will be to: 1) provide a brief history of the existing body of work on port-related metrics and inventories, 2) discuss the practical steps individual ports can take to develop their own air-quality metrics, and 3) discuss how these metrics could be used as part of the Green Marine performance standards.

— New climate partnerships:

Accelerating climate action at the Port of Vancouver

CHRISTINE VANDERWILL, Climate Smart Businesses

The Vancouver Fraser Port Authority (VFPA) has a vision to be the world's most sustainable port. To help achieve this vision, the VFPA is reaching beyond its own operations and has partnered with Climate Smart Businesses Inc. to engage port tenants and suppliers in greenhouse gas (GHG) management. Focusing on opportunities to go beyond compliance, reduce costs, and improve Green Marine rankings, Climate Smart trains key staff from port terminals and tenants within peer group settings. Through this initiative, the VFPA has benefited from new data on its stakeholders, including projected and actual GHG emission reductions. The VFPA has also strengthened its ties to its business tenants and accelerated collaboration towards broader sustainability goals. Christine VanDerwill will share outcomes of this unique partnership, including metrics on emissions per tonne of cargo; energy per tonne of cargo; top reduction strategies; annual cost savings achieved by businesses; and, case studies.

— Highlights from EPA's Ports Initiative

MIKE MOLTZEN, U.S. Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) is working to improve air quality around ports by encouraging innovation and adoption of clean technologies and practices that can improve efficiency, save costs, and reduce harmful health impacts. After a brief background on EPA's Ports Initiative, this presentation will provide an overview of EPA activities under way that can help GreenTech attendees to achieve their environmental goals, such as assessments of port emission reduction strategies, capacity-building tools to help communities and ports effectively engage in decision-making, and funding for clean diesel technologies.

1:30 pm – 3:30 pm

PLENARY SESSION: DUAL FUEL AND LNG

Does LNG represent an evolution or a revolution for the shipping industry? Four speakers with four different perspectives (of supplier, naval architect, port operator, and ship owner) will present their views and experience with some of the first tangible LNG projects in North America's maritime sector.

— LNG: a fuel of the future for the maritime industry

ETIENNE CHAMPAGNE, Gaz Métro

In the context of the current energy transition, the source of energy that ship owners choose will be a significant factor. Gas Métro and its partners are developing various supply options to make liquefied natural gas (LNG) available as a fuel that conforms to new regulations and standards at a cost that keeps a ship owner competitive. LNG has progressed in interesting ways over recent years. For instance, the F.-A.-Gauthier commissioned by the Société des traversiers du Québec in July 2015 became the first ferry in North America designed to be powered with LNG. The Desgagnés Group has also ordered new vessels to be powered with LNG in 2017. Gaz Métro continues to work collaboratively with its partners to make Quebec port facilities LNG-ready – i.e. prepared to fuel LNG vessels.

— Case study: The use of hybrid technology for a fleet towboat

JAN FLORES, NETSCo

In an effort to reduce the environmental footprint of marine vessels, stricter requirements from environmental agencies, regulatory classes and local port jurisdictions have motivated the industry to rethink its approach to generating propulsion and electrical power. As the use of hybrid technology evolves, we continue to find specific applications within the marine industry where this technology will prove beneficial. Despite the many variations of hybrid systems, as well as vessel operational profiles, it is clear that the one of the most efficient and economical applications involves vessels operating at varying or low speeds over short voyage durations. This case study will focus on the implementation of hybrid technologies on towboats used within barge fleet areas, where a vessel spends a majority of its operating time dockside. Two different hybrid solutions will be examined, with cost and design rationale provided for each.

— Small-scale LNG bunkering in North America

CAITLIN HARDY, Foss Maritime Company

Later this year, the first LNG bunker barge in North America will be delivered to TOTE Maritime for the bunkering of its Marlin containerships. This presentation will cover the program related to the LNG bunker barge from design through construction, as well as working with regulatory entities and various stakeholders for its approved operations. As part of an initial bunkering infrastructure in the United States and in light of the expanding global LNG fleet, solutions such as the LNG bunker barge provide the means to make small-scale bunkering a commercial reality.

— LNG today in Jacksonville

DAVID STUBBS, Port of Jacksonville

Jacksonville will soon be a world leader in the production and use of LNG. Its success in Jacksonville is a direct result of shipping activity at JAXPORT. Two LNG-powered vessels owned and operated by TOTE Maritime are currently fueled at JAXPORT, with two additional LNG-powered vessels owned and operated by Crowley Maritime scheduled to arrive in late 2017 and early 2018. Additionally, two-LNG liquefaction plants are under construction with a third planned for LNG export. LNG is happening in Jacksonville!

4:00 pm

PORT EMISSION INVENTORY TOOL – WORKSHOP

— Green Marine, SNC-Lavalin, Transport Canada, Port of New Orleans, and Port of Prince Rupert

Green Marine, SNC-Lavalin and Transport Canada are pleased to offer to all Green Marine ports, terminals and Seaway participants the opportunity to attend a workshop focused on the new tool now available to do a comprehensive air emissions inventory using the Port Emission Inventory Tool (PEIT). The port of New Orleans and the Port of Prince Rupert will each share their experience using the tool for their respective territories.



June 1

DAY 2

8:30 am – 10:00 am

GROWING RESILIENTLY

— Using port expansion efforts as a means of improving the environment

JONATHAN DANIELS, Mississippi State Port Authority at Gulfport

At the Port of Gulfport, business development and diversification efforts have made significant strides toward the goal of positioning the port as an important economic catalyst for the surrounding community and the region. After enduring one of the largest natural disasters in the U.S., the port showed resilience and determination to become bigger and better than ever. The presentation will discuss the state of the port during the Katrina era, what went into the plan to restore and expand the port after the hurricane destruction, how the port has utilized federal funds to enhance operations, and what the port is doing to ensure its operations are environmentally friendly. The presentation will also relate how the port is working with its local community to ensure it plays a role in the success of the Port of Gulfport for years to come.

— Carbon credits: a marine industry first

JOHN MANGANO, International Paint

While shipping is the most efficient mode of transportation, the world fleet still emits approximately 950 million tonnes of CO₂ annually, which is approximately 2.7% of global CO₂ emissions. In an industry where pressures to improve sustainability are central to competitiveness, profitability and compliance, ship owners need to look at ways to increase operational and environmental efficiencies. Clean technology is an effective way to do so. However, a tough global economic climate and corresponding lack of liquidity often make it hard for ship owners to justify an investment. AkzoNobel, the parent company of International Paints, has developed a carbon credits methodology for international shipping that recognizes and financially rewards ship owners for investing in clean technology. By rewarding ship owners that use clean technology to improve their environmental performance, AkzoNobel's aim is to support the shipping industry in cutting its overall environmental impact and specifically its greenhouse gas emissions output.

— Increasing port and community resilience in Broward County

DR. SAMANTHA DANCHUK, Broward County

Partners in resilience planning, Port Everglades and Broward County agencies are advancing cutting-edge initiatives to reduce emissions, mitigate for storm impacts, train employees in adaptation, and implement key steps in their shared Climate Change Action Plan. Innovative tools and models from the U.S. Geological Survey, Department of Homeland Security, Environmental Protection Agency, National Oceanic and Atmospheric Administration, and Deltares are actively being applied to analyze existing operations, carbon footprint and changing climatic conditions. By organizing an interagency review of plans and policy, budget planning and prioritization of adaptation projects, the community is recognizing interdependencies across agencies and preparing itself for a more resilient future.

8:30 am – 10:00 am

THE CIRCLE OF SUSTAINABILITY IN THE CRUISE SHIP INDUSTRY

The following speakers will each share how their respective organizations are innovating operations, recording data and/or using best management practices to reduce greenhouse gas (GHG) emissions within the cruise industry, as well as addressing other sustainability challenges related to being or working on behalf of the world's largest cruise lines.

— Environmental sustainability in the cruise industry: An industry association perspective

DONALD L. BROWN, Cruise Lines International Association (CLIA)

Cruise Lines International Association (CLIA) is the world's largest cruise industry trade association, providing a leading authority with a unified voice for the global cruise community. The association has 15 offices globally, with representation in North and South America, Europe, Asia and Australasia. CLIA supports policies and practices that foster a safe, secure, healthy and sustainable cruise ship environment for the more than 25 million passengers who cruise annually. It is also dedicated to promoting the cruise travel experience. CLIA's mission is to be the unified global organization that helps its members to succeed by advocating, educating and promoting on behalf of their common interests. The speaker will share his views on industry-level efforts towards greater environmental sustainability, including the leadership role assumed by some companies, the collaboration among CLIA members, and the need for greater consistency in reporting across the industry.

— Corporate Social Responsibility

ELAINE HELDEWIER, Carnival Corporation

Elaine Heldewier, Carnival Corporation's Sustainability Director, will discuss the corporate social responsibility of all 10 Carnival brands, as well as how sustainability goals and metrics are being used to drive environmental improvements.

— Translating sustainability into operations

DENISE MCCAFFERTY, Royal Caribbean Cruise Line

Since 2008, Royal Caribbean has published a sustainability report, making details of the company's environmental stewardship activities available to the public, including its sailing guests. Sustainability has a long history at the cruise line, starting in 1992 with Royal Caribbean's Above and Beyond compliance operating criteria, and its Save the Waves program, and later voluntary compliance with ISO 9001:2000 quality and ISO 14001:2004 environmental standards. Building on Royal Caribbean's continuous improvement principle and its recent partnership with the World Wildlife Fund (WWF), the company has established its second set of specific five-year sustainability goals both within the partnership and with additional sustainability objectives at the corporate level. To achieve these ambitious goals, Royal Caribbean uses its robust company policies and practices, innovative technologies, as well as relationships with its vendors. This presentation will discuss how sustainability goals are translated from aspirations to actual operations. The discussion will include how key performance indicators are determined, selected and continually improved.

— Third-party validation/verification

GINGER GARTE, Lloyd's Register, Marine & Offshore

Cruise lines are finding it challenging to accurately assess their greenhouse gas (GHG) and other emissions as they amass large amounts of data and navigate regulatory variations, and even uncertainty, in the course of their global travels. By partnering with the right companies, they can minimize the resources required to obtain correct data and effectively relate their corporate social responsibility by using smart data analytics and advanced infographics. Ginger Garte will present the need for third-party validation of data, including GHG verification, as well as discuss how the industry is evolving in terms of its reporting. As the overall session's moderator, Garte will also summarize the key points made by the speakers and then open the session to some questions from audience members.



10:30 am to 12:00 (noon)

PRACTICAL UNDERWATER NOISE SOLUTIONS

— **BC Ferries and the southern resident killer whales: Leading change in the shortsea shipping industry**

LESLIE JAMES, British Columbia Ferry Services Inc.

British Columbia Ferry Services Inc. (BCF) has worked on developing policies to deal with underwater noise issues affecting southern resident killer whales. In 2015, BCF and Washington State Ferries (WSF) collaborated to develop a joint policy and best management practices for whale/ferry encounters. The goal was to coordinate effective whale/ferry encounters given that the southern resident killer whale – a species at risk in both countries – shares the same cross-boundary waters, and BCF transits U.S. waters and WSF transits Canadian waters. This policy was the first of its kind for both organizations, as well as for any ferry operators in Canada or the United States. The policy is another step in a series of binational efforts to protect the whale. BCF has been working with the Enhancing Cetacean Habitat and Observation (ECHO) program regarding underwater noise related to ferry transits. BCF has also collected underwater noise data for some of its ferries, and will discuss the potential implications. BCF is hoping to collect more ferry in-water data that will contribute to a better understanding of the fleet's acoustic signatures. This could lead to possible operational or design adaptations. BCF has been working with Fisheries and Oceans Canada to install hydrophones at several key locations. The real-time streaming of the underwater acoustic environment via hydrophones will pick up resident killer whale calls, which will help to determine when and where the whales are present and calculate the corresponding level of background acoustic noise.

— **Ship-generated underwater noise:**

Actions and technologies to achieve greater stewardship

MICHAEL BAHTIARIAN, Noise Control Engineering, LLC

This presentation will provide a short introduction regarding the underwater noise generated by ships, and what actions and technologies ship owners/operators can use to mitigate excessive sound. This information should help participants understand the new Green Marine performance indicator for underwater noise. The presentation will summarize the current regulations at the time of the presentation, which are now also required for Level 1 in the Green Marine program. The presentation will further summarize Level 2 requirements, particularly cavitation inception speed. For Levels 4 and 5, the presentation will summarize quieting technologies, noise computation methods and noise measurement methods/standards.

— **NOAA and the Ocean Noise Strategy (ONS)**

JASON GEDAMKE, National Oceanic and Atmospheric Administration (NOAA)

Over the last century or so, human activities have caused large increases in introduced noise as well as other changes in the underwater acoustic environment through shipping, oil and gas exploration, industrial development and other activities. These acoustic changes can lead to a reduced ability to detect and interpret the acoustic cues that animals use to select mates, find food, maintain group structure, avoid predators, navigate and perform other critical life functions. Therefore, our goals should be to address chronic effects and conserve the quality of acoustic habitats in addition to minimizing more acute adverse physical and behavioral impacts on specific species. Towards this end, the National Oceanic and Atmospheric Administration recently initiated the NOAA Ocean Noise Strategy (ONS), an effort to support implementation of an agency-wide strategy for addressing ocean noise over the next decade. Here, we will present an overview of the ONS, its implementation, associated scientific efforts, and potential ways forward to understand and minimize anthropogenic noise impacts.

10:30 am to 12:00 (noon)

MITIGATION OF PORT DEVELOPMENT

— Marine ecosystems and port development at Port Everglades

ERIK NEUGAARD, Port Everglades

Port Everglades is located adjacent to a population of six million people, along with some of the most sensitive marine ecosystems in the United States. It also ranks as the No. 2 seaport worldwide for cruise passengers, the No. 1 seaport in Florida by revenue for cargo and exports, and the No. 1 seaport in Florida for petroleum storage. This presentation will provide a brief history of Port Everglades, the region's population increase and associated port expansion, and the challenges of minimizing the impacts on marine ecosystems as the port becomes larger and busier. Some of the challenges presented with include an adjacent barrier island state park with mangrove forest and sea turtle nesting beaches, adjacent coral reefs, artificial reefs, seagrasses, mangroves, a manatee aggregation area, other protected species, contamination remediation and air quality.

— The greening of infrastructure:

Overcoming challenges to create award-winning projects

WILLY YUNG, Vancouver Fraser Port Authority

The Vancouver Fraser Port Authority has as its vision to be the world's most sustainable port, and is now integrating sustainability into all of its operations and practices, including the development of Green Infrastructure Guidelines. A perfect illustration is the recent Low Level Road Project, which involved the realignment and elevation of approximately 1.6 miles (2.6 kilometres) of a major public road that runs parallel (and provides access) to several Port of Vancouver terminals adjacent to a residential suburb of Vancouver. This realignment provided space for two new rail tracks to improve rail switching efficiency and capacity. The project was initially very controversial, given its proximity to local residents. From the very beginning, stakeholder and community engagement were fundamental to the project's development. The design plan was refined through a public consultation process involving residents, First Nations, business owners, along with staff from the City of North Vancouver, to develop a design that met the project's goals while at the same time appropriately reflected community needs and best interests. It addressed safety, recreation and noise challenges associated with port operations, including the reconfiguration of three intersections and improved lanes for cyclists. The project also addressed slope stability concerns along a bluff, and included the addition of art walls

that reflect the area's rich Coast Salish and logging/milling history. Finally, the project included continuation of a community trail. The project has won many awards, including the Institute for Sustainable Infrastructure's Envision Platinum Award for the highest levels of sustainability in project design, construction and operation.

— Dust mitigation for ship loading and unloading using dry fog

RICHARD POSNER, Dust Solutions, Inc.

CARLOS GONZALEZ, Lehigh Cement

The presentation will focus on the advantages of using dry fog technology for suppressing dust while loading or unloading ships with bulk material at ports, especially in relation to PM10 and PM2.5 particle sizes. Carlos Gonzalez will then present information about the system's use at Lehigh Cement's Port Everglades terminal operations. The system has helped Lehigh to reduce emissions and unload materials without violating environmental regulations or the company's health, safety and environmental promises to the port.



June 1

1:30 pm – 3:15 pm

PLENARY SESSION: LEADERS IN SUSTAINABILITY

Leaders using technology, data, transparency, and incentives to drive change and coordination between sectors. Is there enough synergy among port authorities, terminal operators, shipping companies and government to implement new effective initiatives?

MODERATOR: Doug Wheeler, Florida Ports Council

— Port environmental initiatives: A vessel perspective

LEE KINDBERG, Maersk Line

Shorepower installations, RightShip ratings, the Environmental Ship Index and other methods by ports to accelerate environmental improvements within the maritime industry seem to be increasing. This presentation will review the approaches being taken by ports in North America from a vessel perspective.

— Maritime emissions portal: Creating visibility and accountability

KRIS FUMBERGER, RightShip

The Australian Marine Environment Protect Agency (AUSMEPA) is collaborating with RightShip to develop a Maritime Emissions Portal to provide improved ship emissions data to key shipping industry stakeholders. AUSMEPA's Emissions Portal was selected as one of 10 finalists in the 2016 Google Impact Challenge which awards funding to non-profit innovators with big ideas about how to make the world better, faster. The portal aims to address the current lack of essential ship emissions data. Through satellite tracking and a big-data approach, the portal will empower all stakeholders (including governments, regulators, the shipping sector and the general public) with improved knowledge of air emissions associated with shipping activities in port. The portal will provide the maritime industry with a unique opportunity to define priority projects aimed at reducing ship-source emissions. It will provide users with the ability to observe changing air patterns throughout a port and city over the course of a day, week, month or year. Measuring the local air quality at a given point in time will effectively be measuring the impact

and emissions of individual vessels that call on the port. With more than half of the world's population now living in cities, the ability to track emissions from shipping through high-resolution air quality data will empower citizens, industry and regulators to make informed decisions to create healthier, more resilient cities. On behalf of AUSMEPA and RightShip, Kris Fumberger will discuss the portal, including how transparency will encourage accountability, which should help to develop, encourage and incentivize low-carbon shipping.

— Changing industry behavior to reduce emissions

JOHN ATKINS, GCT USA

At the largest East Coast gateway in North America, 90% of the Port of New York and New Jersey container traffic is moved by truck to serve a growing consumer population of more than 30 million people. In January 2017, semi-automated GCT Bayonne became the first terminal to voluntarily introduce an innovative truck reservation system ahead of all other operators in the harbor. This case study examines GCT's approach to decouple environmental impacts from growth while improving social benefits through process improvement.

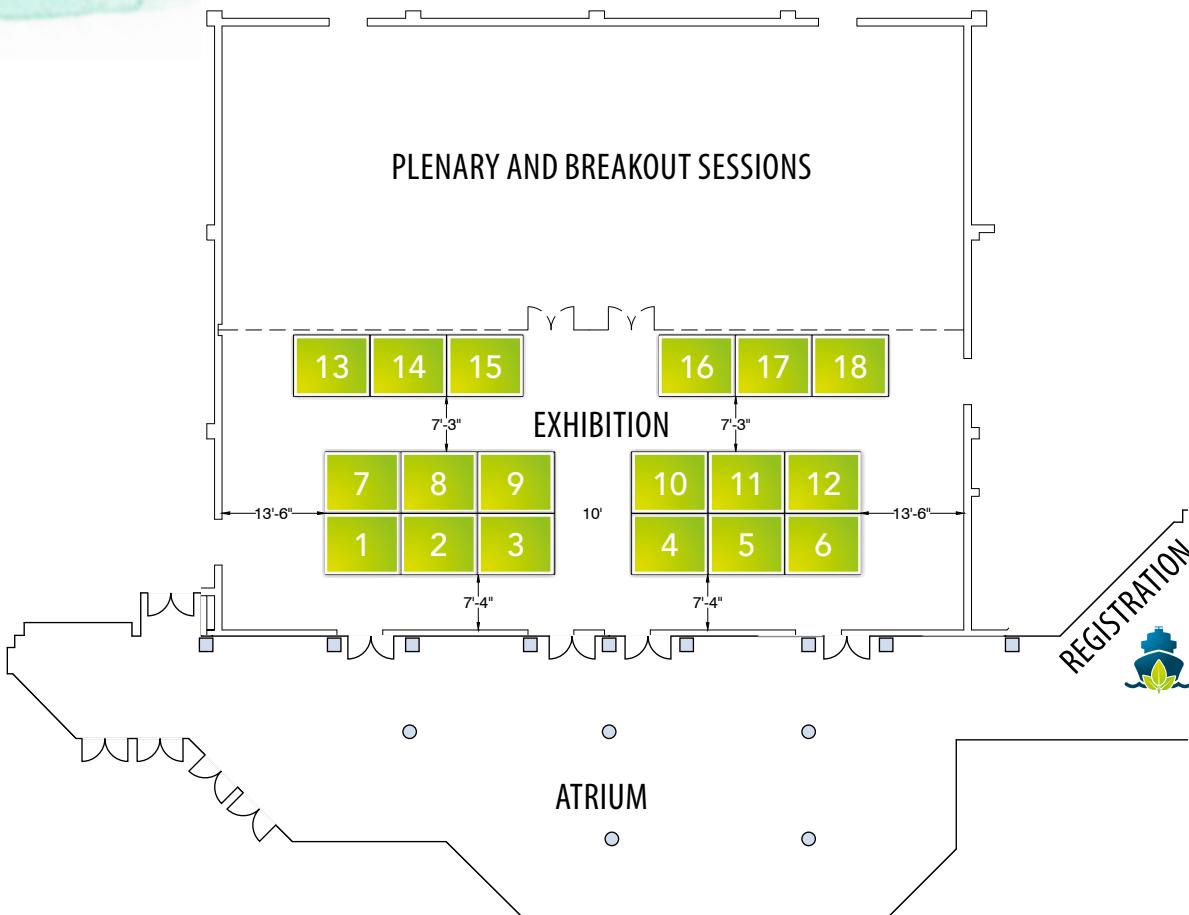
3:15

RECAP & CLOSING REMARKS

DAVID BOLDUC, Executive Director, Green Marine



GREENTECH 2017 FLOORPLAN



THE EXHIBITORS

EXHIBITORS	DESCRIPTION	BOOTH
	<p>The Maritime Executive aims to be the leading source of maritime news, jobs, events, and industry analysis. It intends to do so by enhancing its interactivity through continued investment in today's most advanced technologies. In addition, the organization will continue to provide benchmarked research to executives – intellectual capital vital to operating their organizations. Providing free and easily accessible content will encourage growth in readership and create value for advertisers.</p>	<p>3</p>
	<p>Innovation maritime is an applied research centre active since 2001. It offers R&D services, technical assistance and information distribution to any company or organization related to the maritime domain. Innovation maritime, a not-for-profit organization, focus mainly on six major research areas: marine transport, navigation, marine engineering, marine safety and security, environmental technologies and submarine and hyperbaric interventions. Its multidisciplinary team includes engineers, programmers, transportation analysts, economists and captains. The success of Innovation maritime projects depends on its close links with the industry and its very practical approach oriented towards concrete results.</p>	<p>4</p>
	<p>Griffintown Media - Love Your Image Griffintown Media is a full-service creative agency based in Montreal. Full service means we're your go-to creative partner for concept, graphic design and production. It also means we can publish projects like Green Marine Magazine — or whatever great story you have to tell! If you want to love your image, let's talk. Graphic design Web Custom publishing Photo Video Creative Consulting griffintown.com</p>	<p>6</p>
	<p>Climate Smart Businesses Inc. is a Vancouver-based social enterprise that offers a comprehensive training program, certification and tools for enterprises to measure and profitably reduce their greenhouse gas (GHG) emissions. In partnership with transportation hubs (e.g., ports, airports), financial institutions and local governments, Climate Smart builds capacity within businesses by training up key staff to develop strategies to cut GHG emissions and associated energy, fuel and waste costs. The Climate Smart curriculum, advising support and top-rated software tool are based on the World Resource Institute's Greenhouse Gas Protocol Corporate Standard (GHGP), which is the internationally recognized accounting standard for greenhouse gas inventories. Climate Smart has also built out extensive datasets, case studies and analysis for community and corporate emission modelling – utilized by both partners and businesses to benchmark their progress amongst emission and cost-saving goals.</p>	<p>8</p>

EXHIBITORS	DESCRIPTION	BOOTH
	<p>OpDAQ Systems specializes in ship-board performance monitoring systems and sea-trial monitoring services, helping ship operators to reduce fuel consumption by providing key performance indicators such as real-time fuel consumption, specific fuel consumption, fuel per nautical mile and engine power. Using state-of-the-art sensors OpDAQ assists its customers to get accurate performance.</p>	<p>9</p>
	<p>For more than 25 years, SINTO has been designing, manufacturing and distributing high-quality lubricant products to maximize the performance, protection and durability of mechanical equipment and vehicles. SINTO's mission is to make its customers' equipment more efficient. The company's range of lubricants, greases, bearings, motor and recreational vehicle oils, degreasers, cleaners and anti-rust products all work to improve the environment performance of its clients. SINTO's marine division offers products and services tailored specifically to the requirements of marine equipment and include: the Cetane Booster energy efficiency program, gear lubrication program, technical services support, and relevant training.</p>	<p>10</p>
	<p>JASCO Applied Sciences provides consulting services and instrumentation for assessing and mitigating underwater noise. Since its origin in 1981, JASCO has been developing and implementing acoustic technologies ranging from advanced acoustic recorder design to complex acoustic modelling algorithms to comprehensive field monitoring and data analysis. JASCO provides services for all stages of environmental reviews and assessments of underwater noise. They work with the oil and gas, marine construction, energy, shipping, fisheries, and defence sectors providing: autonomous and real-time passive acoustic monitoring, Sound Source Verifications (SSVs) and Characterizations (SSCs), acoustic signal processing, interpretation, and reporting, and environmental impact assessment of underwater sound, to name a few.</p>	<p>11</p>
	<p>Visit the Ocean Barista Bar and grab yourself a cappuccino!</p>	<p>12</p>

EXHIBITORS	DESCRIPTION	BOOTH
	<p>In partnership with the marine industry, the Georgian College Centre for Marine Training and Research (CMTR) delivers internationally recognized marine training and certification through excellence in continuing education. It provides the marine industry with competent current and future leaders – the best marine officers and ratings at sea. The CMTR pursues innovative applied Marine Simulation Technology research initiatives by seeking partnerships and collaboration, and providing world class technical and human resources to the Canadian and International maritime industry.</p>	<p>14</p>
	<p>RightShip is the world's leading maritime risk management and environmental assessment organisation. Its online risk management tool, RightShip Qi, brings all the benefits of big data and predictive analytics to maritime risk management, providing sophisticated, real-time vetting insights and enhanced reporting capabilities. RightShip's GHG Emissions Rating has been widely adopted by the maritime industry to measure the CO2 output of vessels. Available free of charge, the GHG Rating is available to ports and provide a systematic and transparent framework for comparing the relative efficiency of ships, enabling them to reward superior environmental performance.</p>	<p>15</p>
	<p>Terragon Environmental Technologies researches, develops, and commercializes technologies to enable off-grid sustainability. For the maritime market, this means enabling the zero-waste discharge vessel: a vessel that uses all its garbage, sludge, and waste water streams to produce energy and clean water for reuse by the vessel. Terragon provides these advanced technologies with exceptional environmental performance and matching economic benefits. The Micro Auto Gasification System (MAGS) is a unique appliance that converts garbage and oily sludge into energy, all while creating its own fuel and very clean emissions. The Wastewater Electrochemical Treatment Technology (WETT) is an advanced system that uses electrochemistry to clean water without the need for chemicals, biological treatment, and costly filters. The System for Total Environmental Protection (STEP) is the combination of both MAGS and WETT onboard a vessel thus enabling it to truly become a zero waste discharge habitat.</p>	<p>16</p>
	<p>Protected Seas works to encourage sustainable, long-term solutions to ocean issues through innovative technology projects. The Marine Protected Area (MPA) mapping project, a public-private partnership with the NOAA MPA Center, is building the most comprehensive source for identifying place-based protections on marine extraction and delivering that to boaters through free online tools and partnerships with electronic charting providers. To help monitor and enforce MPAs, the Protected Seas' Marine Monitor (M2) system leverages low-cost, commercial marine radar technology to provide 24/7 coverage of near-shore MPAs using custom software. For more information on these and other projects, please visit ProtectedSeas.net</p>	<p>18</p>



THE SPEAKERS



KENNETH ADLER

Environmental Defense Fund (EDF)

Prior to joining the Environmental Defense Fund (EDF) as a Senior Contributing Scientist, Ken Adler worked 30 years for the Environmental Protection Agency (EPA), developing and implementing environmental solutions to address mobile source air pollution, wetland loss, and agricultural pollution.

For the past 17 of those years, he specialized in strategies to measure and to reduce greenhouse gas and other criteria air emissions from the freight transportation sector. At the EPA, he worked on legislative, regulatory and voluntary programs, including the SmartWay partnership program, Diesel Emission Reduction Program grants, transportation conformity, and smart growth. He has a Master's degree in Energy and Resources from the University of California-Berkeley.



MICHAEL BAHTIRIAN

Noise Control Engineering, LLC

Michael Bahtirian is Vice-President at Noise Control Engineering in Billerica, Massachusetts, a company that specializes in shipboard noise and vibration control. He is the convener of the ISO working group tasked with the development of standards for the measurement of underwater noise from ships. He also served as the chair of the American

National Standards Institute (ANSI) working group that developed the first commercial standard for the measurement of underwater ship noise (ANSI/ASA S12.64-2009). A board certified member of the Institute of Noise Control Engineering (INCE), he holds a BSME from Pennsylvania State University and a MSME from the Rensselaer Polytechnic Institute.



JOHN ATKINS

GCT USA

John Atkins has been a maritime executive for 30 years with extensive experience in both marine terminal and ocean carrier operations. As President of GCT USA, he is responsible for the strategic oversight and daily operations of two container terminals in New York and New Jersey. His previous senior management positions include posts at CMA

CGM and NYK. He is a member of the board of directors/trustees of the Metropolitan Marine Maintenance Contractors Association and the New York Shipping Association. He also serves on the board of directors for the Maritime Association of the Port of New York and several regional charities, which reinforces GCT's philosophy of strong corporate citizenship. His leadership role extends into the port community. He is the chair for both the Confidential Discussion Agreement and the Sustainable Terminal Services Agreement, two entities that help to further the terminal services at the Port of New York and New Jersey. He is also on the Council for Port Performance, and is chair for the Gate Operations Implementation Team. He began his career at SeaLand after graduating from Kean University with a B.S. in Management Science.



DONALD L. BROWN

Cruise Lines International Association (CLIA)

Donald L. Brown is Vice-President, Maritime Policy, at Cruise Lines International Association (CLIA) in Washington, DC. He develops, presents, negotiates and implements global industry positions on legislative, regulatory and policy matters involving security, environmental stewardship and health. He leads delegations to the International Maritime Organization

where he represents the global cruise industry during international treaty negotiations and other matters. He is also the designated Secretary to the CLIA Global Committees on Maritime Security Matters, and Marine Environment Protection Matters.



ÉTIENNE CHAMPAGNE

Gaz Métro

In April 2016, Étienne Champagne joined Gaz Métro as Senior Director, Development, and was appointed Vice-President, Construction and Development of emerging markets in January 2017. He began his career at Boralex in 2003 after studies in mechanical engineering at the Université Laval. While at Boralex, he held the positions of project manager, director of wind farm development, director of the Seigneurie de Beaupré wind farm, as well as project director. Over the years, he has participated in developing and implementing various natural gas, biomass and wind energy sites in Canada and the United States. He has acquired extensive experience in acquisitions, commercial negotiations, project financing, and technical planning. He is a member of the Ordre des ingénieurs du Québec and earned an MBA from the Université de Sherbrooke.



STEVEN M. CERNAK

Port Everglades

As the Chief Executive and Port Director for Port Everglades, Steven M. Cernak heads a self-supporting enterprise of Broward County, Florida, that generated approximately \$163 million in FY2016 and is ranked among the leading U.S. container ports and as the third-largest cruise port globally. He joined Port Everglades in March 2012, having previously served as the port director and chief executive officer for the Port of Galveston, Texas. He also served as the manager of port development for The Port Authority of New York and New Jersey and held engineering positions with several private engineering consultancies.



SAMANTHA DANCHUK

Broward County

Dr. Samantha Danchuk is the Assistant Director of the Environmental Planning & Community Resilience Division of Broward County where she leads the implementation of the county's Climate Action Plan and the Energy and Sustainability program activities. She is Chair of the National Oceanic Atmospheric Administration's Climate and Marine Resources Task Force and provides technical support for the Southeast Regional Climate Change Compact. She has a Doctorate from Louisiana State University, a Masters from UC Berkeley, and a B.S. from Florida State University in the fields of environmental engineering and coastal modeling.



JONATHAN DANIELS

Mississippi State Port Authority (MSPA) at Gulfport

As the Executive Director and CEO of the Mississippi State Port Authority (MSPA) at Gulfport, Jonathan Daniels oversees the operations and development of the Port of Gulfport – the third busiest container port in the U.S. Gulf of Mexico and the second largest importer of green fruit in the United States. He joined the MSPA in June 2013. His previous experience includes serving as: executive director of the Port of Oswego Authority in Oswego, New York; president and CEO of the Eastern Maine Development Corporation; managing director of the Greater Baton Rouge Port Commission and the Port of Greater Baton Rouge; and, port director of the Port of Eastport, Maine, where he oversaw the development of a \$20-million marine industrial park. He is a graduate of The Citadel with a degree in International Politics and Military Affairs.



HEIKE DEGGIM

International Maritime Organization (IMO)

Having worked in the naval shipbuilding industry and later in various positions in the German Maritime Administration, Dr. Heike Deggim joined the International Maritime Organization (IMO) in 1993. After being in charge of several IMO technical sub-committees over the years, she became head of the Marine Technology Section in 2010. Three years later, she was appointed to her current position as Senior Deputy Director in the Marine Environment Division, which deals with all matters related to MARPOL, including air pollution, energy efficiency, greenhouse gas emissions, evaluation of hazardous chemicals, ballast water management, ship recycling, anti-fouling and biofouling. She graduated from Rostock University in 1983 with a Masters in marine engineering, and subsequently obtained a PhD.



KRIS FUMBERGER

RightShip

With more than 15 years of environmental sector experience, Kris Fumberger joined RightShip in 2014 to develop and implement the Greenhouse Gas (GHG) Emissions Rating – an industry framework for the instant comparison of the efficiency of more than 76,000 vessels and increasingly a key factor in vessel selection. He also works with ports to provide the framework and tools to reward sustainable vessels and, in 2016, began to work in conjunction with the Australian Marine Environment Protection Association (AUSMEPA) on a maritime emissions portal. Prior to joining RightShip, he filled various environmental roles within government agencies and the private sector. He has a Bachelor of Environmental Science and a Graduate Certificate in Management.



JAN FLORES

NETSCo

Currently the Senior Director for NETSCo, Jan Flores has a maritime and offshore industry career that spans more than 20 years in engineering, marine operations, and business development. Prior to joining NETSCo, he was head of offshore at OSG, where he was responsible for business development in the offshore sector. He began his career with Crowley Maritime Corporation where his various positions included superintendent, project engineer, project manager, and manager of new-builds. He earlier graduated with a Bachelor of Science in Ocean Engineering, with specialization in Naval Architecture, from the Florida Institute of Technology. He is a registered professional engineer with Naval Architects and Marine Engineers (NAME).



GINGER GARTE

Lloyd's Register, Marine & Offshore

With more than 24 years of experience in the industry, Ginger Garte is responsible for growth, strategy and delivery of environmental and sustainability services for Lloyd Register's Americas Marine & Offshore clients. Her expertise includes global aspects for waste management, port facilities infrastructure, environmental regulations, due diligence audits, supply chain risk and gap analysis, as well as natural resource conservation and stewardship strategy. She obtained her Geological Science degree from Virginia Polytechnic Institute & State University and was then selected to serve as a U.S. Commissioned Officer with the National Oceanic & Atmospheric Administration (NOAA). Upon completion of Officer Training School, she served for five years aboard NOAA's research vessels and at land-based laboratories. Her geological research led to a number of publications on South Florida ecosystems. She has also served as the superintendent of the Environmental Health and Safety Department at Carnival Cruise Lines, and as a senior analyst within the Environmental Stewardship Department serving all of Royal Caribbean Cruises Limited's cruise lines.



JASON GEDAMKE

National Oceanic and Atmospheric Administration (NOAA)

Jason Gedamke manages the Ocean Acoustics Program within the National Oceanic and Atmospheric Administration's Fisheries-Office of Science and Technology, which supports research into impacts of anthropogenic sound on marine life, provides technical support to regulators, and encourages education and capacity-building in marine acoustics. From

2004 to 2010, he worked: for the Australian Antarctic Division providing scientific advice on behalf of Australia at the International Whaling Commission's Scientific Committee; conducting acoustic research on Southern Ocean cetaceans; and, providing scientific advice on impacts of human-caused sound on marine mammals. He received his PhD in 2004 from the University of California-Santa Cruz by researching minke whale acoustic behavior on the Great Barrier Reef.



CARLOS GONZALEZ

Lehigh Cement

Carlos Gonzalez is the Terminal Manager for Lehigh Cement in Port Everglades. His career spanning more than 30 years has focused primarily on managing facilities related to cement, slag, aggregates and other industrial mineral products. He has also been involved in the logistics for international ocean shipping and the movement of commodities within the United

States by truck, barge and rail, as well as managing projects of various scale involving the transportation, processing and storage of bulk mineral products. He has worked in his native Colombia and the United States at Argos, World Minerals and Titan America, and has a Masters from the University of Missouri at Columbia. He currently manages a Lehigh facility that unloads Portland cement vessels as well as seafaring barges that transport slag from the company's Port Canaveral production facility. The cement is delivered to customers in bulk by truck or bagged at the company's plant and assembled onto pallets for shipment.



CAITLIN HARDY

Foss Maritime Company

Joining Foss Maritime in July 2015, Caitlin Hardy currently works in new vessel construction as the Project Manager and Owner's Representative for the first LNG bunker barge in North America for TOTE Maritime. Her previous work includes engineering and oversight for sealifts and salvage, stability analysis, and mooring analysis. She has a Bachelor's in Naval

Architecture from the United States Naval Academy.



ELAINE HELDEWIER

Carnival Corporation & plc

With more than two decades of sustainability management experience, Elaine Heldewier has focused the last 18 years of her career on the maritime industry. As Sustainability Director at Carnival, she leads the design, development and implementation of corporate sustainability strategy and programs. She also oversees initiatives in effective sustainability reporting, and works with stakeholders to positively influence and drive sustainability engagement and practices. She was an integral member of a team responsible for the development and implementation of the corporation's 2020 sustainability goals, as well as a key member for one of the corporate brands responsible for obtaining ISO-14001 fleet certification. Her sustainability contributions extend to serving a key role in the development of the cruise industry's first U.S. Memorandum of Understanding (MOU) for environmental performance (Florida and Hawaii). She also collaborated with the U.S. Environmental Protection Agency on the first environmental study for a cruise ship plume tracking survey report. She is currently working with The Nature Conservancy and previously worked with the Harvard Sustainable Tourism Initiative, the Sustainable Shipping Initiative, and the Women's International Shipping & Trading Association where she served as president of the Florida Chapter (2009–2014). She is also a former board member for the Smithsonian Environmental Research Center (SERC). Her various efforts have been recognized by the South Florida Business Leader 2010 Women Extraordinaire Award. She has a Master's in Public Health from Florida International University, and a Bachelor of Science from the University of Miami.



THE SPEAKERS



LESLIE JAMES

British Columbia Ferry Services Inc.

Joining B.C. Ferries in 2013 as Manager, Environment, Leslie James brought more than a decade of experience from the marine and science fields on both sides of the border. In Canada, she worked in the private sector and for two federal departments. In her role as an intelligence analyst, she initiated a trend analysis program of the shipping industry to support the national security policy. During her time with the Canadian government as an environment officer, she developed and implemented a national compliance monitoring program. In the U.S., she worked with two state universities and the United States Geological Survey's Biological Resources Discipline as a biologist.



LEE KINDBERG

Maersk Line

Dr. Lee Kindberg has been at Maersk Line, the world's largest container shipping company, since 2005. She is currently Head of Environment, Health, Safety and Sustainability for Maersk Line in North America. She co-chaired the Environmental Protection Agency's Ports Initiative Workgroup from 2014 to 2016, and has served six years on the EPA's Clean Air Act Advisory Committee. She has also been active for more than a decade in the Clean Cargo Working Group, a global group dedicated to assessing and reducing the environmental impact of shipping. Her B.S. in Chemistry is from the University of Alabama and her Doctorate in Chemistry is from the University of South Carolina.



JOHN MANGANO

International Paint LLC

John Mangano is the Regional Marketing Manager, North & South America, for AkzoNobel's marine coatings business, International Paint LLC. With the company for 17 years, he previously worked as a technical service representative and an account executive. Graduating from the State University of New York Maritime College in 2000, he has an Unlimited Tonnage Merchant Mariner's License. He also has a Master's in Corporate Finance.



DENISE MCCAFFERTY

Royal Caribbean Cruise Lines

Denise McCafferty is responsible for directing global environmental compliance for 49 cruise ships within Royal Caribbean's six brands. Her job includes interpreting existing and emerging international, flag/port state, regional and local environmental regulations. She ensures that Royal Caribbean's Above-and-Beyond Compliance culture is maintained along with environmental sustainability. Prior to joining Royal Caribbean, she worked globally in various industries, including marine, passenger vessels and cargo; oil and gas, offshore and onshore; refining; chemical processing; various pipeline applications; and, nuclear power. Her career has spanned the globe, giving her a unique perspective in finding effective solutions to challenging situations.



BRYAN MCEWEN

SNC Lavalin

As Senior Air-Quality Meteorologist at SNC-Lavalin, Bryan McEwen has worked with the Canadian government on marine and port emission models since 2004. The model development includes versions of Canada's Marine Emissions Inventory Tool (MEIT) and Transport Canada's Port Emissions Inventory Tool (PEIT). He began his formal port emissions model work for Port Vancouver in the development of its 2005 inventory, which included the activities and emissions of its many tenants and partners. Since then, he has applied PEIT to all 18 of Canada's official ports, along with the establishment of a national port baseline for the year 2010.



MIKE MOLTZEN

U.S. Environmental Protection Agency (EPA)

As Deputy Director of the Transportation and Climate Division in the Environmental Protection Agency's Office of Transportation and Air Quality, Mike Moltzen works on innovative transportation initiatives, including the Diesel Emissions Reduction Act (DERA) Clean Diesel grant program and EPA's Ports Initiative. He recently also helped to establish key aspects of the settlement regarding Volkswagen's violations of Clean Air Act requirements. Prior to joining the EPA's Office of Transportation and Air Quality, he managed the mobile source program for the EPA's Region 2 office in New York, where his responsibilities included representing the EPA on the Strategy Group that helped develop the Port Authority of New York and New Jersey's Clean Air Plan.



ERIK NEUGAARD

Broward County Port Everglades

With 30 years of diverse experience as an environmental scientist, planner and educator, Erik Neugaard is the Environmental Program Manager at Port Everglades. His education includes a B.S. in Natural Sciences/Zoology from the University of South Florida and a M.S. in Marine Biology from the Nova Southeastern University Oceanographic Center. He is certified as an environmental professional, planner, ecologist, wetland scientist, wildlife biologist, endangered species observer, hazardous materials manager, hazardous waste site operations supervisor, geographic information systems (GIS) professional, remote-sensing mapper, photogrammetrist, scientific/Trimix scuba instructor, United States Coast Guard master/captain, and Florida Master Naturalist Program instructor. He is also the current president of the South Florida Association of Environmental Professionals.



AMELIA PELLEGRIN

Port of New Orleans

Joining the Port of New Orleans in 2013 as its first Environmental Services Manager, Amelia Pellegrin is leading the development of an ISO 14001 compliant Environmental Management System and managing all environmental compliance and sustainability initiatives for the port. She brings 14 years of experience in environmental consulting for public agencies, non-profit program development, and sustainability solutions for government agencies. She has managed a variety of projects across the United States, including clean energy installations, emissions inventories and carbon management strategies, and community master plans. She currently serves as a member of the Environmental Protection Agency's Ports Initiative Workgroup, and on the board of directors of the Traffic and Transportation Club of Greater New Orleans. A certified planner, she has a Bachelor of Science in Biology from Emory University and a Master's in City Planning and Environmental Policy from the Massachusetts Institute of Technology.



NICOLE A. POIRIER

Terragon Environmental Technologies Inc.

Dr. Nicole Poirier is a chemical engineer with 30 years of experience in technology development, R&D management, and consulting. She has led the development of technologies in materials processing and environmental protection. As the WETT (Wastewater Electrochemical Treatment Technology) Program Leader for Terragon Environmental Technologies Inc., based in Montreal, Quebec, she has led the development of award-winning electrochemical approaches for the treatment of black water, gray water and bilge water. These approaches permit the reuse or safe discharge of waste water from ships, contingency operations and isolated habitats. Dr. Poirier obtained her Engineering degree at the University of Ottawa, and her Master's and PhD from McGill University.



RICHARD POSNER

Dust Solutions Inc.

As President of Dust Solutions, Inc., Richard Posner leads the company's engineering, product development and business development activities. He consults with leading mining, power, cement, and industrial clients around the world on projects to achieve dust control and suppression in industrial and bulk material handling environments. His experience includes working for more than a decade with instrumentation and sensor-based companies to provide solutions in process improvement. He has presented widely on dust control and mitigation plans. Prior to joining DSI, he served as the Latin America Sales Manager for AMETEK Land. He holds an MBA from ESADE in Barcelona, Spain, and a B.S. in Electrical Engineering from George Washington University in Washington, D.C.



HOWARD POSLUNS

Transport Canada (TC)

Howard Posluns is the Chief, Advanced Technology, at Transport Canada's Transportation Development Centre (TDC), which is the government agency's multi-modal R&D component. A graduate electrical engineer with private sector consulting experience in engineering design, systems engineering and project management, he is a professional engineer and member of the Institute of Electrical and Electronics Engineers (IEEE). Since joining the Government of Canada, he has been involved in several innovation and R&D initiatives that are primarily focused on the marine and aviation sectors. He also has been involved in improving Canada's supply chain security and efficiency by leading a China-Canada R&D initiative to evaluate advanced technologies for the monitoring of marine cargo containers. Most recently, he has spearheaded another Transport Canada R&D initiative to evaluate, develop and support advanced technologies to reduce marine emissions.



JASON SCHERR

Port of Prince Rupert

With 20 years of experience in fisheries and environmental monitoring, Jason Scherr is the Manager of the Environmental Sustainability Plan at the Prince Rupert Port Authority (PRPA), which is guided in all of its activities by key principles of environmental sustainability, including pollution prevention, the preservation of environmental integrity, the efficient use of resources, and continuous improvement. Jason has been responsible for the development and implementation of the Port's environmental sustainability plan and various monitoring programs. He is also the designated lead for the PRPA's Green Marine program. Jason holds a Bachelor of Arts from the University of Victoria and has served as the president of the Prince Rupert and District Chamber of Commerce.



DAVID STUBBS

Port of Jacksonville

As the Director of Properties and Environmental Compliance for the Jacksonville Port Authority (JAXPORT) since 2003, David Stubbs is responsible for all property acquisitions/dispositions, evaluation of land lease proposals, development of port properties for non-port related functions, environmental compliance and project permitting, LNG market development, and Green Initiatives. He also seeks sources of capital funding through grants and other available programs. Prior to joining JAXPORT, he served as a development officer for a national real estate investment trust. He was responsible for the development of executive office parks, and the sale and purchase of multimillion-dollar office buildings. A licensed Florida real estate broker, he has a Bachelor of Business Administration from the University of North Florida, and holds the Certified Commercial Investment Manager (CCIM) designation.



GEOFFREY W. SWAIN

Department of Oceanography and Ocean Engineering, Florida Institute of Technology

Dr. Geoffrey W. Swain is a professor of Oceanography and Ocean Engineering and the Director of the Center for Corrosion and Biofouling Control at the Florida Institute of Technology (FIT). He established the center after joining the university in 1984. He is active in dry dock and underwater inspections of ship hull coatings and cathodic protection systems and has published more than 60 refereed articles on the subject. He also designed the cathodic protection system for the Living Seas at Disney World. His educational background includes a B.S. in Zoology (London University), M.S. in Oceanography (University of Southampton, U.K.) and a PhD in Engineering (University of Southampton, U.K.). In the early 1970s, he was part of a scientific team studying the marine resources of the Cayman Islands to recommend policies to protect and maintain water quality. He next took an appointment at Southampton University to research novel methods to control biofouling and corrosion. The research was initially directed towards ships, but later to problems being experienced

in the North Sea oil industry. In the early 1980s, he moved to Aberdeen, Scotland, where he joined the Offshore Marine Studies Unit conducting corrosion and biofouling surveys on offshore structures in the North Sea. He is a member of the Marine Biological Association of the U.K., the National Association of Corrosion Engineers, and the Society of Naval Architects and Marine Engineers.



CHRISTINE VANDERWILL

Climate Smart Businesses

As Client Relations Manager, Christine VanDerwill leads the business engagement team at Climate Smart Businesses, which offers training, certification and software tools for small/medium enterprises (SMEs) to measure and profitably reduce carbon emissions associated with energy, transportation and waste. In partnership with ports and airports, she develops strategic campaigns to engage businesses, tenants and suppliers in climate action by leveraging market drivers and illustrating opportunities to reduce costs and increase efficiencies. She holds a Master's in International Studies with a concentration in environmental policy from Simon Fraser University.



WILLY YUNG

Vancouver Fraser Port Authority

Willy Yung is the Director of Engineering and Maintenance for the Vancouver Fraser Port Authority, which oversees the Port of Vancouver, Canada's largest port. Having more than 25 years of port and marine experience, he is responsible for the asset management, engineering and maintenance of the port authority's infrastructure assets and buildings, and delivery of capital and maintenance projects. His current focus includes the development of the port authority's Asset Management Program and Green Infrastructure Guidelines, as well as engineering support to various major infrastructure development projects. He holds both a Master's and a Bachelor's of Applied Science in Civil Engineering from the University of British Columbia.



A SPECIAL THANKS TO OUR SPONSORS

GOLD



SILVER



BRONZE



MEDIAS



GREEN MARINE PARTICIPANTS

SHIP OWNERS



- Algoma Central Corporation
- Atlantic Towing Limited
- BC Ferries
- Canada Steamship Lines
- Canfornav
- Cogema
- Croisières AML
- CSL International
- CTMA Group
- Fednav Limited
- Groupe Desgagnés
- Ledcor Transportation & Resources LP
- Lower Lakes Towing Limited
- Marine Atlantic Inc.
- McAsphalt Marine Transportation Ltd.
- McKeil Marine
- North Arm Transportation
- Ocean Group
- Oceanex
- Owen Sound Transportation Company
- Reformar
- Seaspan ULC
- Saam SMIT Canada
- Société des Traversiers du Québec
- SVITZER Canada
- TBS Ship Management Inc.

PORTS & SEAWAY



- Alabama State Port Authority
- Albany Port District Commission
- Bécancour Waterfront Industrial Park
- Belledune Port Authority
- Canaveral Port Authority
- Cleveland-Cuyahoga County Port Authority
- Duluth Seaway Port Authority
- Greater Victoria Harbour Authority
- Halifax Port Authority
- Hamilton Port Authority
- Illinois International Port District
- Montréal Port Authority
- Nanaimo Port Authority
- Northwest Seaport Alliance
- Oshawa Port Authority
- Port Everglades
- Port of Corpus Christi
- Port of Everett
- Port of Gulfport (MSPA)
- Port of Hueneme (Oxnard Harbor District)
- Port of Indiana - Burns Harbor
- Port of Milwaukee
- Port of Monroe
- Port of New Orleans
- Port of Olympia
- Port of Seattle
- Port of Valleyfield
- Port Alberni Port Authority
- Prince Rupert Port Authority
- Québec Port Authority
- Saint John Port authority, NB
- Saguenay Port Authority
- Sept-Îles Port Authority
- St. John's Port Authority, NL
- St. Lawrence Seaway Development Corporation
- St. Lawrence Seaway Management Corporation
- Thunder Bay Port Authority
- Toronto Port Authority
- Trois-Rivières Port Authority
- Vancouver Fraser Port Authority
- Windsor Port Authority

TERMINALS & SHIPYARDS



- ABC Recycling
- BC Ferries (terminals & shipyards)
- Ceres Terminals Inc.
- DP World - Prince Rupert
- Empire Stevedoring Company Ltd (Mtl)
- Federal Marine Terminals
- Fraser Surrey Docks
- G3 Canada Limited (Québec)
- G3 Canada Limited (Trois-Rivières)
- GCT Global Container Terminals Inc.
- Glencore (Quebec facilities)
- Groupe Desgagnés (Relais Nordik Sept-Îles)
- IOC (Iron Ore Company, Sept-Îles)
- Kinder Morgan Canada (Westridge Terminal)
- Logistec Corporation
- Marine Atlantic Inc.
- McAsphalt Industries Limited
- Montreal Gateway Terminals Partnership
- Neptune Terminals
- New Orleans Terminal LLC
- Norcan Petroleum Group
- Northern Stevedoring
- Ocean Industries (shipyard)
- Pacific Coast Terminals
- Pinnacle Renewable Energy (Westview Terminal)
- Porlier Express
- QSL
- Richardson International (Hamilton)
- Ridley Terminals Inc.
- Rio Tinto Alcan (Port-Alfred)
- Seaspan ULC (terminals & shipyards)
- Squamish Terminals
- Sterling Marine Fuels (Windsor Terminal)
- Termont Montreal
- Tidal Coast Terminals Ltd.
- Tymac Launch Service Ltd.
- Valero (Jean-Gauvin Refinery)
- Valleytank
- Valport
- Waterfront Petroleum Terminal Company
- West Coast Reduction
- Westshore Terminals
- Yellowline Asphalt Products Ltd.



Green Marine participants are committed to continuously improving their environmental performance.



GREEN MARINE PARTNERS

INDUSTRY SERVICES, PRODUCTS & TECHNOLOGY PROVIDERS

- ABB Turbocharging
- Abate Energy Group
- American Chemical Technologies
- Bell Marine & Mill Supply
- Certified Laboratories
- Conflow Technologies
- Drew Marine
- DSS Group of Companies
- Eco-Forma Inc.
- Ecospray Technologies S.R.L.
- Envirolin Canada
- Environmental Solutions Inc.
- Filtramax
- GHGES
- Hermont Marine
- InnovMarine Inc.
- International Paint
- Ionada
- Jasco Applied Sciences
- Marine and Offshore Canada
- Marine Clean Ltd.
- Moran Coastal & Ocean Resources, Inc.
- Nimonik
- OpDAQ Systems
- Pronova Systems Inc.
- RBM HoldSolutions
- RSC Bio Solutions
- Sanexen
- Schneider Electric
- Scott's Marine Interiors
- Seagulf Marine Industries Inc.
- S.I.G.E.I.M Inc.
- SINTO
- SRA Information Technology
- Stantec
- Techsol Marine
- Terragon Environmental Technologies
- Thordon Bearings Inc.
- Total Marine Solutions Inc.
- Urgence Marine Inc.
- Uson Marine AB
- VapCor Inc.
- Wärtsilä Canada

CLASS SOCIETIES, VERIFICATION & VETTING SERVICES

- American Bureau of Shipping
- DNV-GL
- Lloyd's Register Marine North America
- Canadian International Bureau of Shipping
- RightShip Americas

SHIPPERS, LOGISTICS & SHIP MANAGERS

- Aluminerie Alouette
- K+S Windsor Salt Ltd.
- Quickload CEF
- VShips Canada Inc.

PILOTAGE

- Atlantic Pilotage Authority
- Corporation des pilotes du St-Laurent Central
- Corporation of Lower St. Lawrence Pilots
- Great Lakes Pilotage Authority
- Laurentian Pilotage Authority
- Pacific Pilotage Authority
- Puget Sound Pilots

ENERGY COMPANIES

- Gaz Metro
- Pacific Northwest LNG

ENGINEERING AND ENVIRONMENTAL CONSULTING

- Beaudoin Hurens
- Climate Smart Businesses Inc.
- Concept Naval
- EcoLogix Group
- Envirochem
- Groupe-Conseil Génipur inc.
- Hemmera
- Kennedy/Jenks Consultants
- Le Groupe SCP Environnement Inc.
- Moffatt & Nichol
- Noise Control Engineering LLC
- Norda Stelo
- PESCA Environnement
- SNC-Lavalin Environment
- Ventus Development Services Inc.
- WSP Canada

R&D, RESPONSE, TRAINING & COOPERATIVE

- Human Resources Sectorial Committee of the Maritime Industry (CSMOIM)
- Georgian College's Great Lakes International Marine Training Centre
- Marine Exchange of Puget Sound
- Maritime Innovation
- Western Canada Marine Response Corporation



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



GREEN MARINE SUPPORTERS

GOVERNMENTS

- Environment Canada
- Fisheries and Oceans Canada
- Inter-American Committee on Ports of the Organization of American States
- Ministère de l'Énergie et des Ressources naturelles du Québec
- Ministère des Transports du Québec
- Ministère du Développement durable, de l'Environnement et de la Lutte aux Changements Climatiques du Québec
- Ministère des Forêts, de la Faune et des Parcs du Québec
- Ministry of Transportation of Ontario
- Nova Scotia Environment
- Puget Sound Clean Air Agency
- Transport Canada
- Washington Department of Ecology

MUNICIPALITIES

- Board of Harbor Commissioners of the City of Milwaukee
- City of Bécancour
- City of Calixa-Lavallée
- City of Contrecoeur
- City of Longueuil
- City of Matane
- City of Montréal
- City of Montréal-Est
- City of Port-Cartier
- City of Port Edward
- City of Prince Rupert
- City of Québec
- City of Saint-Amable
- City of Sept-Îles
- City of Varennes
- Communauté métropolitaine de Québec
- Great Lakes and St. Lawrence Cities Initiative
- Marguerite-D'Youville MRC

ENVIRONMENTAL GROUPS AND NGOS

- Carbon War Room
- Clean Foundation
- Ducks Unlimited Canada
- Environmental Defense Fund
- Georgia Strait Alliance
- Georgian Bay Forever
- International Secretariat for Water
- Les Amis de la vallée du Saint-Laurent
- Marine Mammals Observation Network (ROMM)
- Nature Conservancy of Canada
- Nature Québec
- One Drop
- Pacific Salmon Foundation
- Point Blue
- Sedna Foundation
- Stratégies Saint-Laurent
- World Wildlife Fund Canada

RESEARCH, EDUCATION & CONSERVATION

- Anthropocene Institute – Protected Seas
- Center of Excellence for Marine Manufacturing & Technology
- Clear Seas
- CPEQ
- EcoMaris
- Great Lakes Maritime Research Institute
- INREST
- Northwest Community College
- Ocean Networks Canada
- PortTech Los Angeles
- Promotion Saguenay
- Seattle Aquarium
- Société de promotion économique de Rimouski
- St. Lawrence Global Observatory
- St. Lawrence River Institute of Environmental Sciences
- Technopole Maritime du Québec
- Vancouver Aquarium



Green Marine Supporters encourage and support the sustainable development initiative undertaken by the marine industry.



GREEN MARINE ASSOCIATION MEMBERS

Associations serve as ambassadors
for the environmental program.

- American Association of Port Authorities
- American Great Lakes Ports Association
- American Society of Naval Engineers
- Association of Canadian Port Authorities
- BC Marine Terminal Operators Association
- Canadian Ferry Association
- Canadian Marine Pilots Association
- Chamber of Marine Commerce
- Chamber of Shipping of America
- Chamber of Shipping of British Columbia
- Council of Marine Carriers
- International Ship-Owners Alliance of Canada
- Michigan Aggregates Association
- North American Marine Environment Protection Association
- Ontario Marine Transportation Forum
- Shipping Federation of Canada
- St. Lawrence Economic Development Council
- St. Lawrence Shipoperators
- U.S. Great Lakes Shipping Association
- Washington Maritime Federation
- Washington Public Ports Association



GREENTECH 2018

SAVE THE DATE!

May 30 – June 1

Vancouver, B.C.

VANCOUVER, HOME TO:

- Canada's largest port -
- 30 Green Marine members -
- A vibrant and growing maritime community -



Visit our website:

GREEN-MARINE.ORG

Follow us on Twitter:



@GMarine_AVerte



QUÉBEC CITY OFFICE

25, du Marché-Champlain, Suite 402
Quebec City, Quebec G1K 4H2

418 649-6004

info@green-marine.org

SEATTLE OFFICE

1201 Alaskan Way, Suite 200
Seattle, WA 98101

206 409-3943

eleanor.kirtley@green-marine.org

HALIFAX OFFICE

1949 Upper Water Street, Suite 201
Halifax, Nova Scotia B3J 3N3

902 680-6348

thomas.gregoire@green-marine.org