

2021-2022 Annual Report





The Year in Review: Providing the Human Story About Marine Shipping

Sustainable marine shipping is often thrown into the public spotlight: supply chain disruptions, debate around new fuels to reduce greenhouse gas emissions, and hot button issues ranging from waste discharge from ships to transporting oil by water.

But as Clear Seas continues with its mission to provide access to fact-based information to help inform and guide public policy, the organization has also sought over the past year to tell the stories of the people who work in the marine shipping industry or those who are touched by it.

During this time, Clear Seas has built a strong and forward-facing approach to its research which has focused on safe shipping as well as seeking stronger working relationships with Indigenous and coastal communities through innovative programs like the Indigenous Internship Program. We were able to share the stories told by three Indigenous post-secondary students who, with support from Clear Seas and its educational partners, applied Traditional Knowledge and western science to help their communities understand the health impacts of marine shipping, address invasive species, and pursue sustainable aquaculture using Indigenous traditions. The leadership shown by these students has benefitted those communities and laid the groundwork for future interns.

Elsewhere, Clear Seas recounted the lessons learned from the sinking of the tugboat *Nathan E. Stewart* near Bella Bella, BC, just over five years ago, and how fuel and oil spills can affect the livelihood and well-being of Indigenous Peoples. The Clear Seas team also told the story of what happens when shipping containers are lost overboard and the legacy the wreckage and contents can leave on a shoreline and in the oceans.

As the world emerges from the COVID-19 pandemic, research on issues in maritime governance probed the well-being of mariners and revealed an occupational health and safety crisis as well as the need for inter-agency cooperation within Canada and beyond to ensure that seafarers are supported, and their rights protected.



In Canada's north, Clear Seas addressed issues in Arctic waters as climate change affects sea ice and opens new shipping lanes. A first-of-its-kind web page on Inuit Rights and Marine Use in the Arctic provides helpful resources to local Inuit communities in their own languages from dealing with oil spills to contacting the Canadian Coast Guard. In addition, Clear Seas convened a roundtable to gather diverse perspectives on the use of liquefied natural gas as a fuel for marine shipping in Canada's Arctic.

Much of the work over the past year had lasting implications for the people who work in the marine shipping sector and those Canadians and Indigenous Peoples who rely on the oceans, rivers, and lakes for their livelihood, sustenance, drinking water, and well-being.

As an organization, Clear Seas has made significant progress in helping people understand marine shipping by equipping them with important information through wide-ranging public outreach through the website and other channels. One tangible example provides a snapshot of safety on Canada's waters through an interactive, user-friendly visualization tool on marine shipping incidents and accidents. This online dashboard allows the public to see where, when, and what kinds of shipping incidents and accidents occur.

Clear Seas remains fully committed to increasing diversity and building capacity, both within and beyond the organization. Clear Seas has embraced Canada's 50:30 Challenge, to achieve gender parity and increase the representation of equity-seeking groups on the board and management team. Clear Seas has also continued to work with Indigenous communities, helping make small steps forward on the path to reconciliation by building capacity and creating opportunities for Indigenous People.

Murray Coolican
Chair of the Board of Directors

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Annual Report 2021-2022

1.0 Measuring Public Impact

Clear Seas produces a wide range of research, decision-making tools, and information on sustainable marine shipping, in Canada and abroad. One of its key objectives is to make sure that this research is freely available and presented to as wide an audience as possible in English and French. Its interactive, easy to navigate website acts as its publishing hub and content is promoted through social media campaigns and quarterly newsletters. This section of the report describes how the performance of these channels creates a measure of Clear Seas' public impact.

1.1 Website Performance

Over the years, Clear Seas' website has become a trusted online reference for a cross-section of Canadians – from interested members of the public, to Indigenous groups and communities, policy makers, industry stakeholders and academics – to easily access neutral and comprehensive information on important marine shipping issues. Furthermore, the website has an effective search engine optimization capability which means that Clear Seas webpages are often the most highly returned page in any given web search.

Website visits are an excellent measure of Clear Seas' research and communications relevance and FY2022 saw continued strong growth in the number of users of the website. Website traffic, as shown in Figure 1, increased by 23% compared to the previous year, with more than 130,000 users visiting the site over the course of a single year. The cumulative number of pages viewed (i.e., pageviews) by website users reached 790,000 at the end of March 2022.

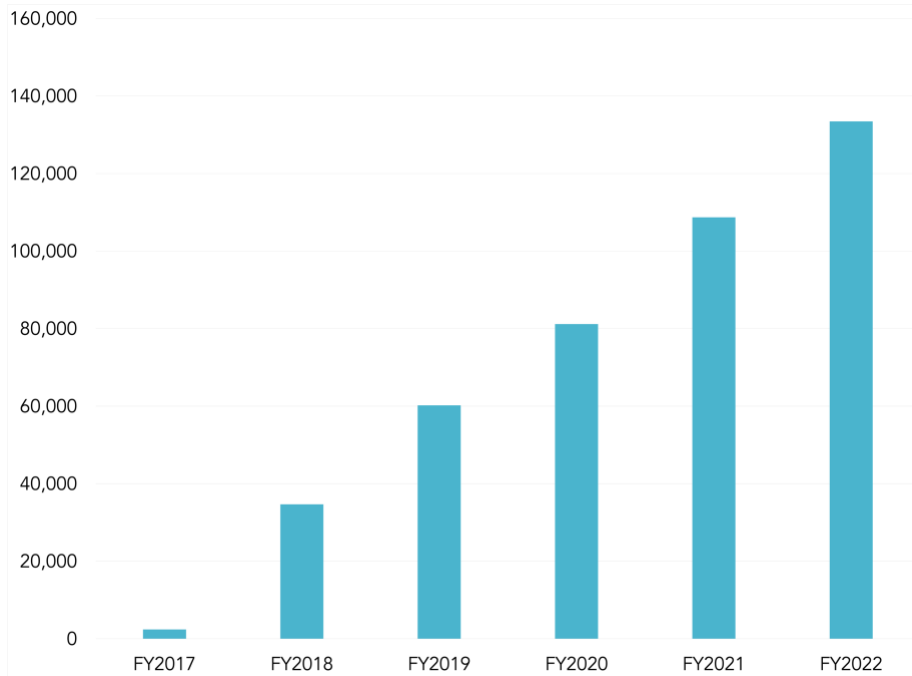


Figure 1: Year-over-year growth of website traffic (in number of users)

Clear Seas' national reach is evidenced by the distribution of the 244,000 website users within Canada, as shown in Figure 2. Provinces with a maritime focus like British Columbia and Quebec have the strongest interest as a percentage of the population of those provinces.

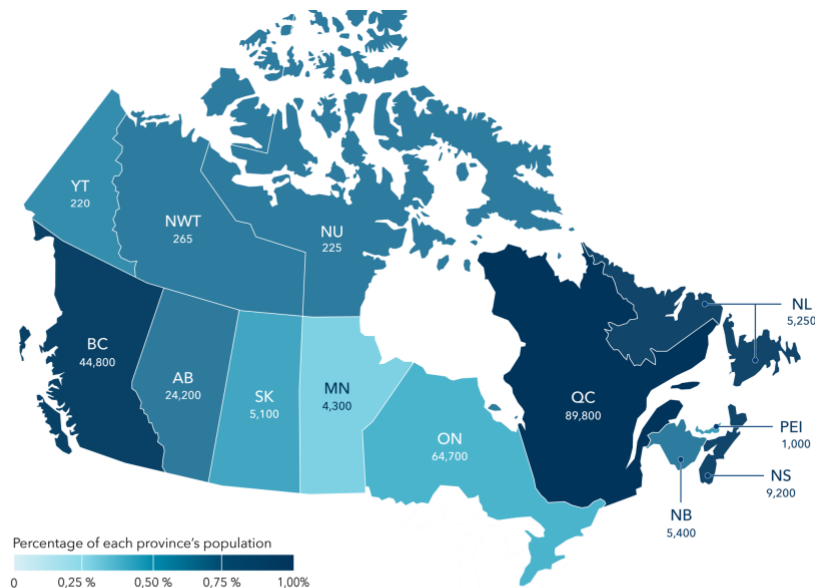


Figure 2: Geographic distribution of website users

The two charts in Figure 3 below illustrate the diversity of the self-identified age and first language of the users of Clear Seas’ website. All age ranges are well represented in the audience and although English remains the most common language among users, French-speaking users represent more than a quarter of Clear Seas’ website traffic, which exceeds the percentage of the Canadian population that speaks French.

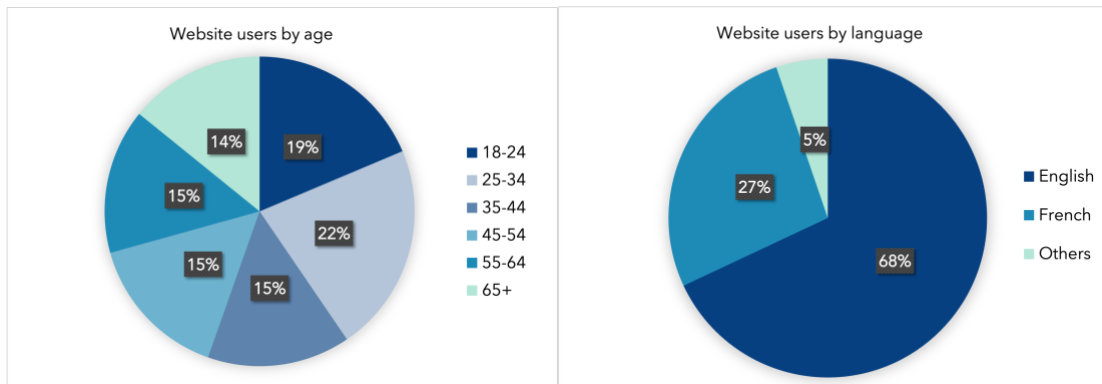


Figure 3: Website user distribution by age and language

During FY2022, website traffic was driven in large part by the introduction of relevant new content, in particular the new *Key Issues* web page explaining how commercial ships manage and eliminate their wastes, and the publication of two research projects, one of which involved the development of an online visualization tool highlighting the various maritime incidents and accidents that occurred in and around Canadian waters over a 10-year study period.

Clear Seas now has a total of nine *Key Issues* web pages, 16 research reports, and 14 research digests. Clear Seas also provides a range of infographics to facilitate understanding of complex, multifaceted marine shipping concepts. Two infographics were added to Clear Seas’ content library this year: one providing an overview of the effects of black carbon in the Arctic, and the other Canada’s Marine Protected Areas and National Marine Conservation Areas.

1.2 Clearfacts Blog Article Series

While research reports and *Key Issues* web pages have a longer planning and production horizon, blog articles are a regular feature that allow Clear Seas to cover and respond to topical and current issues. On average, they are published monthly. These comprehensive pieces – accompanied by visuals and infographics – address topical issues of interest to Clear Seas’ audience. The 16 blog articles published over the past year, together with those that

were released in previous years, generated significant interest among Clear Seas' audience and were viewed more than 117,000 times, accounting for almost 50% of all the pageviews recorded in FY2022.

The topics explored and explained on the blog over that period included:

- Endangered North Atlantic Right Whales: A Species on the Brink of Extinction
- Southern Resident Killer Whales: Helping to Save an Endangered Species
- Recognition Comes at a Painful Time in the History of Indigenous Peoples
- How Will the TMX Pipeline Affect Marine Shipping in the Salish Sea?
- Black Carbon in the Arctic: What You Need to Know
- Shipping Containers Overboard
- Reconciliation in Canada's Marine Shipping Industry (II)
- Ballast Water Management: Stopping the Spread of Invasive Species
- Maritime Search and Rescue and Shipping Risk: How Does it Work in Canada?
- Haida Gwaii Oil Spill Prevention Measures Renewed for Ships
- Nathan E. Stewart Oil Spill: Five Years Later
- Is Marine Spatial Planning the Key to Safer and Healthier Oceans?
- Decarbonizing Marine Shipping: Clean Fuels for a Greener Future?
- Stranded at Sea: COVID-19 and its Toll on Mariners
- Liquefied Natural Gas as a Marine Fuel in the Arctic: Panacea or Poison?
- In Their Own Words: Reflections on Clear Seas' Indigenous Internship Program

1.3 Social Media

Clear Seas maintains a highly responsive and interactive presence on Twitter, Facebook, and LinkedIn. The organization uses these channels to broaden its reach with the public and encourage them to learn more about relevant topics through both organic followership and advertising campaigns. Social media also provides opportunities to engage directly and build relationships with the public, stakeholders, policy makers and influencers.

Clear Seas' social media approach consists of engaging with and informing its audience, rather than simply growing a large, but not necessarily committed, following. Figure 4 shows the growth of Clear Seas' social media following across Facebook, LinkedIn, and Twitter for FY2022. The most significant growth in the number of followers occurred on LinkedIn, where followership jumped by more than 30%, reaching 1,600 at the end of the fiscal year. This year, the relevance and frequency of the content published on social media combined with

“invitations to follow” sent daily to people who liked a Clear Seas post are responsible for the consistent growth of Clear Seas’ social media audience.

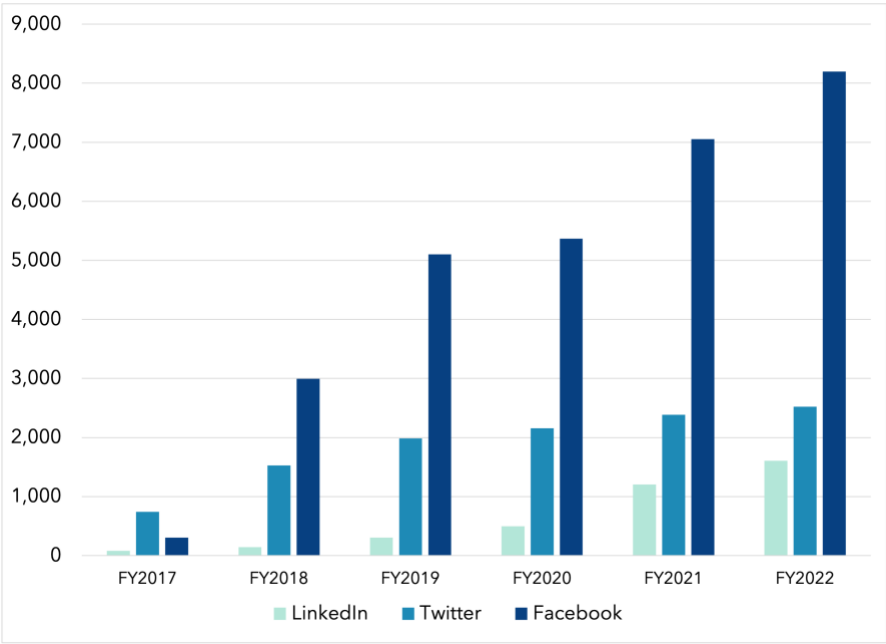
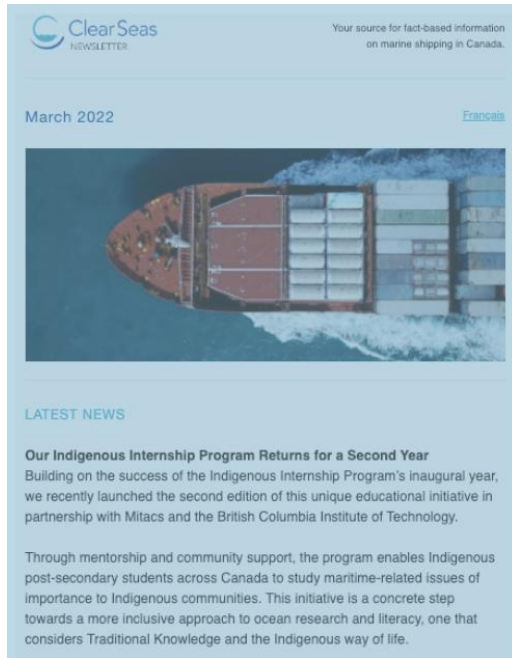


Figure 4: Year-over-year growth of social media audience (in number of followers)

The audience on social media continued to engage and interact with the content Clear Seas shared on Facebook, Twitter, and LinkedIn, which generated approximately 676,200 clicks, 42,400 reactions and 5,500 shares. The number of comments received, 4,265, remained consistent with the numbers recorded during the last fiscal year, with a small increase of 3%.

1.4 E-newsletter



During FY2022, Clear Seas grew its e-newsletter mailing list by 24%, acquiring 477 new subscribers. The e-newsletter, which features a digest of new research, news, and blog articles, is distributed to close to 2,500 individuals across Canada and abroad, in both English and French. Its average open rate of 39% over the year is well above the industry standard of 20% for subscription-based e-newsletters. At 10%, the average click-rate of Clear Seas' emails received was also above the industry open rate of 5%, indicating the strong interest that subscribers have in Clear Seas' content.

2.0 Relevance and Influence

While the objective measures of users and followers demonstrate Clear Seas' impact with the wider public, its research has also been adopted and used by government, Indigenous People, public policy leaders and industry influencers to make decisions about marine shipping. Over the past year, Clear Seas' work has made news around the loss of shipping containers at sea, supply chain issues and port congestion, alternative marine fuels for greenhouse gas reductions, black carbon and pollution in the Arctic, and its assessment of maritime incidents and accidents in Canadian waters. The Executive Director and research team have hosted webinars and have been invited to conferences to share this work. This section of the report describes some of the highlights of Clear Seas' relevance and influence in marine shipping.

2.1 Research in Action

Clear Seas' research has real-world applications and contributes to public policy decisions. During FY2022, Clear Seas' work and research continued to foster informed dialogue on marine shipping risks and safety from coast to coast to coast as well as in transboundary waters.



Clear Seas' research contributed to evidence-based, informed conversations on a number of timely, relevant topics, including understanding marine shipping risk with an analysis of maritime incident and accident frequency presented at the national Canadian Marine Advisory Council meeting in spring 2022, reducing

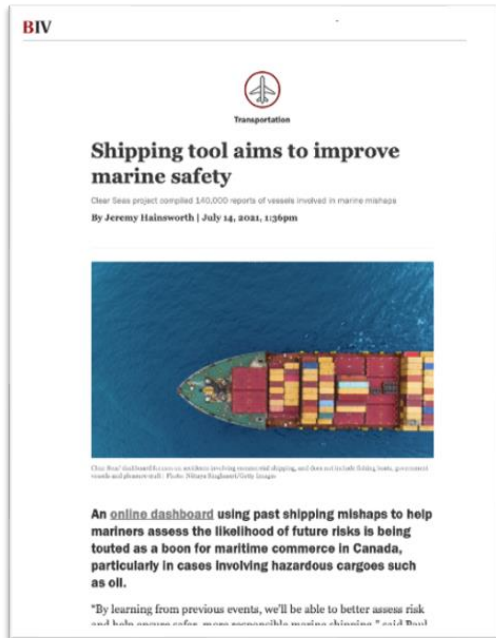
the environmental impact of ship-source wastes with a *Key Issues* page launched, decarbonizing the maritime industry with alternative fuel options with research published in a widely shared blog article, and supporting Inuit rights and marine use in the Canadian Arctic region with a quadrilingual story map that benefited communities and government's access to information.



In late 2021, the Canadian Coast Guard (CCG) approached Clear Seas for support in understanding the implications of climate change on its operations, vessels, and other infrastructure. Clear Seas launched a project with the support of Dillon Consulting to provide clear, accessible information to support the development of the CCG's climate change adaptation strategy. The research findings had broad relevance and were made available to the public and formed part of the dialogue on Canada's National Adaptation Strategy.

2.2 Media Coverage

While Clear Seas uses its website to showcase its research, media coverage ensures that industry specialists and stakeholders from around the world are aware of and recognize the importance of the organization's work. Coverage in industry publications along with various Canadian media outlets builds credibility and allows the organization to develop relationships with journalists and suggest story ideas for future coverage as a respected commentator on marine issues.



The release of important research – including our Maritime Commercial Incidents and Accidents visualization tool (dashboard) and supporting report – and monthly blog articles on topical issues, allowed Clear Seas to garner significant media coverage online, in trade publications as well as in regional and national news outlets to bring news about marine shipping to Canadians. Recognizing that many global marine issues have local interest, Clear Seas’ Maritime Commercial Incidents and Accidents report received coverage due to sensitivities around the carriage of hazardous cargoes. It gained significant regional coverage through BC and other media, particularly in suburban and coastal communities.

Later in the year, with interest in the plight of the *Zim Kingston*, which had lost more than a hundred containers off the west coast of Vancouver Island during a storm, Executive Director Paul Blomerus was interviewed by the *CBC National* for views on the causes and effects of the incident. That interview reached nearly 2 million Canadians. Communications Manager Sarah Landry was also interviewed on the topic by *Radio-Canada*. Coverage was achieved on other topics, including black carbon on *CBC Radio* and the *Barents News*.



Clear Seas’ Executive Director, Paul Blomerus, interviewed on CBC Television’s *The National*

This led to coverage in other media, including the *Victoria Times-Colonist*. Media interest in supply chains, ships at anchor and other shipping matters resulted in international coverage after interviews with *Bloomberg News* and *Popular Science*. Our blog articles and news releases are routinely covered in international maritime publications such as *Maritime Executive*, *Bunkerspot* and *Hellenic Shipping News*. In the digital age, media coverage gains wider awareness through shares on social media and publication in online versions.

2.3 Growing Clear Seas' Quebec Presence

Building on its outreach efforts initiated in FY2021 with Quebec ports, maritime associations and councils, research networks, and government departments, Clear Seas continued to build relationships with local stakeholders to strengthen and refine its strategy for a Quebec-based satellite office and future research projects of relevance to Quebec stakeholders.

Clear Seas initiated conversations with academic and industry groups, including *Réseau Québec maritime* (RQM), *Armateurs du Saint-Laurent* (ASL), and *Société de développement économique du Saint-Laurent* (SODES), to understand issues, concerns, and priorities for research and communication efforts for Clear Seas to undertake. Following these conversations, a joint call for proposals for research leveraging Quebec's academic network as well as a Quebec-focused Indigenous employment program are being considered and assessed by local stakeholders. Discussions are open and ongoing.

2.4 Contributing to the Dialogue on Safe and Sustainable Marine Shipping

The organization continues to be recognized for its impartiality and is invited to contribute to important public policy issues and leading conferences attended by industry experts. Over the course of FY2022, Clear Seas hosted, presented at, or participated in 40+ marine industry events and conferences. Attendance at major conferences and meetings permits the organization and its team to share its findings and engage with industry leaders and decision makers, supporting the formulation of important public policy initiatives.

Notable events hosted by the Clear Seas team include a launch webinar for its *Maritime Commercial Incidents and Accidents* research project, a cross-sectoral perspectives gathering workshop for the *Arctic Marine Natural Gas Supply Chain* feasibility study, and a networking event to celebrate the success of the inaugural Indigenous Internship Program. Collectively, the online events hosted by Clear Seas brought together more than 400 participants from across Canada and internationally.

In other outreach to the maritime community, the team also presented Clear Seas' research at seven virtual events, among them, GreenTech 2021, regional and national Canadian Marine Advisory Council meetings, and the Coastal Zone Canada Association conference.

Clear Seas' expertise is sought by the public, the media, and government through various channels. In FY2022, Clear Seas provided recommendations for the Implementation of a Sustainable Blue Economy Strategy in response to Fisheries and Oceans Canada's Blue Economy Strategy Engagement Paper launched in February 2021 and participated in Transport Canada's Horizontal Evaluation of the Oceans Protection Plan (OPP) to support the development of the next phase of the OPP. Clear Seas also partnered with Canada's Ocean Supercluster to create a national program to support mid-career Indigenous People's access to jobs in the maritime industry, and partnered with the Ocean Frontier Institute to plan a conference (to be held in FY2023) on the topic of "Shipping Risk Mitigation in Canada: Considering Area-Based Management," with a focus on Indigenous perspectives and policy directions. This type of participation puts the organization in contact with public policy leaders and connects tangible, trusted research to a real-world setting.

2.5 Advancing a Shipping Risk Community of Practice

The Canadian Marine Shipping Risk Forum (CMSRF) was co-founded by Clear Seas, the Marine Environmental Observation, Prediction & Response (MEOPAR) Network and exactEarth in 2019. This Community of Practice (COP) was convened in response to a growing need for a shared approach to and understanding of shipping risk management in Canada. It is open to people and organizations working in or conducting research on shipping risk. It provides those interested with a platform to network and share knowledge around shipping risk.

Risks from, and to, marine shipping have an inherent interdisciplinary nature, with interest held in diverse fields, including waterway traffic management, remote sensing, environmental science, geospatial modelling, transportation regulation, and risk analysis and management. The natural tendency of research within disciplines is generally more inward-looking than outward, which tends to concentrate globally valuable information within single fields of study or organizations. The CMSRF is one mechanism to help lower inter-discipline barriers to marine shipping analysis.

The COPs activities revolve around three primary areas of interest: shipping movement data, shipping traffic modelling, and shipping risk quantification and assessment. Shipping risk topics range from assessment of risks within a given operating region, to examination of the impacts of shipping traffic on diverse receptors (e.g., environment, species at risk, human health), and

applications concerning vessel safety.

During FY2022, the CMSRF hosted four virtual events attended by diverse participants from academia, government, industry, non-profit organizations, and Indigenous communities. In spring 2021, two webinars discussed shipping risk in relation to the environment, in marine protected areas and in low-impact shipping corridors in the Canadian Arctic. The continued development of the CMSRF shipping risk inventory project was the subject of an interactive workshop in October 2021, and the Salish Sea Transboundary Working Group was launched in March 2022 with presentations from Transport Canada, the Washington Department of Ecology, and Clear Seas on the topic of understanding and modelling shipping risk in the Salish Sea.

3.0 Making Reconciliation a Reality for Marine Shipping

Clear Seas acknowledges and values the important role that Indigenous People have had as mariners and stewards of the coastal and marine environment since time immemorial. Following its commitment to adopt the UN Declaration on the Rights of Indigenous Peoples, Clear Seas has created and implemented a multifaceted approach to reconciliation, including incorporating the Truth and Reconciliation Commission's Calls to Action urging all levels of government and non-governmental organizations to work together to repair the harm caused by residential schools and to advance reconciliation. Call to Action #92 specifically calls on corporate Canada to help create a better future, and Clear Seas has more than 80 initiatives completed, underway, or planned to contribute to:

- Building respectful, meaningful partnerships with Indigenous communities;
- Supporting equitable access to jobs, training, and education opportunities in the corporate sector;
- Providing education for management and staff on the history of Indigenous Peoples in Canada;
- Completing skills-based training in intercultural competency, conflict resolution, human rights, and anti-racism.

Clear Seas has made significant strides forward with its Indigenous and Coastal Communities (ICC) strategy, supported by two permanent staff members to manage this important portfolio. This investment in the ICC strategy has substantially advanced Clear Seas' relationships with Indigenous communities across Canada.



March 1, 2022

IN THEIR OWN WORDS: REFLECTIONS ON CLEAR SEAS' INDIGENOUS INTERNSHIP PROGRAM

Clear Seas launched an internship program in 2021 to build respectful relationships with Indigenous communities by listening to and addressing priorities through research projects led by Indigenous post-secondary students.

The establishment and launch of the Indigenous Internship Program in FY2022, with support from Mitacs, established partnerships with Indigenous Peoples and communities across Canada for more inclusive research. During the first year of the program, interns conducted research on maritime topics of concern to Indigenous communities that relate to safety and sustainability of marine shipping from an Indigenous perspective. The first cohort of interns started in May 2021 with five graduating later in the year. Their experience and the insights they generated were published as a blog article and provide important background for prospective students. At the end of FY2022, Clear Seas announced and launched the second edition of the internship program in partnerships with Mitacs and the British Columbia Institute of Technology.

Throughout the year, Clear Seas' ICC team worked with Canada's Ocean Supercluster to develop a wider-reaching Indigenous employment program facilitating meaningful work placements for mid-career Indigenous Peoples wishing to explore and pursue careers in ocean-based industries. The Indigenous Career Pivot Program launches in FY2023 and is expected to mobilize a network of 460+ maritime organizations and companies, from coast to coast to coast, to support Indigenous employment in this key sector of the Canadian economy.

Clear Seas continues to integrate the Truth and Reconciliation Commission's Calls to Action into its work in research and relationship building. For the second consecutive year, Clear Seas published a blog article that surveyed what the marine shipping industry is doing to improve relations and to work together with Indigenous communities. The article was released on the first National Day for Truth and Reconciliation. It provided an important snapshot of where the industry – from ports, ship builders and operators to educational and training bodies – is on the path towards reconciliation. It opened the conversation with several organizations around the need for the marine sector to invest more attention and resources in this area. Other blog articles honoured National Indigenous Peoples Day as well as provided the perspective of First Nations on a range of topics from increased marine traffic around the Trans Mountain Expansion pipeline to the repercussions from the sinking of the tug *Nathan E. Stewart*.

Other actions undertaken by Clear Seas during FY2022 to raise awareness about Indigenous history and perspectives and advance reconciliation include:

- Developing a style guide to decolonize language that outlines language to prioritize and avoid in communications;
- Initiating a site-wide content review to decolonize the language used in Clear Seas' research and communications;
- Creating a Story Map on the topic of "Supporting Inuit Rights and Marine Use" in Inuinnaqtun, Inuktitut/ᐃᓄᓂᓴᓴᓴᓴ, French, and English;
- Reading and discussing numerous works as part of Clear Seas' Indigenous Book Club program, including the first several chapters of *Honouring the Truth, Reconciling for the Future*, the summary report of the Truth and Reconciliation Commission of Canada;
- Updating the organization's purchasing policy to include Indigenous vendors;
- Formalizing a relationship with the First Nations Fisheries Council of BC through a signed memorandum of understanding;
- Training and educating on reconciliation through an ECO Canada Non-Profit Organization Workshop;
- Inviting more Indigenous People to join Clear Seas' Research Advisory Committee and the Board of Directors.

4.0 Relevant and Timely Research

Clear Seas' mission is to be the leading source of credible, fact-based information and to bring clarity to decision-making for safe and sustainable marine shipping in Canada. It uses its in-house capabilities and works with a network of academic and industry experts across Canada to conduct its research. As part of achieving this goal, the organization published three new research reports and continued to work on a range of other research studies during the fiscal year. These studies contributed to a greater understanding of marine shipping issues in Canada, and were the focus of academic analysis, utilized by stakeholders from government, consulted by First Nations and referenced by others across the marine shipping community.

4.1 Recent Research Publications

The research projects and related materials published during FY2022 accounted for more than 7,300 pageviews and 260 downloads from the website since their release:

Marine Shipping Trends in the Canadian Arctic



The project exploring vessel traffic in the Canadian Arctic, conducted by a team at the University of Ottawa and funded in part by Clear Seas, was completed and results published on Clear Seas website in December 2021. This important work looks at historical trends, evolving risks, environmental challenges, and the concerns of Northern and Inuit communities to help

effectively manage future commercial shipping, resource exploitation, and tourism in this sensitive and remote region, focusing on two sites in the Northwest Passage. Along with an evaluation of marine shipping trends in the past 30 years, the project includes Inuit knowledge and perspectives in policymaking and reviews the best practices for ship traffic management and impact mitigation strategies to assess impacts on protected marine areas as traffic and tourism in the region grows.

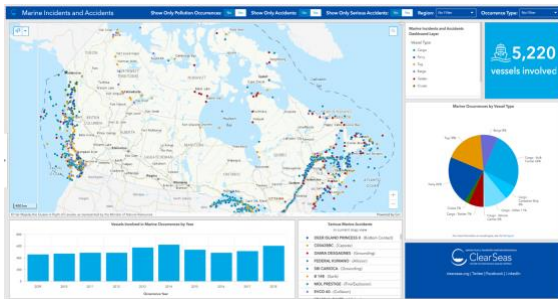
Reducing Greenhouse Gases: Analysis of Lifecycle Emissions of Marine Fuels



Clear Seas completed its analysis of the lifecycle greenhouse gas (GHG) emissions associated with each alternative marine fuel. The results were summarized and released in a blog article intended to support policy makers and industry members considering alternative fuels in accordance with the International Maritime Organization’s commitment to reduce the marine shipping industry’s GHG

emissions to 50% below 2008 levels by 2050.

Maritime Commercial Incidents and Accidents



The Maritime Commercial Incidents and Accidents project – and interactive mapping dashboard – was released in July 2021. The report and dashboard were launched with a public webinar. This publicly available visualization tool was developed to examine the spatial distribution of commercial marine shipping incidents and

accidents in and around Canadian waters. This new resource combines Canadian and U.S. data sources and allows interested members of the public, policymakers, and industry stakeholders to search for specific incidents or accidents and filter through the data based on various events or vessel characteristics. This tool highlights areas of potential shipping risk, identify trends in marine accident reporting, and help inform policymakers and the public on the safety of marine shipping in Canada.

Assessing Shipping Risk in Canada



The Assessing Shipping Risk in Canada project was launched in March 2022 and the results were published on Clear Seas' website on April 28, 2022. The report contextualizes the number of commercial vessels, ferries and cruise ships involved in marine incidents and accidents that have occurred in and around Canadian waters. This information supports assessments of the safety of commercial shipping activity in different

regions by vessel type.

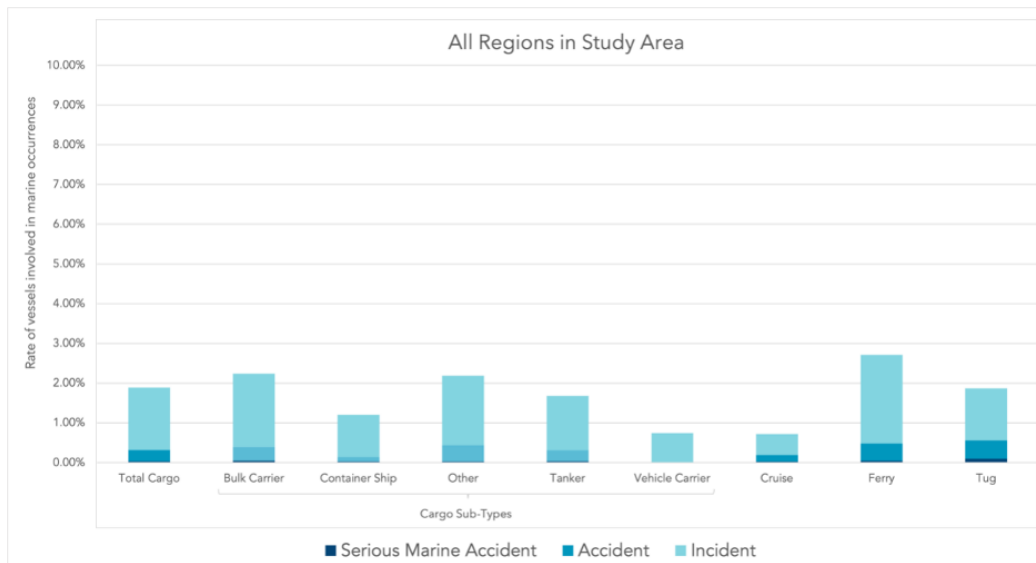


Figure 5: Rate of vessels involved in marine occurrences per 1,000 nautical miles sailed for the entire study area

4.2 Research Underway

Clear Seas continued working on other research projects around shipping risk and governance, climate change adaptation, decarbonization and pollution that will contribute to the discussion on these important topics in the coming decade, including:

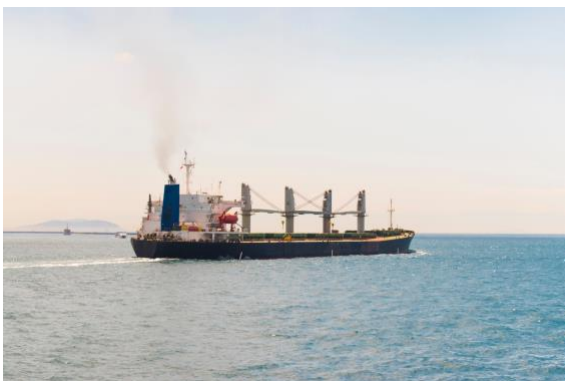
Climate Change Vulnerability of the Canadian Maritime Environment



In collaboration with Dillon Consulting, Clear Seas launched a research project assessing the vulnerability of the Canadian maritime environment to climate change. Project research was completed in March 2022. The results were delivered to the Canadian Coast Guard and will assist the Coast Guard and its partner organizations in ensuring Canada's marine shipping trade can continue safely despite

intensifying threats from climate change. The study was released to the public through a webinar at the end of June 2022.

Assessing Pollutants in Scrubber Discharge Water: Informing the Regulation of Ships' Exhaust Gas Cleaning Systems



Clear Seas continued to investigate the environmental impact from Exhaust Gas Cleaning Systems (scrubbers). Project research was completed in March 2022. The report has undergone peer review and is being finalized for publication. The report compares the effluent produced by scrubbers on commercial ships to Canadian water quality standards to assist in policy decision making. The results of this project

aim to provide additional evidence-based information and insight to the debate about the use of or restrictions on scrubbers.

Demystifying Maritime Governance: Analysis of the Framework and Emerging Issues for the Governance of Shipping in Canada



Project research for the *Demystifying Maritime Governance* project in collaboration with Dalhousie and Memorial Universities was completed in March 2022. Clear Seas published three blog articles in FY2022 based on interim project research results on transformative issues in maritime governance. The results are intended to add clarity around the complexities of the governance of shipping and to inform decision makers, rights holders, and stakeholders tasked with shipping issues. The final report is being prepared for publication in FY2023.

Supporting Inuit Rights and Marine Use



The *Supporting Inuit Rights and Marine Use* project, conducted in collaboration with Dalhousie University and Coastal Restoration Nunavut, was completed in FY2022. This work included the design and production of multilingual informational posters and guidebook on marine shipping issues and regulations to contribute to a better awareness and understanding of how the governance of shipping affects Inuit and other communities in Nunavut. The guidebook was also produced by Clear Seas as an interactive story map released in May 2022. The story map is available in Inuinnaqtun, Inuktitut/ᐃᓴᓴᓴᓴᓴᓴ, English and French and is Clear Seas' first quadrilingual research publication.

Arctic Marine Natural Gas Supply Chain Study



In collaboration with the Canadian Natural Gas Vehicle Alliance and VARD Marine, with support from Transport Canada's Innovation Centre, Clear Seas launched a research project to assess the feasibility, benefits, and risks of the use of natural gas in the Canadian Arctic. This work has implications for shipping decarbonization, climate change and other environmental impacts from shipping in the Arctic, the shipment of natural

resources, and the use of local supplies of natural gas in the Arctic. The final report is being prepared for publication in FY2023.

Decarbonizing Marine Shipping: Air Quality Co-Benefits for Coastal Communities



Conducted in collaboration with a research team at the University of British Columbia, a project addressing the decarbonization of marine shipping is developing an integrated modelling framework that links policy scenario analysis, emissions and air quality modelling, and health impact analysis. The first phase of the study, which consists of surveying experts from different

sectors about future decarbonization pathways for the commercial marine shipping industry, is underway.

4.3 Research in Development

To create an informed, balanced, and relevant research programme, Clear Seas engages in ongoing horizon-scanning and conversations with stakeholders to understand the issues and identify knowledge gaps that Clear Seas is well positioned to address. The intelligence gathered through these efforts is reviewed with Clear Seas' Research Advisory Committee to develop a portfolio of topics that, once approved by the Board of Directors, forms the basis of the research programme for subsequent years' research projects.

The topics with a high degree of relevance include:

- Maritime Industry Progress on UN Sustainable Development Goals
- Assessing the Complete Greenhouse Gas Emissions Footprint of Canadian Marine Trade
- Addressing Barriers to Small Tug Safety
- Analyzing the Role of Port State Control Inspections in Marine Safety

Other topics for further investigation include:

- Understanding Shipping Risk in Canada's Atlantic Region
- Role of Safety Management System in Shipping
- Changes in Risk for Shipping Hazardous and Noxious Substances
- Demonstrating the Benefits of an Integrated and Data-informed Supply Chain
- Applications of TMSA and SIRE Systems to Other Ship Types
- Reducing Crew Fatigue in Marine Shipping
- Understanding Regional Carrying Capacity of Shipping Activity

5.0 Financial Health and Governance

5.1 Building a Sustainable Funding Base

Clear Seas began with \$11.1 million in start-up funding provided by Transport Canada, Alberta Energy, and the Canadian Association of Petroleum Producers. The start-up funding established the organization, started operations and research, and enabled Clear Seas to create the foundations for sustainable funding. A further \$200,000 was provided from Alberta in 2019, but after six years that funding is now exhausted.

In FY2021 Clear Seas extended its federal funding by signing a two-year \$700,000 funding agreement with the Government of Canada through the Natural Resources Canada Small Research Grants program. Clear Seas also secured funding from the Vancouver Fraser Port Authority of \$1 million per year for three years. Funding in FY2022 came from the Canadian Coast Guard.

Clear Seas continues its transition to a hybrid funding model with industry contributions through port authorities expected to make up approximately half of the annual operating budget with the remainder provided by a combination of federal and provincial government funding.

5.2 Managing Annual Budget Expenditures

The organization exercised sound management of its resources during FY2022. Clear Seas spent less than planned during this fiscal year mainly due to COVID-19 restrictions on travel. As per the audited financial statements, Clear Seas had current assets in the amount of \$1.9 million at March 31, 2022. Annual expenditures are currently approximately \$2.6 million. At this level of expenditure and current committed funding arrangements the cashflow forecast considering current assets and liabilities (severance and rental) indicates that the organization is in a healthy position for the next two fiscal years.

5.3 Maintaining Capable Leadership and Governance

The Board of Directors continued to conduct quarterly meetings. Murray Coolican is Chair and Kim Baird is Vice-Chair. The board is currently composed of eleven directors. Clear Seas' research program is developed with the support of an independent committee of experts in diverse fields located across North America who provide advice on the relevance, timeliness,

and effectiveness of proposed research topics. The Research Advisory Committee is currently composed of five advisors.

6.0 Conclusion

Clear Seas continues to build trust and credibility through a voice that provides decision makers and leaders with quality materials required for informed decisions. True to its mandate, it is dedicated to continual improvement of the shipping industry, highlighting both areas for development and the progress being made. Its efforts also aim to improve public understanding of key issues and an evidence-based confidence in the marine shipping which is vital to the well-being and prosperity of Canadians.

Should you have any questions or concerns, please do not hesitate to contact me, or Paul Blomerus, the Executive Director.

Murray Coolican
Chair, Board of Directors
August 30, 2022

Board of Directors

Murray Coolican, Chair

Former Senior Executive Vice President at Maritime Life and former Executive Director of the Canadian Arctic Resources Committee (Halifax, N.S.)

Kim Baird, C.M. O.B.C., Vice-Chair

Owner, Kim Baird Strategic Consulting, Chancellor of Kwantlen Polytechnic University and former Chief, Tsawwassen First Nation (Tsawwassen, B.C.)

Aldo Chircop, Ph. D.

Professor, Dalhousie University, and Canada Research Chair in Maritime Law and Policy, (Halifax, N.S.)

Ginny Flood

Former Vice President, Government Relations, Suncor Energy Inc. (Calgary, Alta.)

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President and CEO, Ocean Networks Canada and Professor, Faculty of Science, University of Victoria (Victoria, B.C.)

Bud Streeter

Former President, Lloyd's Register Canada (Halifax, N.S.)

Jane Weldon, MBA

Former Executive Head of the Oceans Protection Plan, Transport Canada, and Director-General of Canada's Marine Safety and Security (Ottawa, Ont.)

Duncan Wilson, Corporate Secretary

Vice President, Environment, Community and Government Affairs, Port of Vancouver (Vancouver, B.C.)



Research Advisory Committee

Gary Drouillard

Member of the Cowichan Tribes and First Crew Member for the Cowichan Tribes Salish Sea Watch

Captain Ivan Oxford, MM

Senior Master, Transport Desgagnés, and part-time instructor, Camosun College

Sonia Simard, LLB

Former Director, Legislative and Environmental Affairs, Shipping Federation of Canada

Francis Wiese, Ph. D.

Technical Leader for Marine Science, Strantec Consulting



Leadership and Staff



Paul Blomerus
Executive Director



Andrea Mitchell-Rozario
Finance & Operations
Coordinator



Meghan Mathieson
Director, Strategy & Innovation



Edward Downing
Director, Communications



Sarah Thomas
Director, Indigenous &
Coastal Community Relations



Jennifer Steele
Manager, Research &
Knowledge Mobilization



Sarah Landry
Manager, Communications



Stephanie Hurlburt
Program Lead, Indigenous &
Coastal Community Relations



Tessa Coulthard
Research Associate



Rachel Stewart-Dziama
Research Associate



Clara Kaufmann
Research Associate