CISMaRT
CANADIAN NETWORK FOR INNOVATIVE SHIPBUILDING, MARINE RESEARCH AND TRAINING | RÉSEAU CANADIEN POUR L'INNOVATION DANS LA CONSTRUCTION NAVALE, LA RECHERCHE MARINE ET LA FORMATION

Workshop on Advancing Canadian Marine Technology
Online, November 25-26, 2020

Bios of Workshop Speakers/Panelists

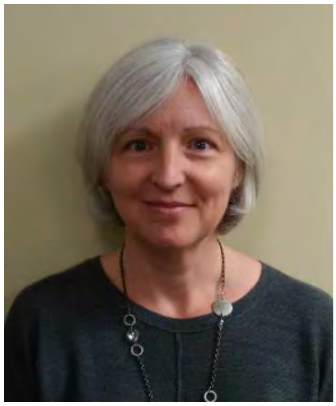
Dr. Wei Qiu, Professor and Head of Department of Ocean and Naval Architectural Engineering, Memorial University

Dr. Qiu's research is in the area of marine hydrodynamics and its applications to ships and offshore structures. He has led numerous projects involving marine and offshore industries, government agencies and private sectors. Dr. Qiu has served in many international organizations, including the Chair of the ITTC Ocean Engineering Committee, a member of the ISSC Environment Committee, and a member of joint ISSC-ITTC Committee. He is a fellow of the Royal Institution of Naval Architects (RINA) and a fellow of the Society of Naval Architects and Marine Engineers (SNAME). He also serves as the Chair of Interim Board of the Canadian Network for Innovative Shipbuilding, Marine Research and Training (CISMaRT).

Dr. Roger Basu, President of Roger Basu & Associates Inc., Toronto, Canada

Dr. Basu worked early in his career as a structural engineer in the UK and Canada on the design and analysis of buildings, bridges and offshore structures. For the last 30 years his focus has been on ship and offshore structures. He is currently President of his own company, based in Toronto, which he started in 2014. Prior to that he taught for two years at Webb Institute in NY after retiring from American Bureau of Shipping (ABS), Houston, Texas where he worked for 15 years. His final position was Director of Shared Technology responsible for the development of several technologies applicable to both marine and offshore sectors. Before joining ABS he worked for 10 years at a naval architectural firm in Ottawa, Canada.

Dr. Basu holds a Ph.D. in structural engineering from the University of Western Ontario. He is a Professional Engineer in the Province of Ontario, and a Fellow of the Society of Naval Architects and Marine Engineers. He also serves on the Interim Board of the Canadian Network for Innovative Shipbuilding, Marine Research and Training (CISMaRT).



Abigail Fyfe, Research Development Officer, Transport Canada Innovation Centre

Abby studied at the Marine Institute in St. John's and the University of Southampton and is a career public servant, having spent about 13 years with Transport Canada as a Safety Inspector and about the same amount of time with the Transportation Safety Board as an Accident Investigator. In May 2018, Abby joined the Transport Canada Innovation Centre as a Senior Research Development Officer. In this role, she is part of the team working on the development, implementation, and management of the RD&D plan for the department, focusing on marine mammal protection issues, specifically the mitigation of vessel underwater radiated noise.

Dr. Guillaume St-Onge, Director, *Université du Québec à Rimouski*

Dr. St-Onge is the director of the *Institut des sciences de la mer de Rimouski* (ISMER) of the *Université du Québec à Rimouski* (UQAR) where he presides the board of directors of Reformar, the organization that manages the research vessels Coriolis II and Lampsilis for the Canadian scientific community. He is also a member of the board of directors of several Quebec organizations related to marine sciences including *Technopole maritime du Québec*, the *Centre de recherche en biotechnologies marines* and the *Observatoire global du Saint-Laurent*. He is co-responsible for the Marine Acoustic Research Station (MARS) project recently funded by Transport Canada, the *ministère de l'Économie et de l'Innovation du Québec*, along with several ship-owners and partners.

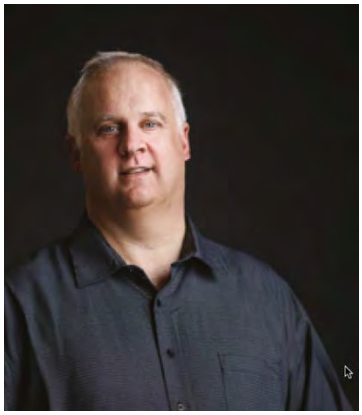
Dr. St-Onge was the first director of the *Réseau Québec maritime* (RQM), its flagship *Odyssée Saint-Laurent* research program and the *Institut France-Québec pour la coopération scientifique en appui au secteur maritime* (IFQM). In addition to the establishment and development of these federative transdisciplinary initiatives, he holds the Tier I Canada Research Chair in marine geology and has led numerous expeditions at sea or on the field. The quality of his research and training programs has been highlighted by several distinctions.

Guillaume St-Onge est le directeur de l'Institut des sciences de la mer de Rimouski (ISMER) de l'Université du Québec à Rimouski (UQAR) où il préside le conseil d'administration de Reformar, l'organisme qui gère les navires de recherche Coriolis II et Lampsilis pour la communauté scientifique canadienne. Il est aussi membre du conseil d'administration de plusieurs organismes québécois liés aux sciences de la mer dont Technopole maritime du Québec, le Centre de recherche en biotechnologies marines et l'Observatoire global du Saint-Laurent. Il est coresponsable du projet de station de recherche en acoustique marine (projet MARS) récemment financé par Transports Canada, le ministère de l'Économie et de l'Innovation du Québec ainsi que plusieurs armateurs et partenaires.

Monsieur St-Onge a été le premier directeur du Réseau Québec maritime (RQM), de son programme de recherche Odyssée Saint-Laurent et de l'Institut France-Québec pour la coopération scientifique en appui au secteur maritime (IFQM). En plus d'avoir contribué à la mise sur pied et à l'essor de ces initiatives fédératrices intersectorielles, il est titulaire de la Chaire de recherche du Canada de niveau I en géologie marine et il a dirigé de nombreuses expéditions en mer ou sur le terrain. La qualité de ses travaux de recherche et de formation a été soulignée par plusieurs distinctions.

Chanwoo Bae, Naval Architecture Manager, Fleet Technical Department, BC Ferries

Chanwoo had been an instructor of naval architecture program at Fisheries and Marine Institute of Memorial University in Newfoundland and Labrador for nine years. He has various marine related working experience. He is currently working on the issues on URN and ship performance data analysis.

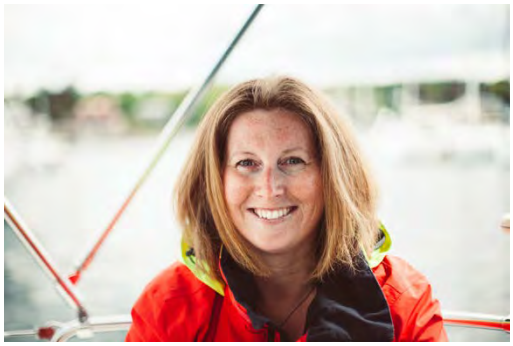


Jim Covill, Technical Client Care Manager, Lloyd's Register of Shipping

Jim is a graduate of Dalhousie University's Math and Computing Science Department who found gainful employment in Dalhousie's Oceanography Department prior to joining Lloyd's Register Marine in 1984. He has spent thirty-seven years, and counting, working in the ocean domain and in the remote sensing of marine environments. He has a varied background in both passive and active acoustic systems, communications, ROVs, AUVs, parallel computing, computer graphics/visualization/imaging, and signal processing.

Jim is currently Technical Client Care Manager whose responsibilities include technical, contractual and business advancement with LR's clients and allied businesses. In this role he works with clients as partners in developing innovative technical solutions to meet design and operational challenges. In his previous role as team leader of the Field Service and Trident Software Group at Lloyd's Register Applied Technology Group, he led a group of specialists providing technical support and software development services to the Canadian Department of National Defence in the areas of passive underwater acoustics, sonar, AUV/AU sensor control systems and ROV support and maintenance.

Dr. Sue Molloy, President of Glas Ocean Electric, Adjunct Professor of Ocean Engineering at Dalhousie University



Dr. Molloy specializes in Electric Boats & Ships, Marine Renewable Energy (MRE) and Sustainable Ocean Engineering.

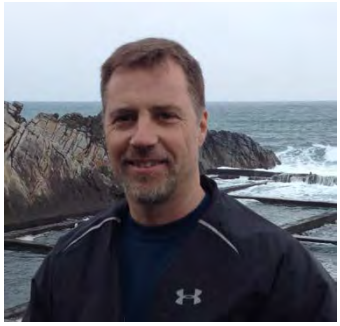
Dr. Molloy is the Chair of ISO TC 8, Ships and Marine Technology and a member of the Canadian Forum on Marine Autonomous Surface Ships (CFMASS). Dr. Molloy served as an elected member of council for Engineers Nova Scotia and is the former co-ch air of the Canada-China track II energy dialogue marine renewable energy subcommittee. She is the international chair for the International Electrotechnical Committee (IEC) River Turbines Committee, a Canadian delegate on the Design MT of IEC TC114 Marine Energy and is a former elected board member of Marine Renewables Canada. Dr. Molloy received the IEC 1906 international award for major impact in furthering standardization and related activities in electrotechnology. Dr. Molloy is a former berth-holder board member of FORCE and is a past President and general manager of Black Rock Tidal Power, now Sustainable Marine Energy Canada.

Dr. Molloy has taught courses on topics such as sustainability and energy at Dalhousie University and OCAD University in Toronto and has been an invited speaker to events and institutes across Canada. Dr. Molloy is on the editorial boards of the Journal of Ocean Technology and the SUT Journal of Underwater Technology and regularly reviews for Elsevier and IEEE. Dr. Molloy reviews grants for the US Department of Energy and NOAA and is a member of the NSERC Discovery Grant Evaluation Group for Mechanical Engineering.

Layton Gilroy, Group Leader, DRDC Atlantic

Mr. Gilroy is the Group Leader of the Signature Management group at DRDC Atlantic with over 30 years experience in the field of ship structural acoustics and, more recently, the development of signature management systems. Mr. Gilroy has extensive experience with conducting ship noise trials both nationally and internationally. He is involved in several international partnerships with both navies and the general marine industry.

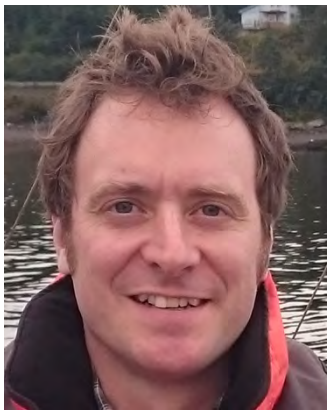
David Hannay, Chief Science Officer, JASCO Applied Sciences



David has a Masters degree in physics from University of Victoria, specializing in ocean acoustics. He has worked as an acoustician at JASCO Applied Sciences for over 30 years and is currently the Chief Science Officer there. David's specialties include measurement and computer modelling of underwater sound. For the last 7 years his work has focused on shipping and marine terminal construction noise. His most recent work is on directional analysis using compact hydrophone arrays.

Dr. Bruce Marin, Manager, JASCO Applied Sciences (Canada)

Dr. Martin joined JASCO in 2007 as the Halifax applied sciences manager, after spending 17 years as an acoustic systems engineer for government agencies and private companies. In 2019, Bruce completed his PhD in Physical Oceanography from Dalhousie University, focussing on properties of the cumulative sound exposure level for predicting and mitigating the effects of human activity on marine life. Dr. Martin's current research interests are determining the abundance of marine life from passive acoustic recordings, the differentiation of marine habitats based on their soundscapes and accurately characterizing the sound levels from man-made sound sources such as vessels, tidal turbines, and seismic surveys.



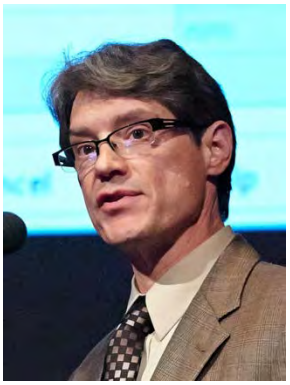
Alexander MacGillivray, Senior Scientist, JASCO Applied Sciences (Canada)

Alexander holds a B.Sc. in Physics and an M.Sc. in Earth and Ocean Sciences from the University of Victoria. He has over 20 years of experience in the modelling and measurement of underwater sound, particularly focusing on the assessment of human-made noise on marine mammals and fish. In his time at JASCO, he has developed novel computational methods for modelling sound propagation and underwater noise from a variety of sources, including airgun arrays, marine vessels, and pile driving. Over the past 5 years, Alexander has worked extensively with the Vancouver Fraser Port Authority's Enhancing Cetacean Habitat and Observation (ECHO) Program to characterize sound emissions from marine vessels, and to investigate noise reductions from mitigation methods such as slowdowns.

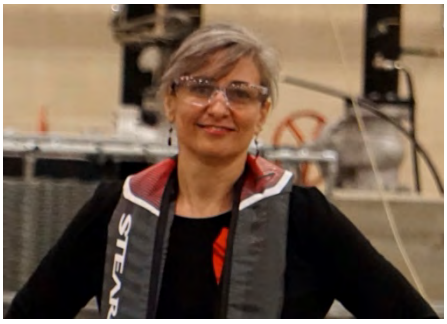
Dr. Tom Gunston, Chief Scientist, the European division of Allsalt Maritime.

Dr. Gunston is the Chief Scientist for the European division of Allsalt Maritime. He is an Acoustic Physicist with a PhD from the Institute of Sound and Vibration Research at the University of Southampton in the UK. He has been involved in measuring and mitigating vibration exposures in severe environments for over 20 years, working on armoured vehicles, fixed and rotary-wing aircraft, industrial and agricultural vehicles, construction equipment, and especially fast marine craft. He was a Research Fellow at the University of Southampton and later at the University of Sheffield, a Research Group Leader on human vibration exposure at the defence contractor QinetiQ, and has acted as a consultant to the military, saerch and rescue and commercial sectors including to the UK Ministry of Defence and the RNLI. He is Chairman of the British Standards technical committee responsible for human exposure to vibration, he has served as Chairman, Convenor or Principal UK Expert on various European (CEN) and International (ISO) technical committees concerned with vibration exposure, and he has been appointed as an Engineering Expert Witness for various legal cases involving noise and vibration exposure, including cases of injuries to high-speed craft passengers and crew.

Donald MacPherson, Technical Director of HydroComp, Inc.



Don is also a research consultancy specializing in applied hydrodynamic and propulsion system simulation. Widely regarded as one of the industry's foremost experts in analytical prediction methods for the performance of marine vehicles and propulsors, he oversees all software product development and is principal investigator for engineering services. A graduate of Webb Institute, Don is a Fellow of the Society of Naval Architects and Marine Engineers, and member of its Propeller Hydrodynamics and Underwater Noise panels.



Marie-Chantal Ross, Program Director, Ocean Program, National Research Council Canada

Marie-Chantal is the Program Director of the NRC's Ocean Program, a seven year, multimillion dollar program to support Canada's blue economy growth in a way that places ocean health at the forefront. It is believed that in creating technologies and business models where the outcome is a cleaner ocean, Canada can lead in its green recovery. Technologies that enable maritime autonomous surface ships are the same technologies that enable efficient, safe and clean ships and shipping.

Marie-Chantal brings 20+ years of research and development experience from both the public and private sectors. She started her career as a research engineer in the high tech sector. Ten years later, she transferred her skills to the public sector with an aim to work on climate change policy. Since, she has been a Technology Advisor at Natural Resources Canada, and at Transport Canada she managed a portfolio of marine research projects and initiated their research in LNG and underwater radiated noise. She holds a Bachelor of Applied Science, Mechanical Engineering from the University of Toronto, and a Masters of Engineering, Engineering Management from the University of Ottawa.

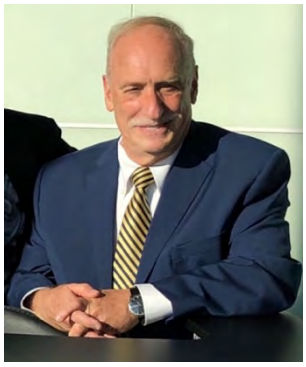
Marie-Chantal is the Chair of the CFMASS Testing/Research and Devleopment sub-committee. She is overseeing a national science and technology scan to inform blue economy research projects. Before the Ocean Program, she successfully ran the NRC's Fleet Forward 2020 program where she was a driving force behind the development of Intelligent Transportation System (ITS) activities within the council.

Dr. Paul Blomerus, Executive Director, Clear Seas Centre for Responsible Marine Shipping

Dr. Blomerus is an internationally-experienced researcher and leader in innovation with a proven track record in industry as well as university research management. As Senior Advisor, Research and Industry Partnerships with the University of British Columbia (UBC), he developed two successful research clusters focused on clean energy and marine systems.

Dr. Blomerus also built up a successful independent consulting practice specializing in clean energy and policy deployment helping government agencies understand the impact of technology on the transportation sector. He is a published author on a range of marine shipping and transportation issues, including liquefied natural gas as a ship fuel to reduce transport emissions and the electrification of Canada's freight rail sector.

Prior to joining UBC, Dr. Blomerus led large engineering and product development teams for Westport Innovations in Vancouver. He also worked at Rolls-Royce Aerospace holding senior positions in supply chain, intellectual property and customer relationship management. Dr. Blomerus holds a PhD in Engineering Science from the University of Oxford and a Mechanical Engineering degree from the University of Cape Town.



Howard Posluns, Chief, Advanced Technology, Multi-Modal R&D, Innovation Centre, Transport Canada

Howard Posluns is the Chief, Advanced Technology, Multi-Modal R&D, at Transport Canada's (TC) Innovation Centre based in Ottawa, Canada. TC's Innovation Centre supports the department to anticipate and address the impacts of emerging and disruptive technologies.

Mr. Posluns is a graduate electrical engineer with private sector consulting experience in engineering design, systems engineering, and project management. Since joining the Government of Canada, Mr. Posluns has been involved in several innovation and R&D initiatives primarily focusing on the aviation, marine, and security sectors.

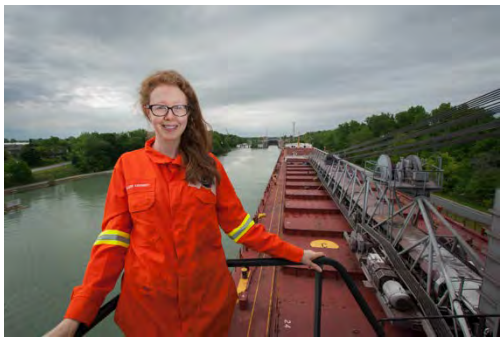
Most recently, Mr. Posluns has been involved in improving Canada's supply chain safety, security, and efficiency through the development and execution of various research initiatives. These initiatives include the application of precise Positioning, Navigation, and Timing (PNT) technologies for autonomous and connected automobiles and trucks, Marine Autonomous Surface Ships (MASS), and Remotely Piloted Aircraft Systems (RPAS), or drones. Other initiatives include the application of new technologies for marine navigation and ports as well as the investigation of cyber-security technologies for the automotive, marine, and aviation sectors.

Mr. Posluns is a professional engineer and member of the Institute of Electrical and Electronics Engineers (IEEE).

Fraser Winsor, National Research Council Canada (NRC)

Fraser Winsor is an Engineer & Naval Architect with over 35 years experience in the physical model testing of ships, offshore structures, and renewable energy concepts. Fraser has extensive training in project and program management. He has worked in private industry and public sector, with 30 years at NRC's Ocean, Coastal & River Engineering (OCRE) Research Centre, located in St. John's, Newfoundland. Most recently he was Program Leader NRC's Marine Vehicles program which focused on efficiency improvements and emissions reductions for ships, and risk reductions for ship operators. Fraser is currently the Research and Technology Lead for NRC's Oceans Program.

Fraser is a graduate of Memorial University of Newfoundland, with Bachelor and Master of Engineering Degrees. He is a Professional Engineer and a member of the Society of Naval Architects and Marine Engineers. Fraser is currently serving as an interim board member for the Canadian Network for Innovative Shipbuilding, Marine Research and Training (CISMaRT).

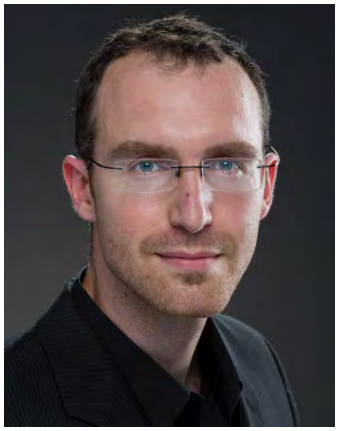


Allison Kennedy, Research Engineer, National Research Council Canada (NRC)

Allison is also the team lead for the Marine Performance and Evaluation group within her research centre. In this role she is responsible for coordinating and directing the internal research activities of the team which aims to inform next generation marine vehicles to perform efficiently, safely and optimally. Her personal research currently focuses on the evaluation of operational data from full scale vessels to provide operators with evidence-based insight towards efficient operations. Through this research she has worked with both government and private vessel owners and operators to provide custom data products that support operational decision making.

Dr. Dong Cheol Seo, Research Officer, National Research Council Canada (NRC)

Dr. Seo's research focus is on computational fluid dynamics and numerical simulation for ships and submarines. He has working experience in shipyard as a naval architect. Dr. Seo is also interested in design optimization and fluid-structure interactions by utilizing multidisciplinary analysis tools. He has a PhD in naval architecture and ocean engineering from Seoul National University in South Korea.



Philippe Lamontagne, Team Lead, National Research Council Canada (NRC)

Philippe joined the National Research Council in 2010 and currently leads the data science and artificial intelligence team at NRC Ocean Coastal and River Engineering research centre. Over the last 10 years, he has been involved in a variety of projects processing large volumes of data from various sources, transitioning numerical models from research to an operational level and applying statistical or machine learning methods to forecast sea ice conditions. He participated in the deployment of a pressured ice forecasting system that is implemented at several government and industry sites and an iceberg drift forecasting system that is currently used operationally on the Grand Banks of Newfoundland. Philippe has also developed various software solutions to analyze large quantities of geospatial data to support marine safety, transportation and production projects in Canadian waters.

Bob Gash, Research Engineer, National Research Council Canada (NRC)

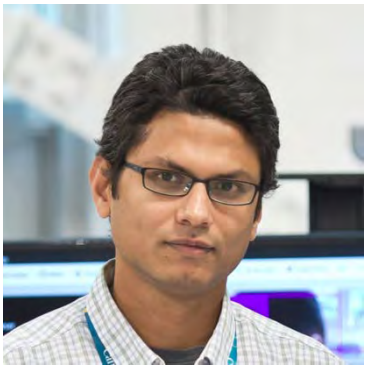
Bob is a Research Engineer with NRC-OCRE, designing and implementing marine control and computer vision systems. He has several years of experience working with Dynamic Positioning (DP) control of vessels in the model test facilities at OCRE. Bob is currently completing his PhD in Dynamic Positioning (DP) of vessels in ice-covered waters, a capability that is critical to autonomous operation of any vessel in ice.

Dr. Kevin Murrant, RCO, National Research Council Canada (NRC)

Dr. Murrant is a 3-time graduate of MUN and is an adjunct professor in the Department of Electrical & Computer Engineering. His own research, adapted from his PhD work on unmanned aircraft, is currently focused on navigation & control research for autonomous surface vessels. Kevin is also the Karluk Collaboration Space lead, the intent of which is to foster researcher relationships between NRC and MUN and collectively advance Canada's reputation and impact in ocean research.

Matthew Garvin, Research Engineer, National Research Council Canada (NRC)

Matthew holds the current position of Research Engineer / Marine Operations Autonomy & Safety Team Lead at the National Research Council's Ocean, Coastal, and River Engineering Research Centre in St. John's, NL, Canada. He is responsible for coordinating the research activities of the team with a focus on building foundational technologies to support autonomous ships while improving operational efficiency and safety for people working in harsh marine environments. His previous experience is mainly in private sector engineering consulting to clients in the marine and energy sectors, including an extensive list of test campaigns in the NRC's towing tank, ice tank, and offshore engineering wave basin as well as field work in near-shore and subarctic environments.

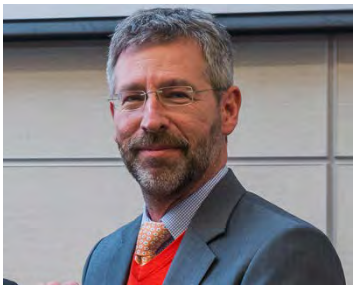


Dr. Taufiq Rahman, Research Officer, National Research Council Canada (NRC)

Dr. Rahman is a Research Officer in the Automotive Engineering team within the Automotive and Surface Transportation Research Center, National Research Council Canada. His expertise includes sensing and perception systems, mapping and localization for mobile robotics and driving automation technologies, and embedded systems for field deployment of control algorithms. Prior to joining in NRC, he worked in the industry and in academia in research & development roles focusing on performance aware motion control systems for underwater and aerial robotic vehicles, high speed robotic manipulators, underwater machine vision, and perception in marine environments.

Ørnulf Jan Rødseth, Senior Scientist, SINTEF Ocean

Ørnulf Jan Rødseth has an MSc in electronic engineering from 1983. He is a well-known researcher in the areas of integrated ship control and ship-shore communication. He is currently employed as senior scientist in SINTEF. In the last six years, he has worked mostly with autonomous ships and digitalization in shipping. He is the manager of Norwegian Forum for Autonomous Ships. He is active in standardisation and is a member of ISO TC8 and IEC TC80. He participates in IMO activities as observer for ISO.

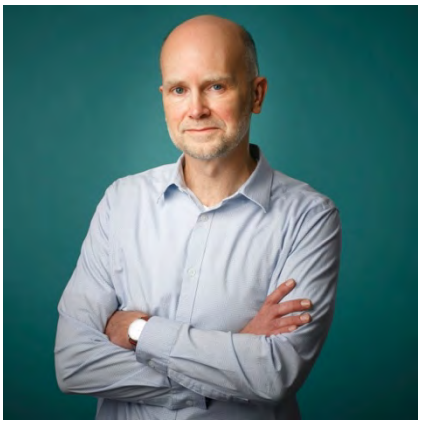


Dr. Brian Vetch, Professor and NSERC / Husky Energy IRC in Safety at Sea, Memorial University

Dr. Veitch teaches Ocean and Naval Architectural Engineering at Memorial University, where he has been for about 20 years. His research is motivated by ensuring safety for those who work at sea.

Dave Belisle, Manager Vessel Performance, Algoma Central Corporation

Dave holds master's degrees in Naval Architecture and Business Administration, and a Diploma in Ship Superintendency. He has been with Algoma for 10 years, starting on the Equinox Class Design Team for the concept phase, transitioning to operations by managing retired vessels, responding to incidents, and supporting an operations manager. He managed 5 domestic vessels for 5 years and then moved to Algomas Vessel Performance Group where he supported reliability & continuous improvement initiatives and championed fuel monitoring and performance analysis. Prior to joining Algoma, Dave was a Management & Technical Consultant with Det Norske Veritas' Maritime Solutions Group working on projects ranging from Energy Management, to Safety Culture Improvement and Formal Risk Assessments and qualified as a Newbuilding Surveyor in Korea and Vietnam.



Vince den Hertog, P.Eng., Vice President, Engineering, Robert Allan Ltd, Canada

Prior to entering the tug & workboat industry at Robert Allan Ltd, den Hertog worked in the field of sub-sea robotics designing autonomous underwater vehicles. He obtained a Master's of Applied Science degree in aerodynamics and control from the University of British Columbia in 1999 and began with Robert Allan Ltd in 2001 as a project engineer specializing in structural analysis, propulsion, hydrodynamics, HVAC, vibration analysis and marine systems. In 2008 he became the Vice President of Engineering and is also presently the coordinator of internal research and development.

Bruce Phillips, Senior Consultant, Vard Marine Inc.

Bruce is a Senior Consultant with Vard Marine Inc., with forty-four years experience in the marine and aerospace sectors following graduation in electrical engineering.

He began his career in the underwater acoustics field prior to spending fifteen years in the aerospace sector on Canada's Radarsat 1, space shuttle and Space Station programs and various airborne systems, with emphases on mission systems, data management and signal processing.

Bruce's work over past fifteen years has focused on naval programs, with system engineering responsibilities for C4IS and combat systems. Recent work has been on commercial vessels including platform automation aspects, and Bruce currently leads Vard Marine's work on an autonomous ship program.