
MEOPAR
ClearSeas
BEYOND
THE HORIZON:
Role of Technology in Mitigating Shipping Risk
Fall 2023
CANADIAN MARINE SHIPPING RISK FORUM

ABOUT THIS WEBINAR SERIES

The Canadian Marine Shipping Risk Forum is a community of practice founded in 2019 by MEOPAR and Clear Seas. The CMSRF provides cross-sector knowledge sharing opportunities on the topic of marine shipping risk in Canada.

This webinar series will investigate different ways technology is being applied to understand the marine environment, with a particular focus on the activity and impacts of vessels that are not using Automatic Identification Systems (AIS) transponders.

SERIES OVERVIEW

Date	Focus Area	Topics
Sep 21	Satellites	• Dark vessel tracking • smartWhales program
Oct 5	Aerial	• National Aerial Surveillance Program (NASP) • RADARSAT and aerial surveys • Drones
Oct 19	Shore-based	• Wildlife cameras and image processing • Cameras and hydrophones • X-band marine radar, AIS, optical cameras and software
Nov 9	Water-based	• Autonomous vessels • CoastAware™ platform and buoys • Hydrophones
Nov 30	Data Collection	• Canadian Integrated Ocean Observing Systems

SEPT 21 AT 10:00–11:30 AM PDT

Detecting Dark Vessels

Colin Robertson

PhD, Director of Data Science, GSTS

BEYOND THE HORIZON SESSION 1: SATELLITE TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZcpduCgpzkuHdOcTYauDncl4u8Zozf445H9

SESSION 1: Satellite Technology

1. Detecting Dark Vessels with
   Colin Robertson, Director of Data Science, GSTS

   Dark vessels remain a persistent challenge for monitoring the maritime domain from environmental, security, and operational perspectives. In this talk we'll highlight some key dark vessel detection methods and how they can be deployed within a broader suite of integrated maritime modelling and management tools.

SEPT 21 AT 10:00–11:30 AM PDT

Smart Whale Program Overview and Ecological Modelling

Josh van Berkel
Head of Sustainability Solutions – Marine & Coastal,
DHI Water & Environment Inc.

BEYOND THE HORIZON SESSION 1: SATELLITE TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZcpduCgpzkuHdOcTYauDncl4u8Zozf445H9

SESSION 1: Satellite Technology

2. **Smart Whale Program Overview and Ecological Modelling with Josh van Berkel, Head of Sustainability Solutions – Marine & Coastal, DHI Water & Environment Inc.**

   Via the modelling stream of smartWhales program implemented by the Canadian Space Agency, DHI and WSP are developing an integrated dynamic habitat and Agent-based North Atlantic Right Whale (NARW) modelling system that includes forecast predictions of vessel strike risk. The system is being further developed into a Decision Support System aimed at supporting regulatory response awareness of NARW risks. This presentation will describe key project workflows, model input and setup parameters and the results achieved to-date.

OCT 5 AT 10:00–11:45 AM PDT

Collecting Data on Non-AIS Vessels Using Aerial Surveys

Norma Serra
Environmental Analyst,
Oceans Protection Plan,
Transport Canada

Jorge Quijano
PhD, Project Scientist,
JASCO Applied Science

BEYOND THE HORIZON SESSION 2: AERIAL TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZckduioqzguHNcQlK44DlNiZwP2H-51iEvR

SESSION 2: Aerial Technology

1. Collecting data on non-AIS vessels using aerial surveys with Norma Serra, Transport Canada and Jorge Quijano, JASCO

   Use of sensors mounted on Transport Canada's National Aerial Surveillance Program aircraft to capture information on non-AIS vessels, and how this information is applied in underwater noise assessments in the Pacific region.

OCT 5 AT 10:00–11:45 AM PDT

Monitoring Marine Conservation Areas Effectiveness Using Aerial and RADARSAT-2 Vessel Detection

Lily Burke
Research Biologist, Fisheries and Oceans Canada

BEYOND THE HORIZON SESSION 2: AERIAL TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZckduioqzguHNcQlK44DlNiZwP2H-51iEvR

SESSION 2: Aerial Technology

2. Monitoring marine conservation areas effectiveness using aerial and RADARSAT-2 vessel detection with Lily Burke, Fisheries and Oceans Canada

   Use of RADARSAT and aerial survey data (NASP and DFO creel surveys) to assess fishing activities in MPAs.

REGISTER: https://us06web.zoom.us/meeting/register/tZckduioqzguHNcQlK44DlNiZwP2H-51iEvR

SESSION 2: Aerial Technology

3. Risk-Aware Autonomous Port Inspection Drones (RAPID) with James Riordan, University of the West of Scotland

   Combine and extend drone technology for a fully automated and safety-assured maintenance inspection service for bridges, ship hull surveys, and more. Specifically, the service will combine self-sailing unmanned surface vehicles with autonomous unmanned aerial systems.

OCT 19 AT 10:00–11:45 AM PDT

Chiixwaay Kaydts'id | Chaawsalii Damaan Tl'a Kingga Monitoring Small Vessel Traffic on Haida Gwaii

Kil Hltaanuwaay Tayler Brown
Marine Planner and Analyst, the Council of the Haida Nation

Yury Bychkov
Software Developer and Computational Bioanalyst, LGL Limited

Kelly Larkin
Regional Program Manager – EMSA, Transport Canada Pacific Region

BEYOND THE HORIZON SESSION 3: SHORE-BASED TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZMvc-uvrzwoEtx7BXv_LQ1gqG_OzOaw9vtT

SESSION 3: Shore-based Technology

1. Chiix̲waay K̲aydts'id | Chaawsalii Damaan Tl'a K̲ingga
Monitoring Small Vessel Traffic on Haida Gwaii with
Kil Hltaanuwaay Tayler Brown, Council of the Haida Nation,
Virgil Hawkes, LGL Limited,
Mike Sylvester, Transport Canada

The Haida Gwaii Marine Awareness Project aims to improve awareness and Haida oversight of marine traffic in Haida Territories. Due to a significant and identified data gap, CHN and LGL Limited designed and implemented a study to monitor 18 nearshore areas (May – Sept. 2021) using wildlife cameras and the Enhanced Maritime Situational Awareness (EMSA) System.

OCT 19 AT 10:00–11:45 AM PDT

Marine Monitor (M2) Shore Installation

Samantha Cope

Senior Scientist, ProtectedSeas

BEYOND THE HORIZON SESSION 3: SHORE-BASED TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZMvc-uvrzwoEtx7BXv_LQ1gqG_OzOaw9vtT

SESSION 3: Shore-based Technology

3. Marine Monitor (M2) Shore Installation with
Samantha Cope, Senior Scientist, Protected Seas

Provide an overview of the M2 system, a shore-based monitoring platform that integrates X-band marine radar, AIS, and optical cameras with custom software to autonomously track and report on vessel activity of all types. Case studies will assess how M2 is being used to support maritime safety and independently monitor vessel activity.

NOV 9 AT 10:00–11:45 AM PDT

Using Autonomous Vessels for Maritime Observation, Monitoring, and Security

Fritz Stahr

PhD, Chief Technology Officer, Open Ocean Robotics

BEYOND THE HORIZON SESSION 4: WATER-BASED TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZcrdeCsrTIsGtHNo5h0Ef7XoHxOxBbHKkaT

SESSION 4: Water-based Technology

1. Using Autonomous Vessels for Maritime Observation, Monitoring, and Security with Fritz Stahr, CTO, Open Ocean Robotics

Open Ocean Robotics uses solar-powered autonomous vessel technology to collect and communicate ocean data to address illegal fishing activity, detect pollution, reduce greenhouse gases from shipping, and understand climate change in the ocean environment with many potential applications increase marine safety and sustainability.

NOV 9 AT 10:00–11:45 AM PDT

Applying Real-Time Coastal Intelligence to Quantify Marine Hazards and Optimize Decisions

Scott Beatty
PhD, Founder & CEO, MarineLabs

BEYOND THE HORIZON SESSION 4: WATER-BASED TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZcrdeCsrTIsGtHNo5h0Ef7XoHxOxBbHKkaT

SESSION 4: Water-based Technology

2. Applying real-time coastal intelligence to quantify marine hazards and optimize decisions with Scott Beatty, CEO, Marine Labs

Overview of the CoastAware™ platform and the various sources of data to provide both real-time and historical information to support informed decision-making. Data sources include sensors on buoys to collect wind and wake data. Marine Labs has also just launched BerthWatch, a first-of-its-kind real time berth depth monitoring and reporting system to optimize docking and loading.

NOV 9 AT 10:00–11:45 AM PDT

Utilizing Remotely Operated Vehicles to Mitigate Risks in Shipping Lanes

Brayden Gibson-Wray
Director of Strategic Technical Sales & Training

BEYOND THE HORIZON SESSION 4: WATER-BASED TECHNOLOGY

REGISTER: https://us06web.zoom.us/meeting/register/tZcrdeCsrTIsGtHNo5h0Ef7XoHxOxBbHKkaT

SESSION 4: Water-based Technology

3. Utilizing Remotely Operated Vehicles to Mitigate Risks in Shipping Lanes with Brayden Gibson-Wray, SEAMOR Marine

Review of the role and capabilities of remotely operated vehicles (ROVs) in different applications to understand and assess the maritime environment.

NOV 30 AT 10:00–11:00 AM PDT

Explore CIOOS: Canada's Home for Ocean Observing Data

Jonathan Kellogg
PhD, Science Communications Coordinator, Haikai Institute and Communications Chair, Canadian Integrated Ocean Observing System (CIOOS)

BEYOND THE HORIZON SESSION 6: DATA COLLECTION AND APPLICATION

REGISTER: https://us06web.zoom.us/meeting/register/tZAlcOqsrTMqHtM7BI3Nnsy2x9Z44eQC5ysb

SESSION 6: Data Collection & Application

Explore CIOOS: Canada's Home for Ocean Observing Data with Jonathan Kellogg, Communications Chair, CIOOS

From the Atlantic Coast to the Salish Sea, the Canadian Integrated Ocean Observing System (CIOOS) is Canada's nucleus for integrated ocean science and observing activities. We work with partners from coast to coast to coast applying internationally recognized standards to consolidate data into a resource for all ocean people. CIOOS makes fully interoperable data available across Canada's ocean basins and, with continued development of new tools to explore the resources, it is now easier than ever to connect the dots and better manage our ocean resources and operate safely in our waterways. This session will help users understand the current state of CIOOS and will seek feedback from the community on future needs to better support the shipping industry.