ASL Environmental Sciences

Newsletter
Fall 2025

Fall 2025 ASL Newsletter. This issue:

- Partnership with Open Ocean Robotics
- ASL's New Satellite Monitoring Service: DeCAF
- Monitoring Salmon Freshwater Habitat Using Satellites
- ASL's President Jan Buermans back from Trip to Asia
- Advancing Marine Renewable Energy Metocean Sciences
- Oceans 2025 Great Lakes Conference
- ASL Participates in COAST Demo Day
- Bío-Bío Canyon Expedition: Researchers Deploy AZFP-nano
- New Paper! Antarctic Frazil Data Using River Frazil Results
- ASL and Sofar Ocean Engage in Strategic Marketing Partnership
- From Arctic Science to Marine Renewable Energy
- ASL Welcomes Jordan Hanson
- ASL Summer BBQ
- Conferences

Partnership with Open Ocean Robotics

ASL Environmental Sciences (ASL) is pleased to announce a new collaboration with Open Ocean Robotics, as part of the Air-Sea Ocean Monitoring System (ASOMS) project partially funded by Canada's Ocean Supercluster. As part of this joint effort, ASL's Acoustic Zooplankton Fish Profiler (AZFP) is being integrated into Open Ocean Robotics' solar-powered surface vehicles to explore new possibilities in autonomous ocean monitoring.

The AZFP is a calibrated, scientific echosounder that is often deployed on moorings, providing a multifrequency time series lasting 12 months or longer. Combining ASL's AZFP with Open Ocean Robotics' innovative uncrewed platforms demonstrates a more efficient, environmentally friendly, and safer approach to collecting oceanographic data in diverse and remote marine environments.

Open Ocean Robotics DataXplorer being deployed at Victoria, BC.

Key Benefits of the Integrated System

- Spatial and Temporal Coverage: Deploying the AZFP on the mobile DataXplorer USV enables spatial surveys that enhance and complement the temporal data gathered by moored AZFP systems, providing a more complete picture of changing ocean conditions.
- Remote Control: The project is advancing technologies for fully remote operation of the AZFP, including near real-time data streaming to shore and onboard AI data processing, enabling faster decision-making.
- Remote Environmental Stewardship: The integrated system supports long-range, autonomous monitoring of marine environments, providing the tools needed for responsible ocean stewardship.

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ASL's New Satellite Monitoring Service: DeCAF

ASL is proud to announce our new wide area satellite monitoring service called DeCAF, for Detection and Classification of Anomalous Features. DeCAF is a turnkey wide area monitoring service based on detecting and classifying changes in satellite imagery.

We are pleased to offer both:

- Historical landscape change analysis (since 1984)
- Continuous monitoring and alerting

DeCAF uses advanced Machine Learning and Artificial Intelligence (ML/AI) techniques to process free and/or commercial satellite data and find changes to the landscape. Customizable alerting keeps you up to date on the latest changes in your region of interest. DeCAF is massively scalable, making it suitable for applications from municipality to nationwide scales. A variety of optical and radar sensing options are available. DeCAF can detect both human disturbances (e.g., logging, urban development, mining, and roads) and natural phenomena (e.g., fires, flooding, washouts, and landslides).

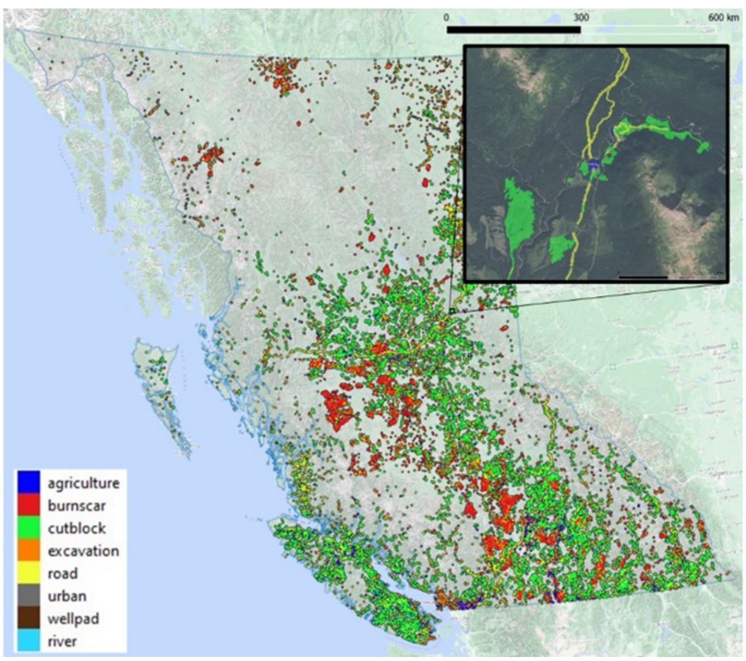

Figure: DeCAF changes detected and classified over British Columbia from 2019–2023. The inset shows detailed detection of the Coastal Gaslink Pipeline construction.

Application areas include the following:

- Conservation and Land Management
- Defence and Security
- Environmental Monitoring
- Natural Disasters
- Remote Infrastructure
- Compliance

ASL gratefully acknowledges funding from the Canadian Space Agency smartEarth initiative and the Department of National Defence Innovation for Defence Excellence and Security (IDEaS) program.

For more information, visit www.aslenv.com/decaf or contact:

Dr. Kaan Ersahin, Director, Remote Sensing kersahin@aslenv.com

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Monitoring Salmon Freshwater Habitat Using Satellites

ASL recently signed a contribution agreement with the Canadian Space Agency for a two-year project under the Satellite Mobilization for Biodiversity Action (SaMBA) opportunity, part of the smartEarth funding initiative.

Habitat loss is the top threat to biodiversity, accounting for endangerment of over 80% of all species. Pacific salmon are a keystone species closely linked to the functional integrity and biodiversity of many aquatic and riparian ecosystems in western North America, directly affecting hundreds of other species. Disturbances to salmon freshwater habitats can occur in remote, unmonitored areas, resulting in delayed assessment and response (see Figure below). Effective monitoring will promote biodiversity, healthy ecosystems, and stable salmon populations for food and economic security.

Under this project, ASL will develop the DeCAF Rapid Response Tool (RRT) to support near-real-time monitoring of salmon habitats. It builds on ASL's wide-area satellite monitoring solution, DeCAF, that was recently developed with funding from the Department of National Defence (DND) Innovation for Defence Excellence and Security (IDEaS) program. DeCAF uses advanced machine learning and artificial intelligence (ML/AI) techniques to process open access or commercial satellite data and find landscape changes, including human disturbances and natural phenomena.

ASL will work with Kitasoo Xai'xias Stewardship Authority (KXSA) and collaborate with a wide range of end-user organizations and stakeholders that include the following:

- Kitasoo Xai'xias First Nation
- DFO Integrated Planning for Salmon Ecosystems (IPSE)
- Pacific Salmon Foundation (PSF)
- British Columbia Ministry of Water, Land and Resource Stewardship (WLRS)

Figure: Examples of catastrophic habitat destruction. Panel A shows part of the Lower Nicola River that was impacted by flooding in 2021. Panel B shows an area where ranchers illegally re-routed a stream to create grazing land near Kleena Kleene, BC. Panel C shows the aftermath of the Big Bar landslide.

For more information, visit www.aslenv.com/decaf or contact:

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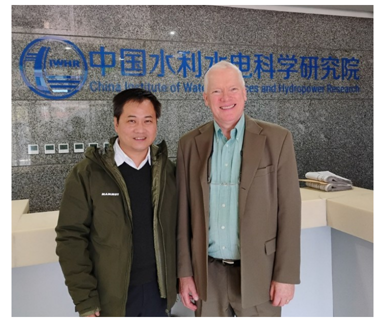
ASL's President and CEO Jan Buermans Back from a Successful Business Trip to Asia

Dates: October 27–November 5, 2025
Locations: Beijing, Shenzhen, Shanghai (China) · Kaohsiung (Taiwan)

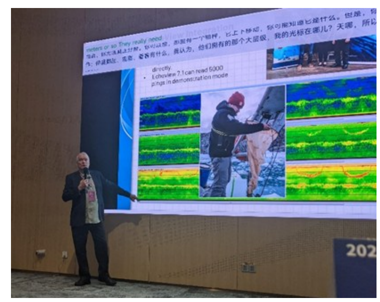
Strengthening global partnerships and exploring new collaboration opportunities, Jan Buermans completed a business trip to China and Taiwan, meeting with ASL's international agents and partners, delivering technical presentations, and participating in the 2025 Asian Fisheries Acoustics Society (AFAS) annual conference. Jan made a number of stops worth noting.

Beijing – China Institute of Water Resources and Hydropower Research (IWHR)



Jan met with Dr. Zhou Ye and his team and delivered an Acoustic Scintillation Flow Meter (ASFM) presentation that generated strong interest and technical questions. Dr. Ye expressed intent to pursue further discussions on the ASFM. Jan also toured their world class model testing laboratory, giving insight into China's growing pumped-storage developments.

Shenzhen – HuakBlue hosted by Kris Jiang



Jan met with engineering, academic, and government-affiliated stakeholders to discuss AZFP-pico integration into a buoy system. Jan later spoke at the "2025 Marine Sensor International Standard and AI Ocean Symposium," presenting details about the AZFP and future collaboration opportunities.

Shanghai – Generule hosted by Jacky He

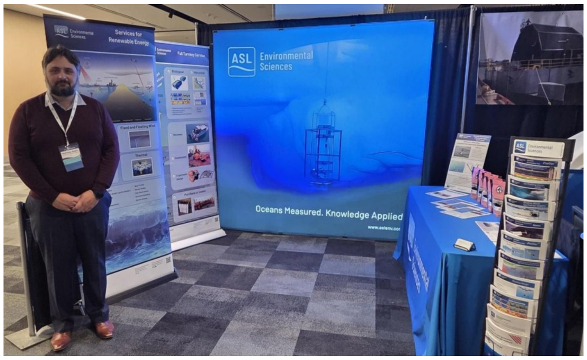
Jan presented new innovations of the AZFP-nano and AZFP-pico to Generule's team. Jan also visited Shanghai Ocean University where he discussed AZFP instrumentation.

AFAS 2025 Conference – Kaohsiung, Taiwan

Jan's conference presentation was on the Air Sea Ocean Monitoring System (ASOMS) Advancing AI for Uncrewed Systems. He staffed the ASL booth, and held multiple technical discussions with partners, researchers, and industry representatives.

Advancing Marine Renewable Energy Metocean Sciences in Ice-Affected Waters

By Matthew Asplin



Matthew Asplin representing ASL at the Marine Renewables Canada Conference in Halifax NS.

ASL: Bridging Nearly 50 Years of Metocean and Arctic Innovation to Support Marine Renewable Energy Development in Canada

Developing marine renewable energy in Canadian waters, including ice-affected regions, presents a unique scientific and engineering challenge. Harsh conditions, limited accessibility, and prolonged ice cover constrain traditional vessel operations, making continuous data collection difficult. Yet, there are regions, particularly across Canada's North Atlantic and Arctic, that are changing faster than anywhere else on Earth.

As sea ice retreats and oceanographic regimes shift, understanding these dynamic environments is essential for the development of safe, reliable, and sustainable offshore marine renewable energy sources such as offshore wind in Atlantic Canada, and tidal energy at locations on all three of Canada's coastlines.

Since 1977, ASL has specialized in collecting and interpreting metocean and ice data in challenging environments, with extensive PRE-FEED experience across offshore energy, aquaculture, and port projects. Its acoustic and optical instruments—including the IPS-5 Ice Profiling Sonar, AZFP, and custom moorings—enable long-term autonomous data collection when ships cannot operate, capturing year-round measurements essential for engineering, O&M planning, and environmental assessment in offshore wind development.

ASL also integrates its sensors on unmanned surface vehicles, gliders, and smart moorings, including recent AZFP deployments on the Open Ocean Robotics DataXplorer and Sofar Ocean Spotter Buoys via the Bristlemouth Development Kit.

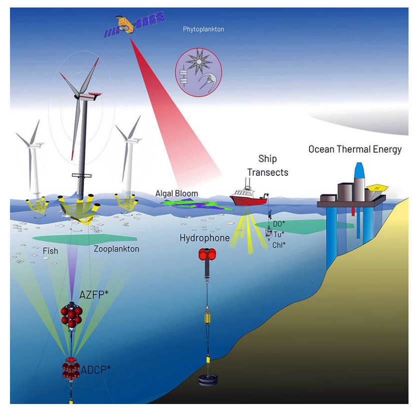


Figure: Offshore renewable energy metocean monitoring.

Integrating Technology and Traditional Knowledge

ASL's work across Arctic and sub-Arctic regions, from Labrador and Nunatsiavut to the Beaufort Sea and Alaska, demonstrates how modern instrumentation can be successfully deployed in collaboration with indigenous and local partners. The company's long-standing relationships with northern communities have shown that traditional knowledge and scientific measurement are complementary tools. Local expertise in sea-ice navigation, weather, and marine ecosystems contributes directly to the safe deployment and recovery of moorings and to the interpretation of environmental conditions relevant to offshore marine renewable energy projects.

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Building the Scientific Foundation for Offshore Wind

As Canada advances towards its first offshore wind projects in Atlantic Canada and beyond, the lessons learned from decades of Arctic metocean research and providing services to the offshore oil and gas sector are directly applicable. ASL continues to bridge the gap between scientific insight and commercial application, ensuring that offshore wind development proceeds with the same rigor, safety, adherence to engineering standards (*e.g.* IEC-61400-3, ISO-19901-1:2015), and environmental stewardship that have defined the company's work in marine sciences for more than 45 years.

Site assessments require careful planning, and experience-guided execution. ASL measures the ocean with high caliber instrumentation, using subsea moored and unmanned platforms customized for the conditions at the site. The client receives comprehensive metocean assessments, and datasets that follow the highest quality of standards of excellence.

Oceans 2025 Great Lakes Conference

ASL recently attended the Oceans Conference in Chicago this fall (Sept 29th to Oct 2nd). We are grateful to Jarrah Orphin and the Sofar Ocean team for hosting ASL at their exhibit booth. This marks the start of an exciting new distribution partnership and technology integration opportunities between our companies. ASL's Steve Pearce was on-hand to talk about the ASL AZFP, including our AZFP-nano integration with the Sofar Spotter Buoy with the Bristlemouth development kit. **Photo shows Jarrah Orphin (left) of Sofar Ocean and Steve Pearce (right) of ASL.**

ASL Participates in COAST Demo Day

ASL was proud to participate in COAST (Centre for Ocean Applied Sustainable Technologies) Demo Day on October 28 at Ship Point in Victoria, BC. As part of the Air-Sea Ocean Monitoring System (ASOMS) project, partially funded by Canada's Ocean Supercluster, ASL's Steve Pearce demonstrated the integration of ASL's Acoustic Zooplankton Fish Profiler (AZFP) aboard Open Ocean Robotics' DataXplorer™ uncrewed surface vehicle. **Photo shows Steve Pearce onsite with an AZFP-nano.**

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Bío-Bío Canyon Expedition: Researchers Deploy AZFP-nano to Study Links Between Submarine Canyons and the Food Webs of the Humboldt Upwelling System

Dr. Macarena Díaz-Astudillo of Universidad del Bío-Bío seen here with the AZFP-nano .

On September 29, a team of researchers from the Universidad del Bío-Bío set out on an oceanographic expedition to the Bío-Bío Canyon, one of the largest submarine canyons along the Chilean coast. The canyon is located in the Gulf of Arauco, an area that is ecologically rich and vital for local fisheries and industry.

Since 2023, Dr. Macarena Díaz-Astudillo and a group of colleagues have been studying how this canyon shapes local oceanography and zooplankton communities. Recently, Dr. Díaz-Astudillo, a postdoctoral researcher at Universidad del Bío-Bío and COPAS Coastal center, won an award from ASL to add an AZFP-nano to the project.

During the latest field trip, the team deployed a mooring equipped with the AZFP-nano to describe zooplankton aggregations, an ADCP to measure horizontal and vertical flows, and several temperature and oxygen sensors to track upwelling, warming, and cooling events.

The researchers aim to understand how submesoscale processes in submarine canyons can influence the formation and persistence of zooplankton aggregations, a key link in the coastal food webs of the Humboldt Upwelling System. The Gulf of Arauco is not only home to abundant zooplankton, but also a hotspot for whales and local fisheries that depend on them. This research will help the researchers to better understand and protect one of Chile’s most dynamic marine ecosystems.

New Paper! Reanalyzing and Reinterpreting a Unique Set of Antarctic Acoustic Frazil Data Using River Frazil Results and Self-Validating 2-Frequency Analyses

by: John R. Marko, David R. Topham & David B. Fissel, ASL Environmental Sciences Inc.

A new reanalysis of Antarctic acoustic data has revealed that earlier estimates of frazil ice formation were vastly overstated due to an unvalidated model. Researchers found that instrument icing caused sound attenuation, limiting credible measurements to afternoon and early evening periods—times of minimal frazil production. Revised calculations using a validated dual-frequency approach suggest much lower frazil levels, hinting that peak production may occur during previously unanalyzed, heavily iced periods.   Link: https://www.mdpi.com/2813-8740/2/4/11

ASL and Sofar Ocean Engage in Strategic Marketing and Distribution Partnership

SOFAR

ASL Environmental Sciences

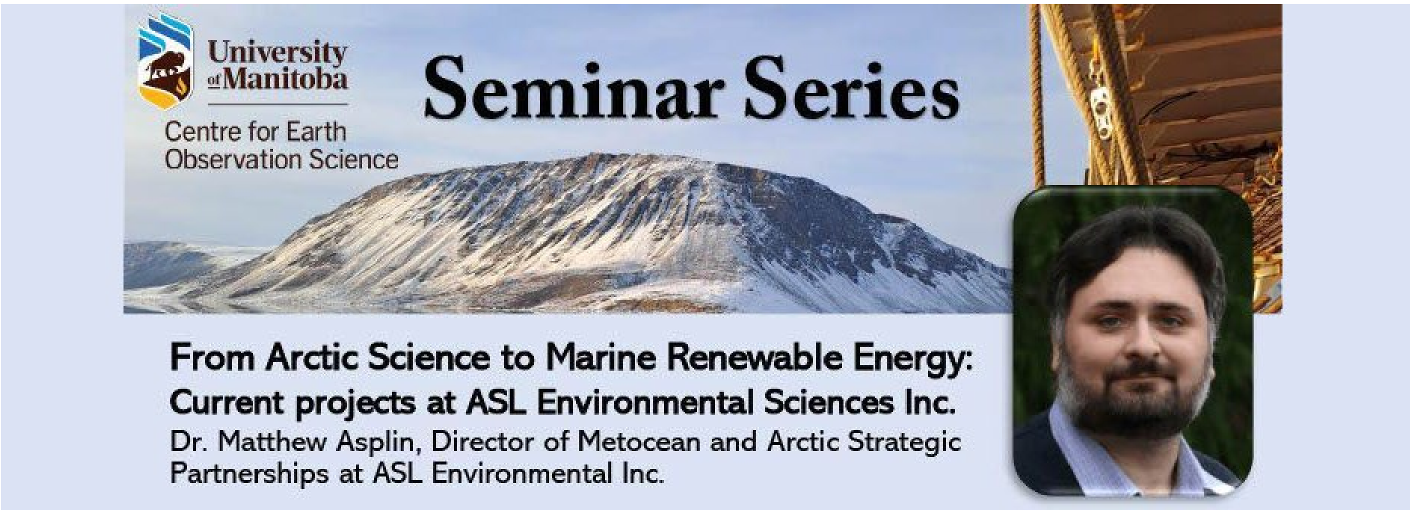
ASL is proud to announce a new strategic marketing and distribution partnership with Sofar Ocean, bringing innovative oceanographic solutions to Canada and Alaska. This collaboration strengthens ASL's position as a trusted supplier of advanced ocean monitoring technologies while enhancing Sofar's reach in northern markets.

At the center of this partnership is the Sofar Spotter Platform a compact, solar-powered metocean buoy that delivers real-time data on waves, winds, sea surface temperature, barometric pressure, and more. Rugged yet portable, the Spotter Buoy connects researchers and operators to their data 24/7 via satellite or cellular networks, with intuitive access through the Spotter dashboard and API. ASL currently offers several Spotter Buoys in its lease pool and provides customized mooring solutions to integrate these buoys into site-specific coastal and offshore studies.

In addition, ASL is also featuring its Acoustic Zooplankton Fish Profiler-nano (AZFP-nano) as a new integration option to the Spotter Platform. As part of the Sofar's Smart Mooring system, the lightweight and portable AZFP-nano delivers subsurface acoustic backscatter data that provides critical insights into zooplankton and fish populations. Through Sofar's Bristlemouth hardware interface, AZFP-nano data can now be transmitted in near real-time, giving researchers unprecedented access to subsurface biological data alongside Spotter's metocean measurements.

This partnership highlights ASL's commitment to providing cutting-edge ocean observing technologies and flexible mooring designs tailored to client needs. By combining Sofar 's proven Spotter Platform with ASL's innovative acoustic tools, researchers can now unlock new opportunities for integrated real-time ocean monitoring.

From Arctic Science to Marine Renewable Energy: Current projects at ASL Environmental Sciences



ASL is advancing Canadian offshore and northern environmental research through metocean and sea-ice observational initiatives. This includes offshore wind development in Atlantic Canada and the creation of metocean datasets required for resource assessment, design, and operational planning, all using industry standards. ASL highlights the need for harmonized regional data collection strategies with the launch of Canada's offshore wind industry in Atlantic Canada into 2026. By mapping data gaps and recommending efficient approaches to fill them, ASL builds partnerships with governments, academia, industry, NGOs, and Indigenous organizations to strengthen Atlantic Canada's metocean information base. This collaborative, standards-based approach also underpins ASL's long-term partnerships in Arctic community-led monitoring and renewable energy development.

Jordan Hanson Joins ASL's Accounting Team

ASL is pleased to announce the appointment of Jordan Hanson to the position of entry-level controller within the accounting team. In this role, Jordan will be involved in all aspects of the accounting cycle including financial reporting, taxation, and financial planning and analysis. After earning a Business Degree from Camosun College, he proudly completed the CPA exams in May 2025, marking an exciting step in his professional journey. With experience in industry accounting roles across both the tech and product sales sectors, Jordan has developed a solid foundation in industry accounting roles.

Outside of work, Jordan is an avid hockey fan who enjoys staying active, traveling, and cooking. He is excited to bring a positive, team-focused approach to ASL and is looking forward to seeing what the future holds for the company!

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ASL's Annual Summer BBQ

ASL held its annual summer BBQ this year on Thursday, August 14. It was well attended and was a great time to enjoy good food and conversations.

Conferences

Upcoming Conferences	Recent Conferences
Latin American Physics of Estuary and Coastal Oceans November 24-28, 2025 Puerto Varas, Chile	**Marine Renewables Canada** November 12-14, 2025 Halifax, Nova Scotia
ArcticNet ASM 2025 December 15-18, 2025 Calgaary, Alberta	**Asian Fisheries Acoustic Society (AFAS) International Conference on Underwater Acoustics** November 2-5, 2025 Kaohsiung, Taiwan
23rd Annual BC Natural Resources Forum January 20-22, 2026 Prince George, BC	**Ocean Tech Live 2025** October 28, 2025 Victoria, BC
Alaska Marine Science Symposium AMSS 2026 January 26-30, 2026 Anchorage, Alaska	**ABCMI Business Opportunities Conference** October 21-22, 2025 Vancouver, BC
Ocean Sciences Meeting OSM 2026 February 22-27, 2026 Glasgow, Scotland	**Oceans Conference & Exhibition 2025 Great Lakes** September 29-Oct 2, 2025 Navy Pier, Chicago, IL
WindEurope 2026 April 21-23, 2026 Madrid, Spain	