

From Habitat Maps to Habitat Function: The Role of SPI/PV in Canadian Marine Renewable Energy Projects

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What Theme Are You Submitting for?: Environmental and Ecosystem Impact Considerations

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As Canada's marine renewable energy sector expands, developers and regulators have an opportunity to incorporate benthic survey approaches that provide robust ecological interpretation while reducing seabed disturbance and improving spatial understanding from the outset. Sediment Profile Imaging and Plan View (SPI/PV) systems offer a complementary approach to conventional benthic sampling by providing in situ imagery of sediment structure, habitat condition, and benthic function at high spatial resolution with near real-time data review.

SPI/PV has been used in more than 70% of U.S. offshore wind developments and is growing in the United Kingdom as developers and regulators seek more spatially representative and lower-disturbance approaches to benthic characterization and monitoring. By directly imaging sediment structure and benthic conditions, SPI/PV can provide insights into habitat quality, sediment stability, and seabed function that may not be captured through conventional grab sampling alone.

This presentation will explore how SPI/PV can support marine renewable energy characterization and monitoring programs in Canadian waters through integration with traditional benthic sampling, geophysical datasets, fisheries assessments, and adaptive monitoring strategies. Particular attention will be given to the ability of SPI/PV to provide high-resolution, spatially representative interpretation of benthic habitat condition and function in the dynamic sedimentary environments common to Atlantic Canada. The presentation will also discuss how lower-disturbance imaging approaches may support more efficient survey design, reduce time at sea, mitigate weather and HSSE risks, improve scheduling flexibility, and reduce overall survey costs while strengthening environmental assessment and communication of seabed conditions to regulators, developers, fisheries stakeholders, and Indigenous communities.

Sharing lessons from U.S. offshore wind development and emerging UK applications, the presentation will discuss how SPI/PV can support efficient, scientifically robust, and

regulator-ready benthic assessment programs for offshore wind, tidal, wave, and subsea cable projects while strengthening long-term monitoring consistency and marine infrastructure planning.