

**Abstract:**

Aimee Gromack, Marc Skinner, Heather Ward & Phillip Molloy
Stantec Consulting
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An Evaluation of Eelgrass Mapping Methods: Case Study from Flora Bank, BC

Offshore oil and gas in Nova Scotia includes the installation of sub-sea pipelines that extend from offshore to coastal environments and other supporting coastal infrastructure. The coastal zone contains highly productive ecosystems that play an important role for several marine species. Characterization of these ecosystems is required for environmental assessments, permitting, and monitoring. Eelgrass is a particularly important component of coastal ecosystems, providing habitat for a diversity of marine species of commercial, recreational, and Aboriginal importance. The eelgrass bed on Flora Bank near Prince Rupert, British Columbia supports a rich community of invertebrates and provides refuge for out-migrating juvenile Skeena River salmon, among other species important to local fish harvesters and Aboriginal groups. Multiple surveys have been done to delineate and characterize the eelgrass bed on Flora Bank. The construction of a Liquefied Natural Gas (LNG) marine terminal is proposed near Flora Bank. In support of the environmental assessment, an additional survey was conducted in 2013 to delineate and characterize the eelgrass on Flora Bank, building on past studies. Previous studies indicated that high turbidity on Flora Bank caused primarily from the Skeena River, rapid tidal currents, and the potential for flotsam make for challenging survey conditions. Therefore, several different methods were applied to the 2013 survey: remote-sensing and field validation, delineation of intertidal eelgrass by foot, and delineation of sub tidal eelgrass using a submersible camera. Combined, these methods enabled the delineation and characterization of the Flora Bank eelgrass bed. Results were compared to those of previous studies to characterize inter-annual variation of the eelgrass bed. The advantages and limitations of these methods will be discussed, while making comparisons to other methods commonly used to map eelgrass. Recommendations will be made for mapping eelgrass beds in similar oceanographic conditions.