Topo-bathymetric Lidar and other technologies to map, monitor and model processes in the Nearshore Coastal Zone to support Offshore Wind Energy

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Mapping the zone between the land and deep water can be very challenging, and as a result many maps show a "white ribbon" along this zone or poorly interpolated data. Researchers at the NSCC's Applied Geomatics Research Group (AGRG) have unique technologies like an airborne Leica Topo-Bathymetric Lidar capable of collecting seamless elevation data from land and the seabed out to depths of ca 20m depending on water clarity. The sensor is also equipped with a RGB-NIR camera for ca. 5 cm orthophotos obtained simultaneously with the lidar. In addition, AGRG has a suite of other mapping technologies including three vessels, two multibeam echo sounders, Biosonics echo-mapper single beam echo sounder for mapping submerged vegetation, an ADCP, and RiverRay ADCP, turbidity buoys, video ROVs, drones equipped with various sensors (camera, lidar, thermal) and various data instruments to measure ocean properties. AGRG has pioneered the use of these data (elevation & imagery) to make benthic habitat maps, including ecosystem health indicators species such as eelgrass. They have conducted nearly 100 surveys in the region since 2014 related to port development, small craft harbour dredging projects, and aquaculture site selection for example. In addition to their mapping capability, AGRG also has expertise in modelling in the nearshore using the Danish Hydraulic Institute suites of Mike hydrodynamic modelling tools. Using the seamless elevation data as input they have modelled several sites around NS including modelling the fate of near shore oil spills, land-based pollution and pulp mill effluent. The capabilities and research focus in the coastal zone make NSCC's AGRG a potential group to be involved with research required to develop offshore wind within NS in an environmentally sound manner.