



## Sea state indices for a coastal strait

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The Strait of Georgia at the west coast of Canada is an enclosed coastal strait, about 250km long and 25 to 50 km wide, with great socio-economic importance. Regular freighter traffic, ferry services, commercial and sport fisheries, and recreational boating, makes the area one of the busiest marine areas in the world. Waves in SoG are generally small, with the median value of the significant wave height  $H_s=0.3\text{m}$ . However, strong outflows off the mountainous terrain can generate significant wave heights  $H_s > 2.5\text{m}$ , with high spatial and temporal variability. In addition, strong tidal currents and the Fraser River outflow generate localized regions of steep and breaking waves that are of particular concern.

We have implemented the Wavewatch III model at 500m-resolution, forced by Environment Canada's high resolution atmospheric model winds and currents from the UBC NEMO implementation of the Salish Sea.

The final output combines GIS layers of the predicted wave field ( $H_s$ , dominant wave length and direction), the modeled wind field and currents, observed currents from a set of CODAR systems, and a sea state index that highlights regions of potentially steep and dangerous waves.