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Title: Validation of High Resolution Numerical Model Tidal Currents

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Category: Marine Renewable Energy

Strong tidal currents often exist in small passages that lie between large bodies of water. Such passages are considered good potential sites for the deployment of arrays of tidal turbines as they provide high-energy flows that are close to landfall. However, the high velocities seen in these passages can result in a variety of unsteady and turbulent motions that can negatively affect the performance of turbines. Numerical models can be used to predict the characteristics of the flow throughout a passage, but correctly modeling high frequency fluctuations in the flow requires a careful numerical model design. In this poster, we describe the development of a high resolution, 3D numerical model of tidal passages in the Bay of Fundy. The model used is FVCOM with an unstructured grid that has a resolution as low as 6m. High-resolution bathymetry has been gathered and carefully interpolated to the grid so as to correctly model the bottom drag. The model is rigorously validated against data from multiple ADCP deployments and surface current measurements.