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A computational fluid dynamic (CFD) model of a Piano Key weir was constructed in order to assess two important questions with respect to the practical use of CFD to predict the discharge of Piano Key weir structures:

- 1) how accurate is the method when comparing numerical results with experimental data, and
- 2) how sensitive are results to various numerical settings in the model

By running multiple simulations varying on the parameter space of numerical settings in the CFD model, we are able to present a full picture of how the accuracy of the CFD results (compared to experimental/physical model data) relates to common choices made during model setup.

The resulting accuracy and sensitivity matrix allows us to provide the modeling practice community with recommendations as to best practice, as well as to provide some cautionary remarks as to how these models can be used.