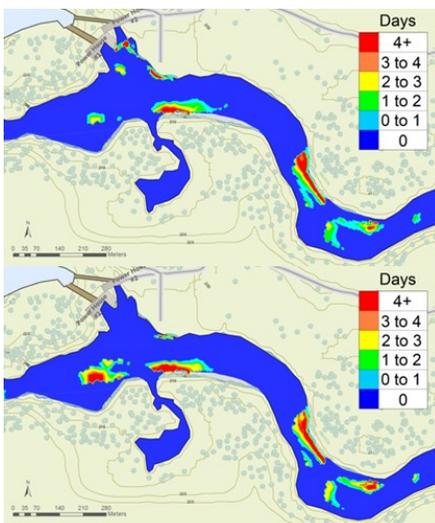


Detailed substrate (top) and hydrodynamic (bottom) data is required



Comparison of walleye reproductive days under different regulation plans

WALLEYEMAPPER - FISH HABITAT SUITABILITY MODEL

Coldwater, working with Kilgour and Associates, has developed computational models for a number of fish species based on work by the US Geological Survey (USGS) and Ontario Hydro. These models are constructed on the basis of expert opinion of the major factors that influence the presence/absence of individuals of specific life-stages.

The WalleyeMapper model is based on research undertaken by USGS and incorporates data on water depth, substrate texture, stream temperature, vegetation cover and flow velocity as predictors of the suitability of a habitat parcel to a specific life-stage of walleye. WalleyeMapper has three general components:

- a reproductive component that quantifies the spawning suitability for the species;
- a juvenile foraging component that quantifies the habitat preferences of juvenile walleye; and
- an adult foraging component that quantifies the habitat preferences of adult walleye.

The model also contains routines to assess the effects of high-frequency oscillations (e.g., hydroelectric powerhouse shutdowns) on post-spawning stranding.

WalleyeMapper requires detailed bathymetry, hydrodynamic, substrate and stream temperature data. The time-varying, two-dimensional hydrodynamic data is obtained from finite element model simulations conducted separately. A significant amount of pre-processing using proprietary Coldwater software is required to generate the input data. If required, Coldwater will undertake field a measurement campaigns to collect any bathymetry, flow, level, temperatures and substrate data.

WalleyeMapper has a variety of output options, ranging from maps of foraging and reproductive component scores and number of suitable spawning days to estimates of suitable/productive habitat areas.