I. Introduction

Welcome to the DSM2 Database Version (hereafter referred to as the GUI) instructional guide. For installation and configuration instructions, please refer to *Appendix A*. This document will detail the development of a model of a simple channel system for use with HYDRO and QUAL. The directions for building the model consist of six tutorials, with each building in complexity from its predecessor.

The first tutorial is called *Channels*, and involves setting up the channel grid, adding parameters, setting boundary conditions, and listing output locations. The second tutorial is called *Reservoir_Gate_Transfer*, and involves adding these components to the simple channel system.

The third tutorial is called *Layering*. The section provides instruction for modifying existing model information in the database by adding new data layers. Layers are key to the DSM2 management system. They allow input items to be grouped in logical bundles, and allow changes to be brought into an old simulation without erasing or altering archived items.

The fourth tutorial is called *Timevar*, and demonstrates the addition of time-varying information to the model. In the previous sections, all boundary conditions and gate timings were set as constant, and no input files were needed. In this section, the model is set to read time-varying information stored in DSS files.

The fifth tutorial is called *Output*, and covers advanced output options. The first part involves modifications to the text input file, *hydro.inp*. The second part describes the use of *groups* in the GUI. With *groups*, the user can track constituents in QUAL from different sources.

The sixth tutorial is called *Oprule*, and covers the use of Operating Rule Language (ORL) statements to set gate operations. In the text version of DSM2, the text files were needed to explicitly state the operations of gates. With the GUI, expressions can be used to make the model operate gates on-the-fly. E.g., a gate can be directed to automatically close when salinity conditions reach a certain threshold.