Introduction

• As part of the initial phase of SRRTTF, data was compiled into a Microsoft Access Database
• LimnoTech has extensive experience developing visualization tools based on Access databases
• An Access-based, SRRTTF-specific tool may be an option for sharing and analyzing data
SRRTTF Database Developed in 2013

Analytical results formatted consistent with Ecology’s Environmental Information Management (EIM) system

– Table designs from the EIM have been incorporated directly into the SRRTTF database
– Some data was extracted directly from EIM
– Most additional analytical data was processed to be consistent with this database structure
Existing SRRTTF Database

• Additional tables added to store data that was not a natural fit for the EIM structure:
  – WWTP and select stormwater data
  – USGS stage and flow data from five gages
  – National Climatic Data Center climate data from Spokane Airport
  – PCB sites identified by personnel at Ecology
  – Reported spills based on queries of Ecology’s Environmental Reporting Tracking System

• Database has not been updated since 2013
Tool Development

• Objectives of Tool Development:
  – Effective communication of monitoring data and/or model simulation results to task force members and other stakeholders
  – Improve efficiency of visualization and data evaluation
  – Support decision-making process

• Key Capabilities:
  – Geographic information systems (GIS)
  – Database development/management
  – Desktop graphical user interface (GUI) development
    • Data visualization (plotting, GIS)
    • Calculation queries
    • Decision support / stakeholder communication
    • Ease of data extraction
Kansas City - **Water Quality Management Tool (WQMT)**
San Joaquin River Basin
Real-Time Water Quality Management Tool

Map navigation tools

Overlay real-time monitoring stations

Irrigation districts
Lake Pepin - Management Analysis Tool
WinModel – Software Overview

- Supports multiple hydrodynamic, water quality, watershed models
- Uses companion MS Access databases for storage, processing of model inputs and monitoring data
- “Scenario Builder” forms support pre-processing
- Comprehensive visualization toolbox
WinModel – ‘Vertical Slice’ Visualization

QUALW2 Grid Profile: Downriver (vavg) (Run_01)
Date/Time: 09/03/01 00:00

CE-QUAL-W2 Application
(Long Lake – Spokane, WA)
WinModel – Map Visualization
Pros and Cons

Pros

• Many folks have some familiarity with MS Access
• There is an existing Access database with much SRRTTF data
• LimnoTech is likely to build at least a simple version of an Access-based tool to assist with modeling
• Flexible and scalable
  – Would be relatively low effort to set up at least simple visualization and analysis tools (time trends, congener patterns)
  – Add additional data types as needed

Cons

• Separate data system from EIM – data would be stored in multiple databases
• Requires periodic release of new database (not dynamic)
• WinModel and EIM have somewhat different table structures, so would require reformatting from the 2013 SRRTTF database structure
Web-based Tools

• LimnoTech has recently worked with several clients to develop web-based data management tools

• Uses PostgreSQL - an open-source database program to manage data
Questions?