2D Hydraulic Modeling User's Forum

Troubleshooting SMS Projects, Backup Strategies, File Structure, Data Recovery and Organization

February 23, 2023

Federal Highway Administration
RESOURCE CENTER
Office of Innovation Implementation

U.S. Department of Transportation
Federal Highway Administration

Agenda

- Housekeeping stuff

- New SMS/SRH-2D Resource Summary

- File Structure for an SMS Project

- When SMS "Saves"

- What to do when a project won't open - Data Recovery

- Data Organization and Backup Strategies

- Migration from Previous Versions

- Troubleshooting SMS Projects

- Tips and Tricks

Housekeeping

- Please post any questions in the Chat Pod

- PDF file of presentation slides (posted in the chat pod)

- PDH certificate (posted in chat pod)

- Recording link will be sent out tomorrow to all members of the 2D forum (with the slides and certificate)

- Participants may subscribe or unsubscribe using the link in the email

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SMS/SRH-2D Hydraulic Modeling Resources Download

NEW!

Will be updated in future 2D Hydraulic Modeling Forum emails.

- Software download and licensing
- NHI Training Courses
- 2D Hydraulic Modeling Reference Document
- SMS Wiki Page
- 2D Modeling Tutorials
- YouTube 2D Hydraulic Modeling Videos
- YouTube 2D Sediment Transport Videos
- 2D Hydraulic Modeling User's Forum
- FHWA Bridge Scour Workshop
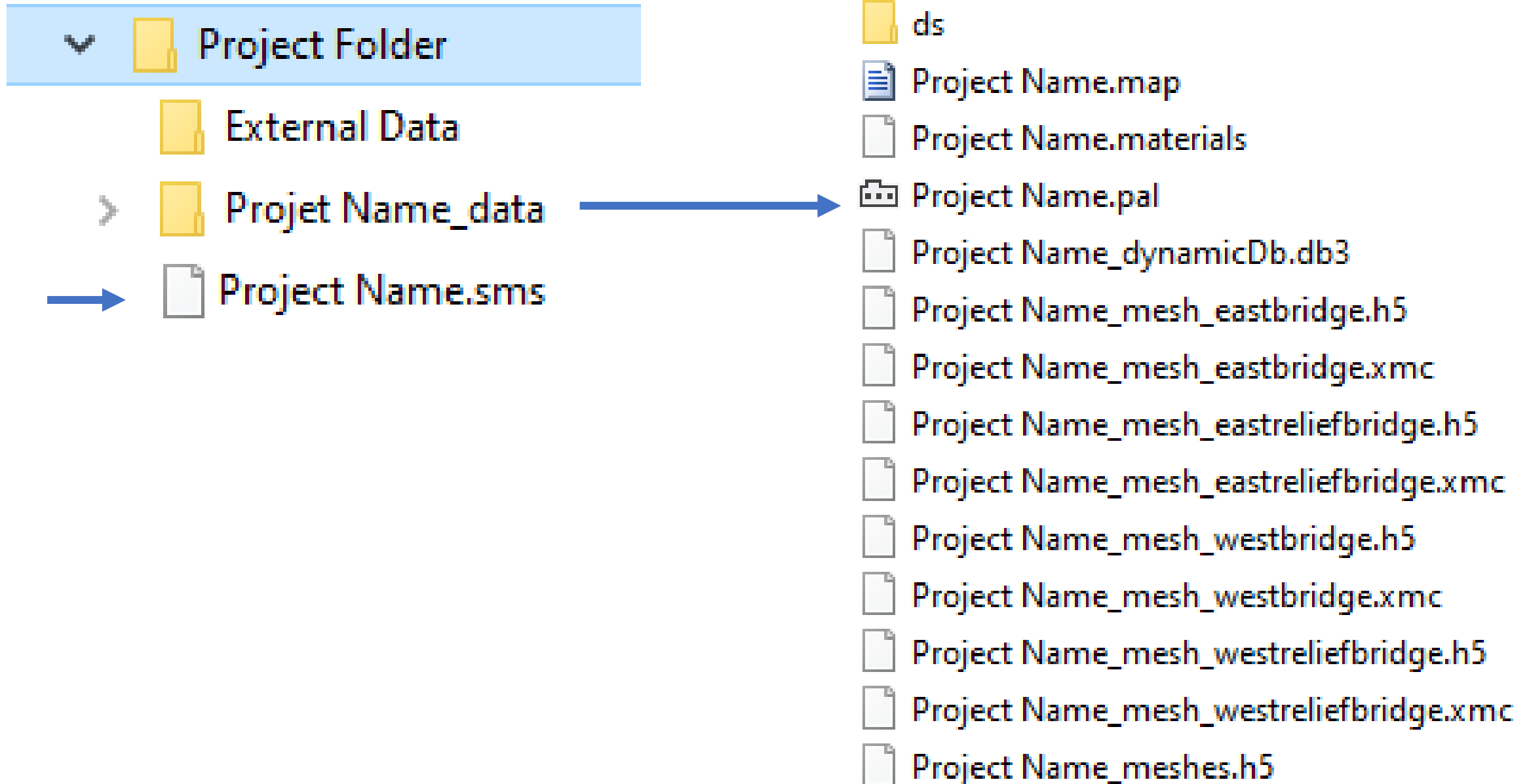
Introducing Dr. Alan Zundel

- Developing interfaces and using 2D Hydraulic models since 1989 (how time flies)

- Original author/developer of SMS

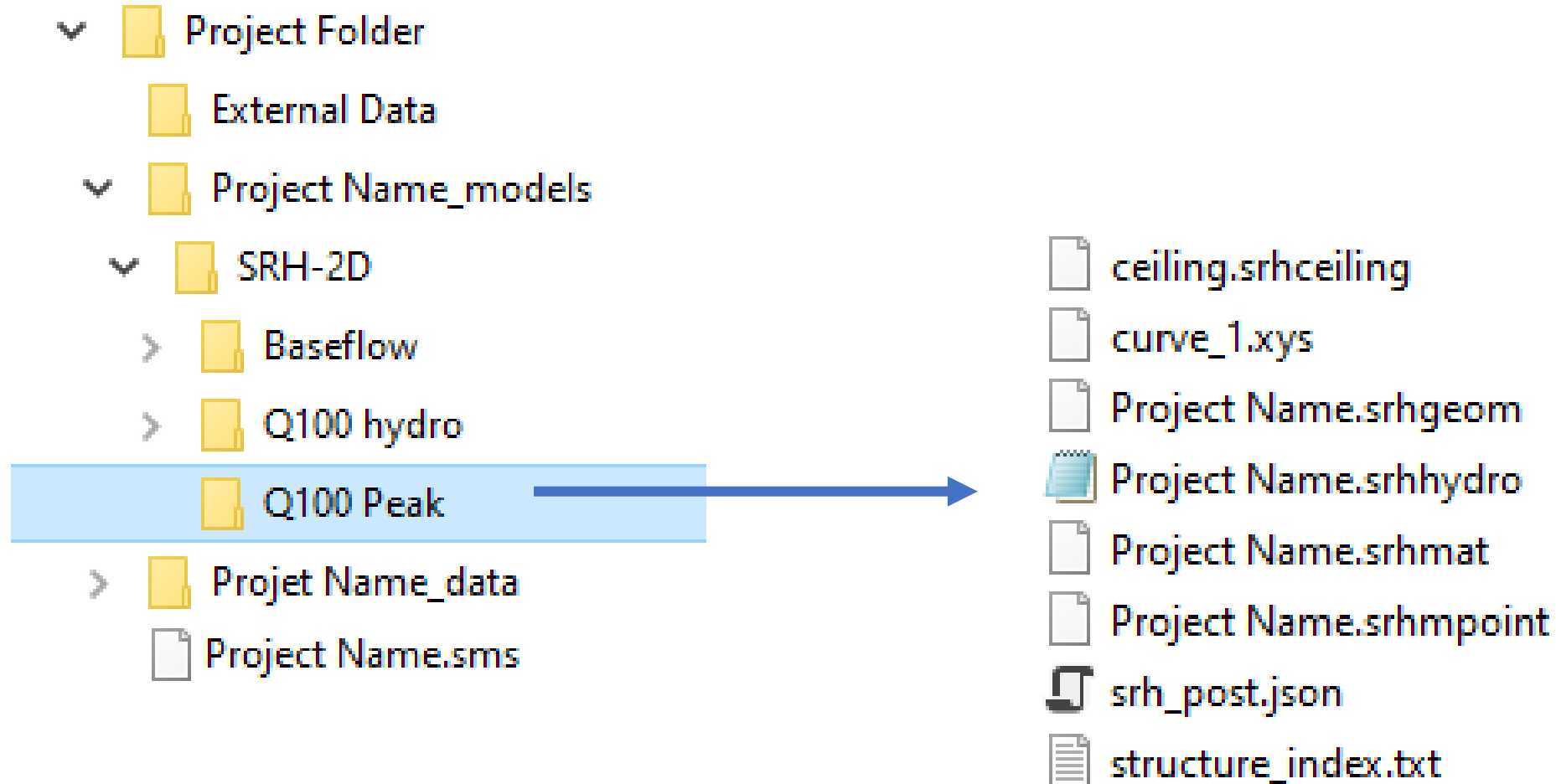- President of Aquaveo

- Adjunct Professor at BYU

SMS File Structure

- Project Files

- SRH-2D Files

- Temporary Files

File Structure: Project Files

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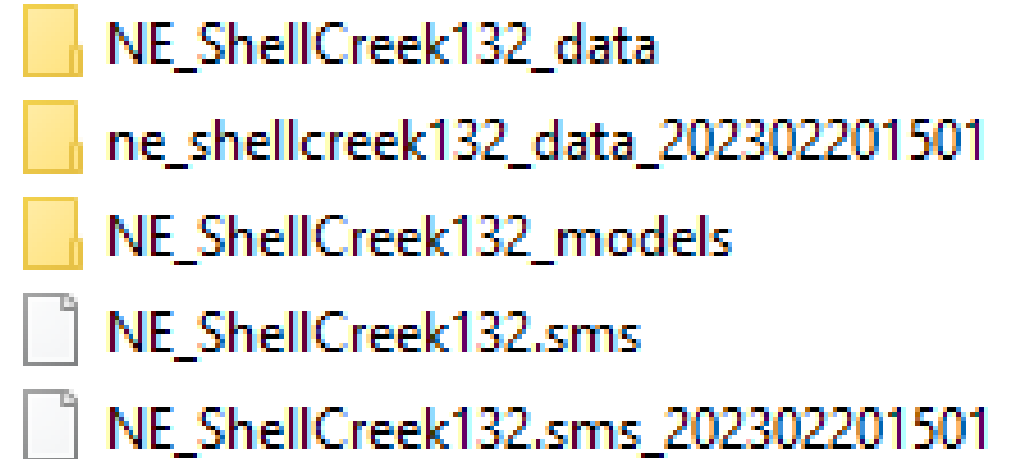# File Structure: SRH-2D Files (Model Native)

File Structure: Temporary Files

- SMS creates temporary copies of all project data during interactive session.

- SMS only changes original project files on "Save" commands

- We strongly discourage any interaction with temporary files. These are not intended for end user manipulation.
  - Similar to many other windows based applications.

When SMS "Saves"

- Existing files copied
  - Project file
  - Project data directory
  - Date and Time appended

- Files kept until save completed
  - Check for complete data

- Logs and diagnostics

📁 NE_ShellCreek132_data

📁 ne_shellcreek132_data_202302201501

📁 NE_ShellCreek132_models

📄 NE_ShellCreek132.sms

📄 NE_ShellCreek132.sms_202302201501

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When SMS "Saves": If issue detected

- SMS will give a warning message

- Don't panic

- Don't exit SMS if possible
  - All the data is still in the session
  - Try saving to a different directory (local)

- SMS saves log and diagnostic files that tech support can use to resolve issues.

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What to do when a project won't open - Data Recovery

- Using backup files

- Using "model native" files

- From data – reconstruction

- From SRH-2D coverage files

Data Recovery: Using backup files

- Look for backup files

- Rename – remove the date and time strings in the file names.

- Open in SMS
  - Won't include any work done in the last session

- Blog - Recovering SMS Projects Using Temp Files
  - https://www.aquaveo.com/blog/2022/11/09/recovering-sms-projects-using-temp-files

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Data Recovery: Using "Model Native" Files

- Creating a simulation from native files

- Advantages

- Disadvantages

Project from "Model Native" Files

- File | Open or Drag/drop the "srhhydro" file

- SMS Creates
  - "Mesh"
  - "Boundary Condition"
  - "Materials"
  - "Monitor"
  - "Sim" Simulation

- All model parameters and components

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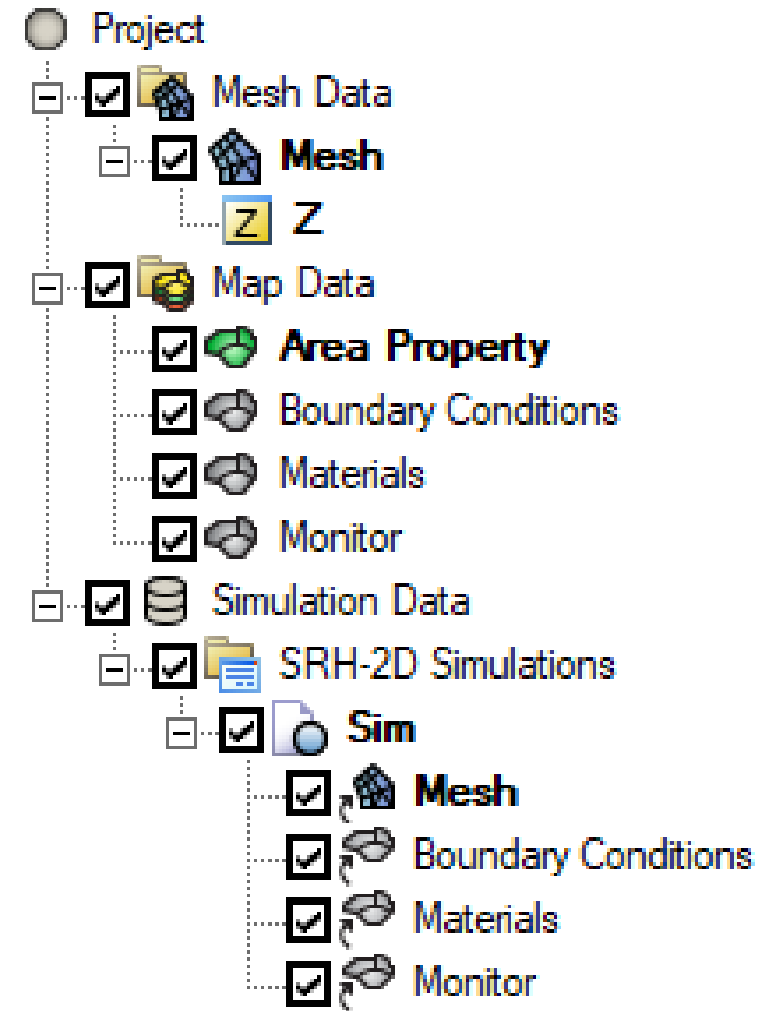
Advantages of "Model Native" Files

- No additional data needed

- Represents exactly what SRH-2D sees
  - Snapped BCs
  - Snapped Materials
  - Snapped Monitor Lines

Disadvantages of "Model Native" Files

- Must load one simulation at a time (can be tedious)

- No background data
  - Rasters / Lidar / CAD / Images
  - Scatter sets

- Loss of comments / notes

- Replication of resources – multiple copies of mesh and coverages

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Data Recovery: From data files

- More tedious – avoid if possible

- Load model components

- Blog - How to Rebuild a Corrupted Project in SMS
  - https://www.aquaveo.com/blog/2021/06/16/how-rebuild-corrupted-project-sms

Data Recovery: From SRH-2D Coverage Files

- Most commonly lost information include:
  - SRH-2D Material lists (including material attributes)
  - SRH-2D Boundary conditions
  - SRH-2D Monitory lines and points

- Starting with SMS 13.2, these can be exported to a file. (Allows for recovery by reading the file.)

- Also allows transfer of geometry, material lists, and BC attributes from one project to another.

Data Organization Tips

- Folders

- Zipped backups

- Project notes

Data Organization Tips: Folders

- Existing Options
  - Datasets
  - Coverages

- Future option: Give feedback
  - Meshes / Ugrids
  - Scatter sets
  - Simulations
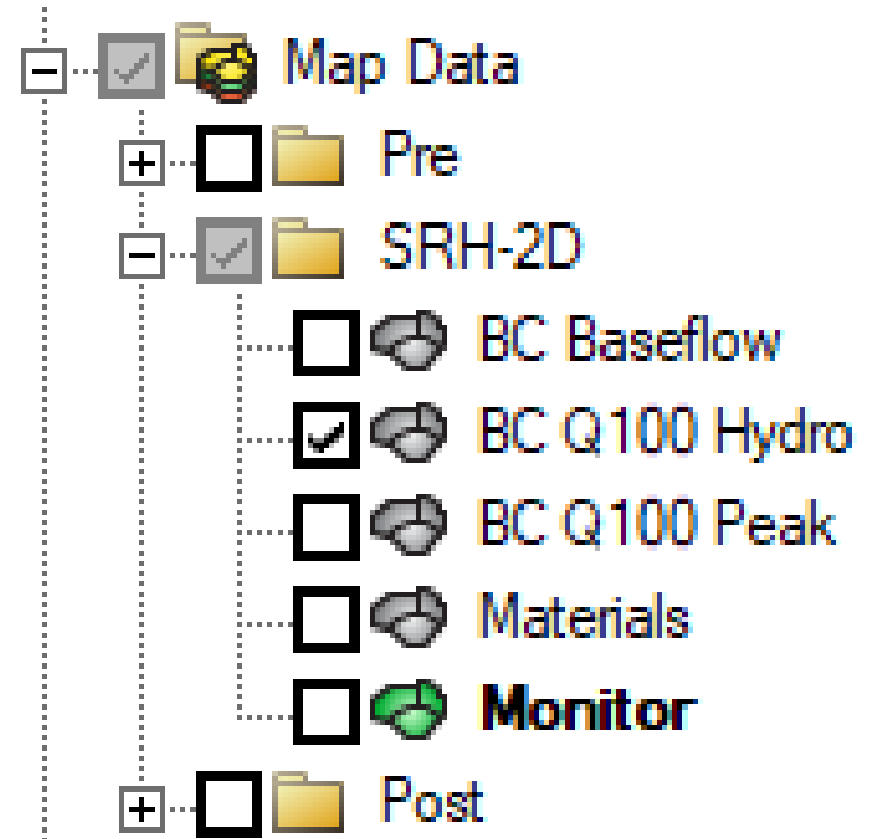
Data Organization Tips: Zipped backups

- Use File | Save as package command as a backup strategy

- Combines all data for the project – zipped

- Can have as many "backups" as you would like

  - They can be large

  - Recommend one or two and alternate

- Recently enhanced

- Also provides ready format for distribution of project

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Data Organization Tips: Project Notes

- Access
  - Right click on tree entry
  - Select Properties
  - Switch to "Notes" tab

- At multiple
  - Project
  - Mesh/Ugrid/Scatter
  - Coverage
  - Dataset
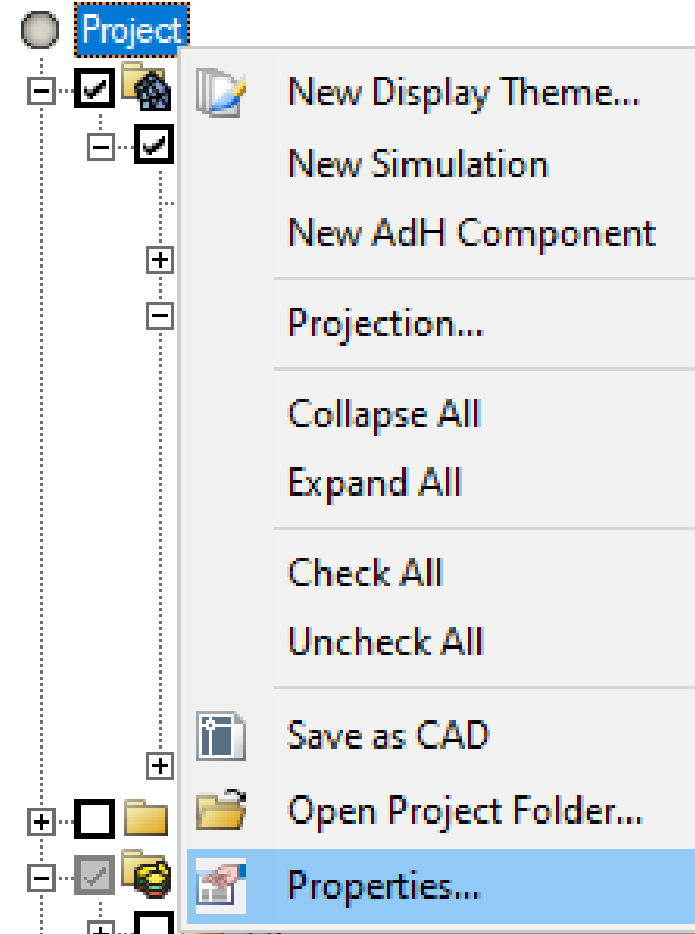
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Data Organization Tips: Project Notes

- Will replace the "meta-data" options

- Some are auto-generated

  - Feedback encouraged

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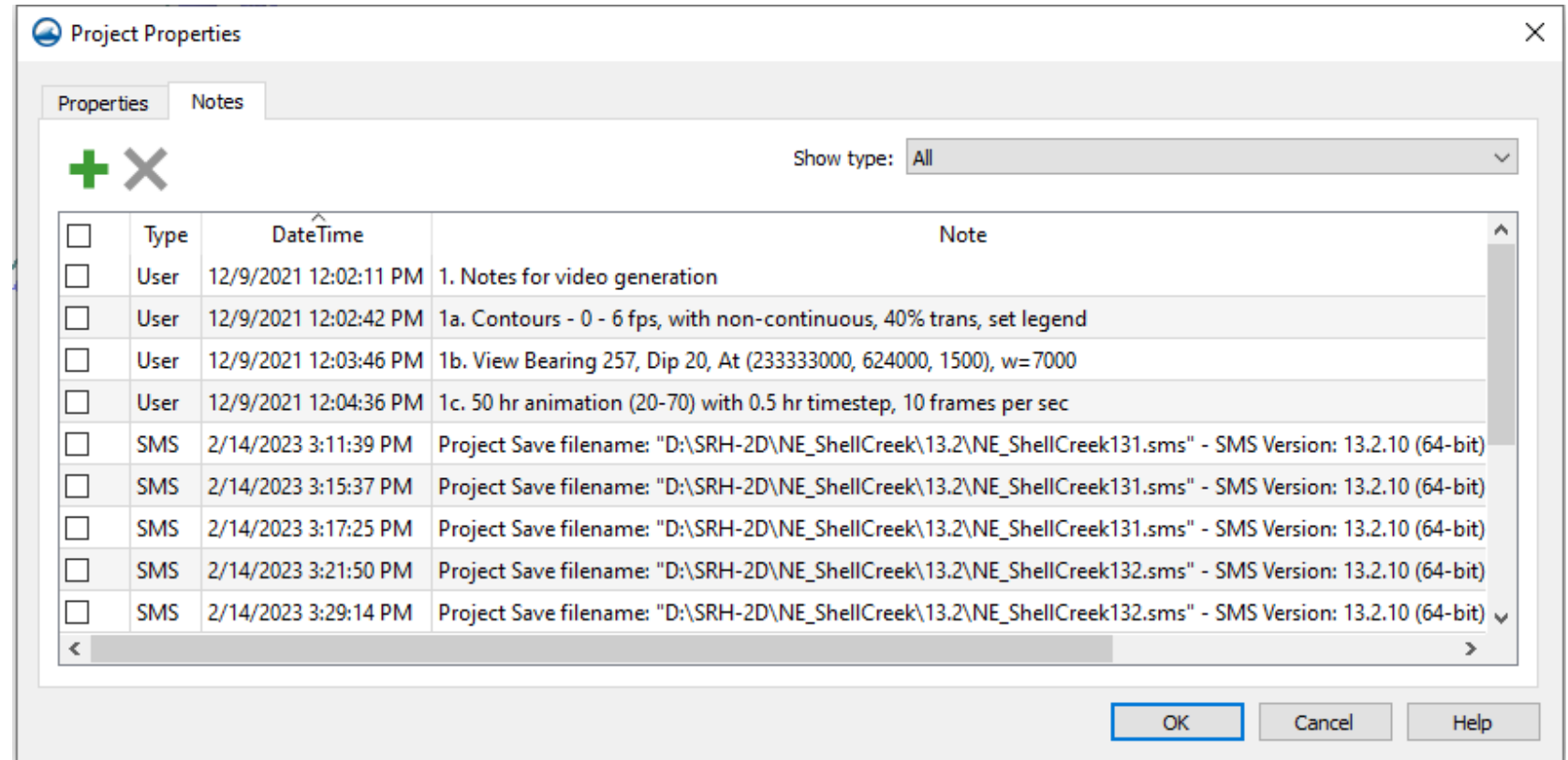
Data Organization Tips: Project Notes

- Will replace the "meta-data" options

- Some are auto-generated
    - Feedback encouraged

- Included in Summary Project Report

- Useful in model review

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Migration from Previous Versions

- SMS Version 12.3 – 2dm file – No migration

- SMS Version 13.0 / 13.1 – Automatic

  - Example – Conversion of HY8 data.

  - Recommend that you save a new project for new version

- Future – Anticipated that it will be all automatic

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Troubleshooting SMS Projects

- Project
  - Make use of the FHWA Model review checklist
  - Review mesh
    - Resolution / elevation source and range

- Simulations
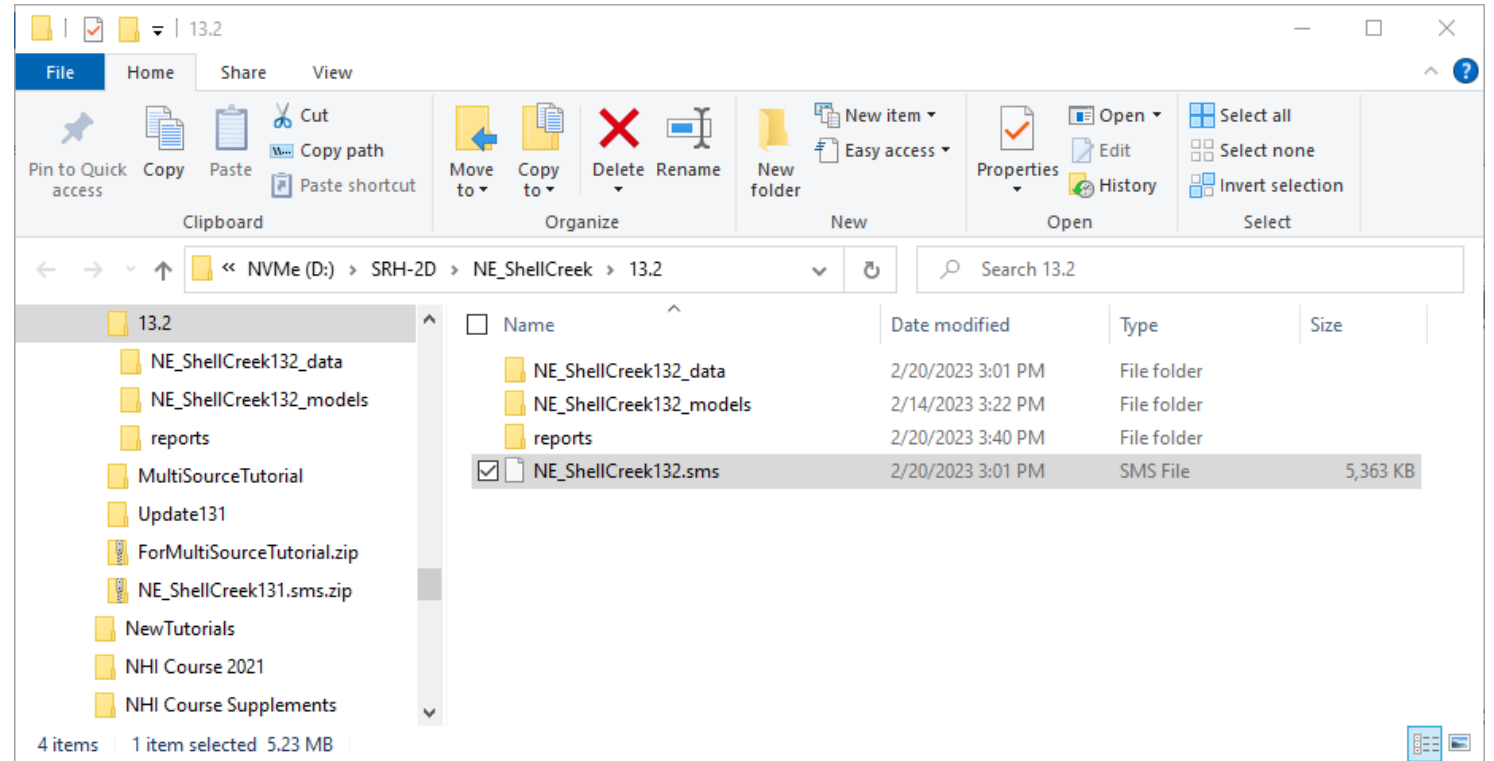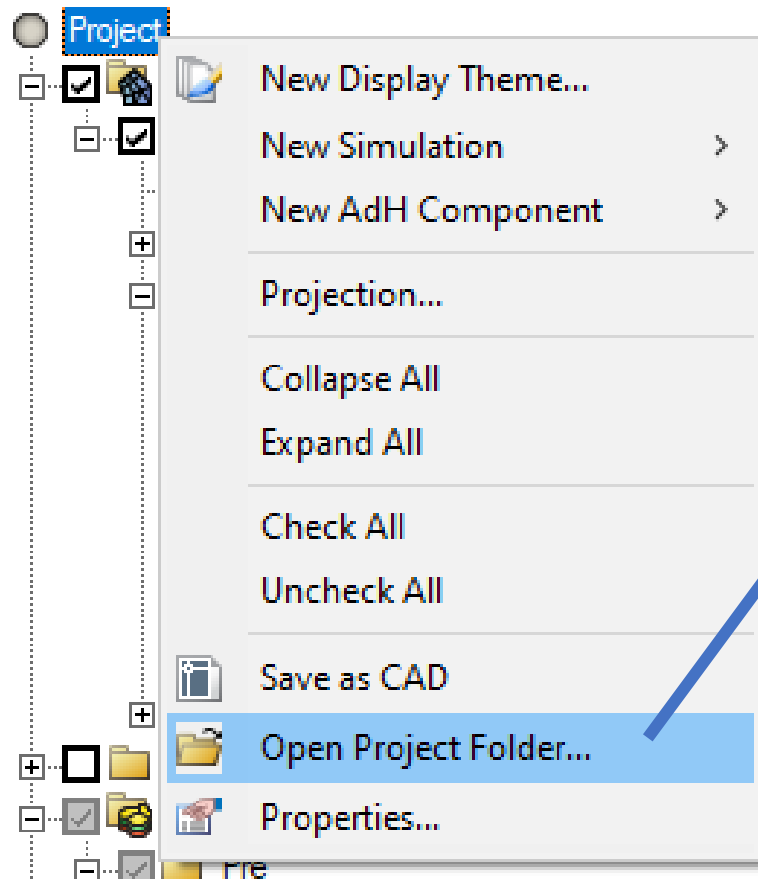 - Start with simple simulation and add structures one at a time
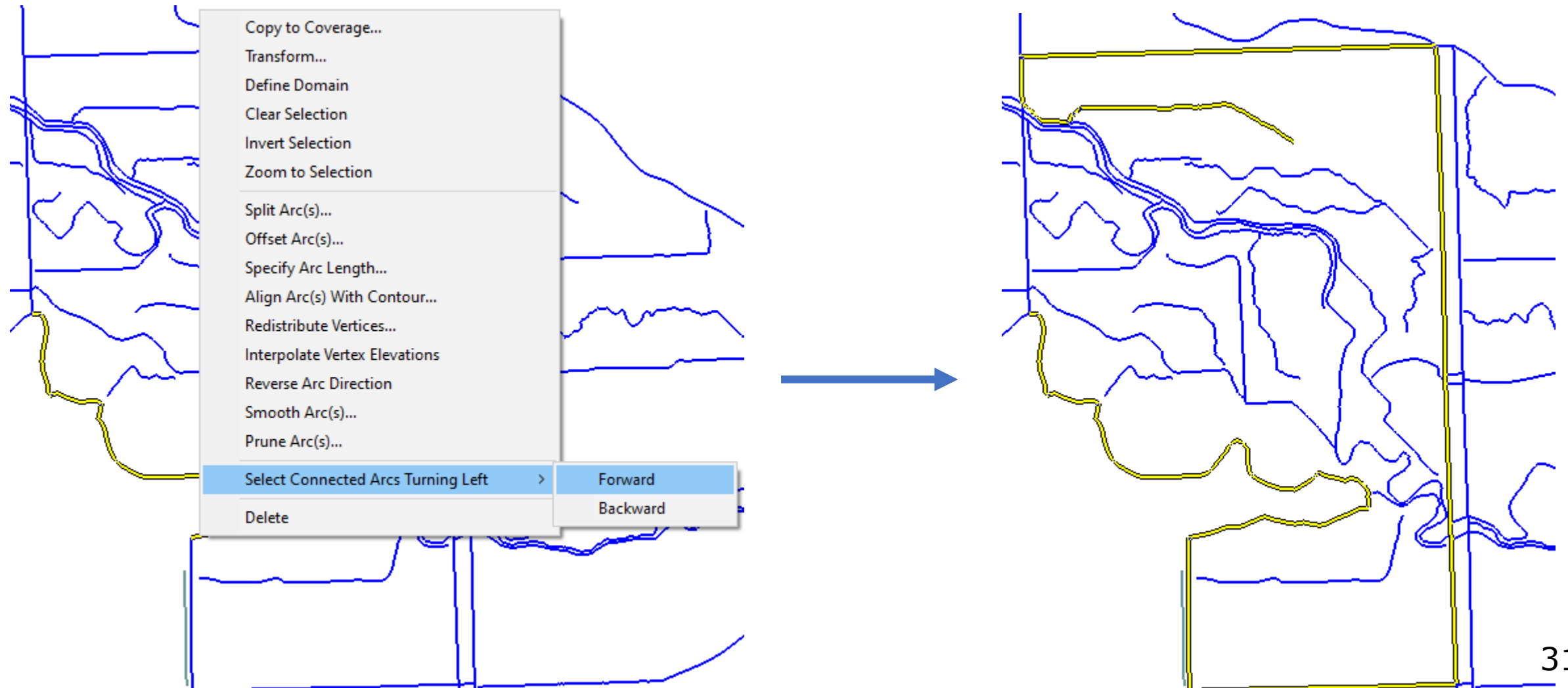
Questions?

Tips and Tricks

- Show project folder

- Select adjacent arcs

- Run SRH-2D with "SIF"

Tips and Tricks: Show project folder

Tips and Tricks: **Select adjacent arcs**

- Selects all arcs to form a loop or to a free end

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Tips and Tricks: Run SRH-2D with "SIF"

- Allows for custom execution of SRH-2D

- Run from SMS with standard method

- SMS creates an SOF (Script Output File)
  - in sim folder

- Rename SOF to SIF (Script Input File)

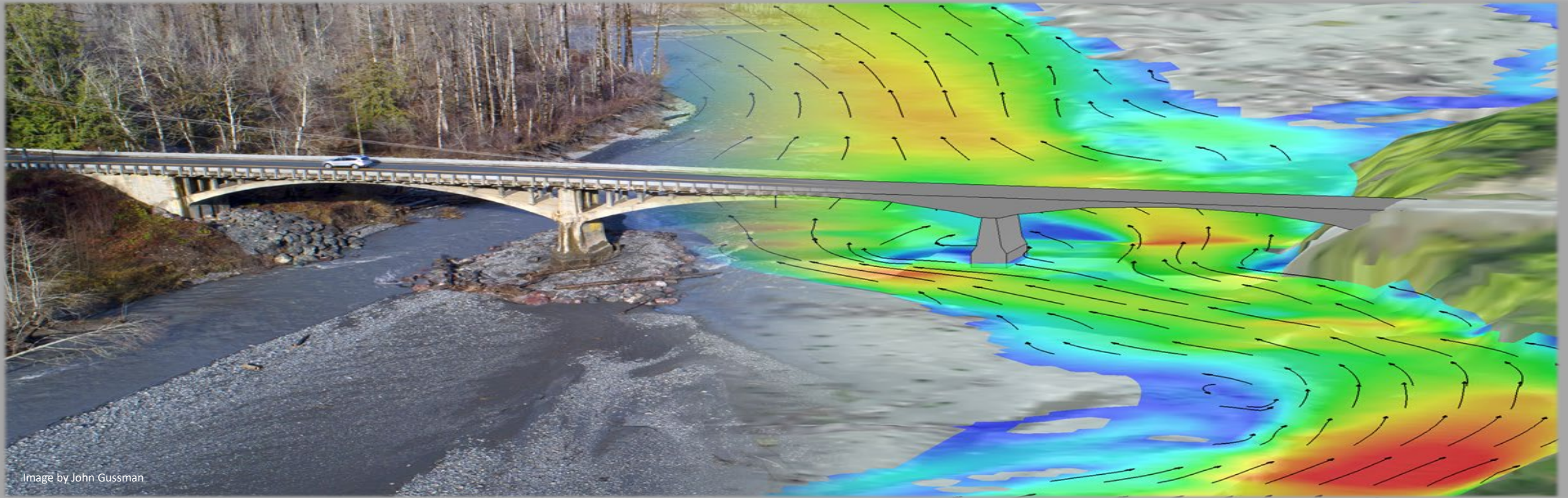- Model Control Advanced

- SIF can be edited using text editor

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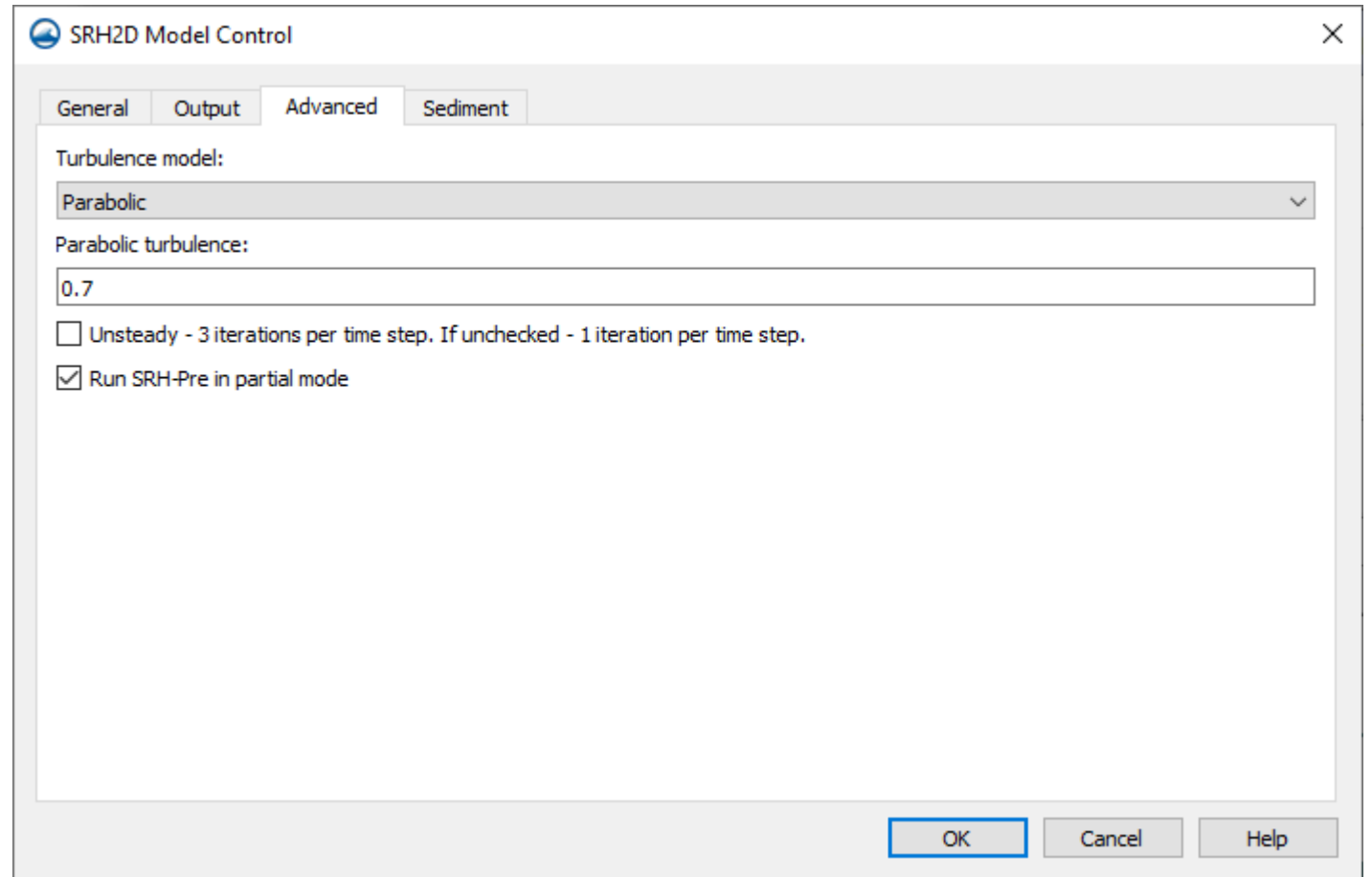
Image by John Gussman

THANK YOU!
Please contact us with any questions

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