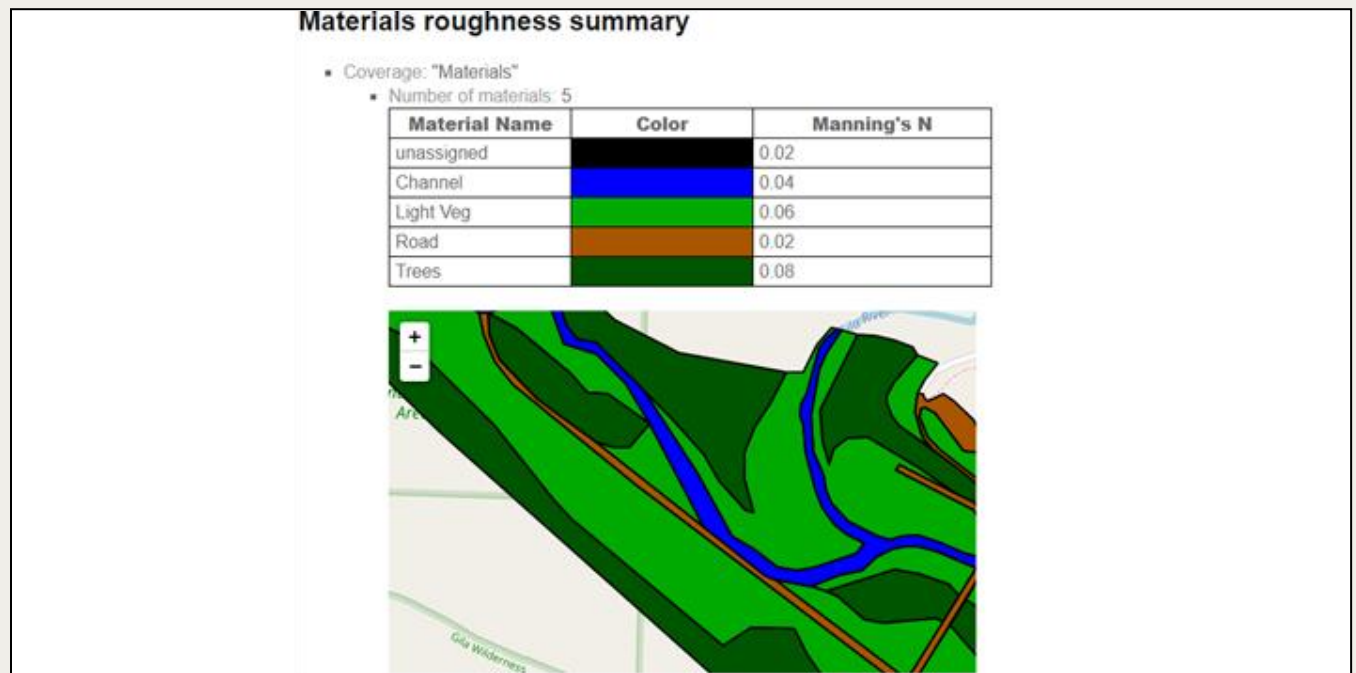




SMS 14.0 Tutorial

SRH-2D – Summary Reports

Generate summary reports for SRH-2D

**Objectives**

This tutorial shows how to generate summary reports for a Sedimentation and River Hydraulics – Two-Dimensional (SRH-2D) model using SMS.

Prerequisite Tutorials

- SRH-2D
- SRH-2D Simulations

Required Components

- SMS Core
- SRH-2D Model & Interface

Time

- 10–20 minutes

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1 Introduction

The Sedimentation and River Hydraulics – Two-Dimensional (SRH-2D) model is a two-dimensional (2D) hydraulic, sediment, temperature, and vegetation model for river systems developed at the United States Bureau of Reclamation (USBR) and sponsored by the United States Federal Highway Administration (FHWA).

This tutorial shows how to use the Summary Reports tool in SMS to generate a set of graphs and reports from the SRH-2D simulation and solution data. It builds on the results of the “SRH-2D Simulations” tutorial. It is recommended to have completed the “SRH-2D Simulations” tutorial before using this tutorial.

This tutorial makes use of an SRH-2D model developed around the Gila River in New Mexico.

2 Opening the SMS Project

Begin by opening an existing SMS project that includes an SRH-2D simulation with its solution:

1. Select *File* | **Open...** to bring up the *Open* dialog.
2. Select “Project Files (*.sms)” from the *Files of type* drop-down.
3. Browse to the *data files* folder for this tutorial and select “Gila_Report.sms”.
4. Click **Open** to open the file into SMS and exit the *Open* dialog.

The project contains a mesh of a section of the Gila River. It has two simulations: the first, “ Regular_Flow”, is the original simulation, and the second, “ Modified_Flow”, uses the original simulation but with modified boundary conditions. Solution sets have been generated for both simulations.

3 Initiating the Summary Report

Using the Summary Report tool, a collection of graphs and reports can be generated at once so that each report does not need to be generated individually. Information about the model is entered before running the tool. This information will be included in the final collected report.

To start the Summary Report tool, do the following:

1. Right-click on the “ Modified_Flow” simulation and select the *Tools* | **Summary Report (Beta)...** command to bring up the *SHR-2D Project Summary Report* dialog.
2. In the *River* section, enter “Gila River”.

3. In the *Project purpose/focus* section, enter “Model for assessing the effects of BC extent”.
4. In the *Model developer name* section, enter “Aquaveo”.
5. In the *Source of terrain data* section, enter “FHWA”.
6. In the *Source of bathymetry data* section, enter “FHWA”.

Not all the sections have to be completed in the *SRH-2D Project Summary Report* dialog in order to run the Summary Report tool. Leave the rest of the dialog blank and continue to the next section.

4 Running the Summary Report

After the information about the model has been entered in the *SRH-2D Project Summary Report* dialog, the summary report can run. To do this, complete the following:

1. Click **OK** to close the *SRH-2D Project Summary Report* dialog and bring up the *SRH-2D Summary Report* progress dialog.

In the *SRH-2D Summary Report* dialog, the report generation process can be monitored. If the report generation process fails to complete, the reason for the failure will be listed in this dialog. Otherwise, at the end of the report generation process, the *SRH-2D Summary Report* will close.

5 Viewing the Summary Report

Viewing the summary reports requires the use of an internet browser. The summary report is generated as a series of HTML files. The individual HTML files are compiled into a single report that can be viewed in a web browser.

The compiled report should appear in a web browser upon completion of the *SRH-2D Summary Report* dialog. If the report did not open in a browser automatically, it can be opened by doing the following:

1. Open a web browser.
2. Browse to the *data files* folder for this tutorial.
3. Open the *reports* folder and the *srh-2d_summary_reports* folder.

This folder contains all the maps and plots generated with the report.

4. Select and open the “index.html” file in the web browser.

Once opened, the completed report contains several sections. The first part of the report gives the project file name and date the report was generated. This is followed by a table of contents listing the sections of the report. The items in the table of contents are links—clicking on an item in the list will jump to that section of the report.

SRH-2D Project Summary Report

Project file name: Gila_Report.sms

Report generation date: 20 January 2022 10:43:16

Contents

- 1 Project summary
- 2 Versions of software used
- 3 Project datum
- 4 Terrain data
 - 4.1 Summary of scatter sets
- 5 Mesh summary
- 6 Summary of boundary conditions
- 7 Summary of monitor coverages
- 8 Summary of obstructions
- 9 Summary of bridges
- 10 Materials roughness summary
- 11 Simulation summary

Project summary

- Project name: Gila_Report
- River: Gila River
- Project purpose/focus: Model for assessig the effects of BC extent
- Model developer name: Aquaveo
- Source of terrain data: FHWA
- Source of bathymetry: FHWA
- Source of additional survey data:

Figure 1 Example of the Table of Contents and Project Summary

5.1 Using the Maps

The summary report contains multiple interactive features. Besides the links in the table of contents, maps in the report are interactive. Maps in the report are generated from map coverages, scatter sets, or meshes in the project. The maps also include a background map that is downloaded based on the project projection.

To see how this works, do the following:

1. In the *Table of Contents*, click the **Materials roughness summary** link to go to the *Materials roughness summary* section.

2. Zoom in on the map by clicking the **Zoom**  button.
3. Click and drag on the map to pan the map image.
4. When done, return to the *Table of Contents* at the top.

Materials roughness summary

- Coverage: "Materials"

- Notes

No notes.

- Number of materials: 6

Material Name	Color	Manning's N
unassigned		0.02
Channel - 0.035		0.035
Light Veg - 0.05		0.05
Road - 0.02		0.02
Trees - 0.08		0.08
Dry Bed - 0.04		0.04

- Material coverage plot

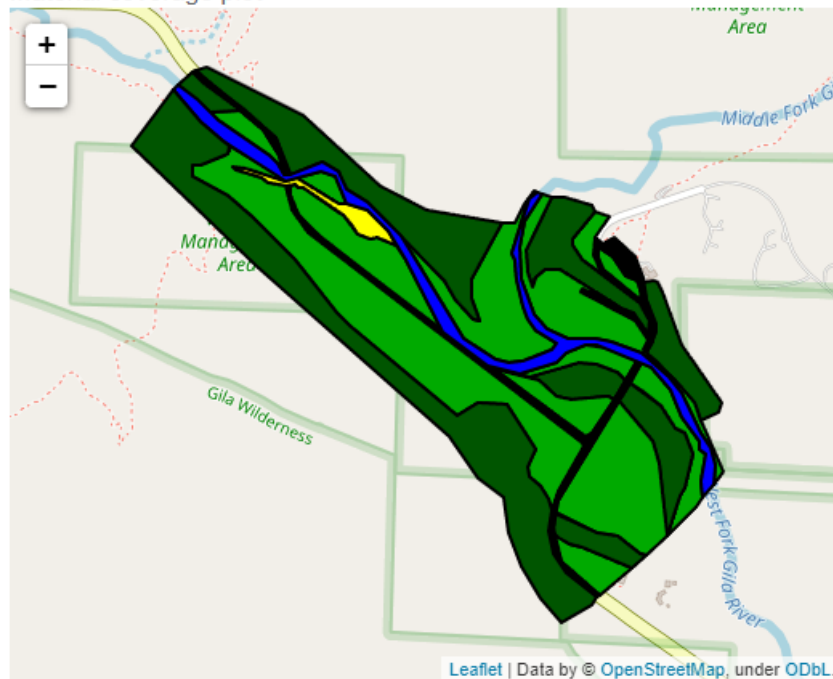


Figure 2 Zoomed-in material map

5.2 Using the Plots

The plots are another interactive feature included in the report. To see this:

1. In the *Table of Contents*, click the **Mesh summary** link to go to the *Mesh summary* section.
2. If it's not already visible, scroll down to the *Mesh quality report* subsection (shown in Figure 3).
3. Move the cursor over the plot and notice that the plot tools appear.
4. Select the **Zoom**  tool then drag a box around a section of the plot.
5. Click the **Autoscale**  tool to reframe the plot.
6. Explore other plot tools as desired.

■ Mesh quality report

The data points represent the worst 100 elements. Any points below the red line correspond to poor quality elements.

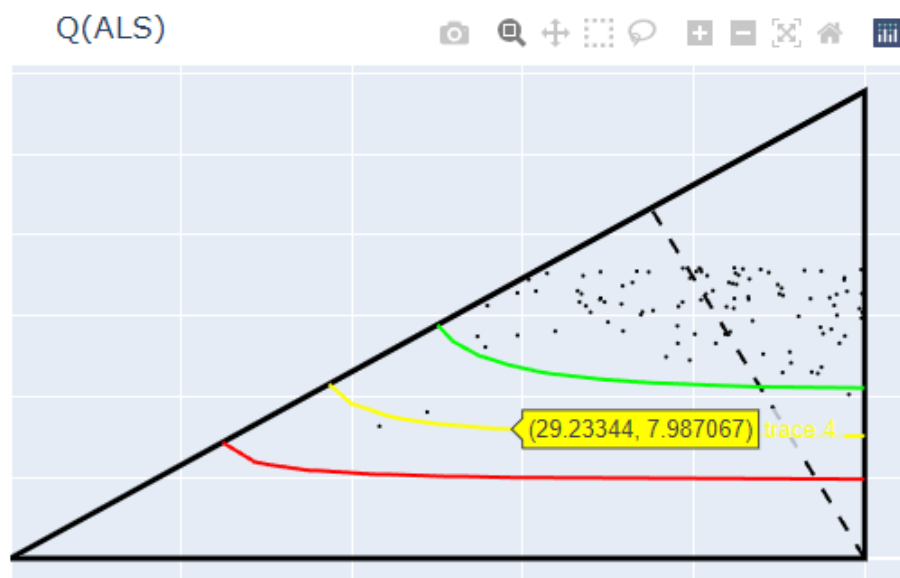


Figure 3 Mesh Quality plot

6 Conclusion

The summary report displays all simulations in the project, even if opened from one simulation. Spend a few minutes browsing the report and experiment with the tools.

Feedback on how this type of report could be modified is welcome at Aquaveo.