

Visualizing Hydrologic Data in

The QGIS logo is centered on the slide. It features the letters 'QGIS' in a bold, green, sans-serif font. The letter 'Q' is stylized with a small orange and yellow square and a green arrow pointing downwards and to the right, integrated into its design.

QGIS

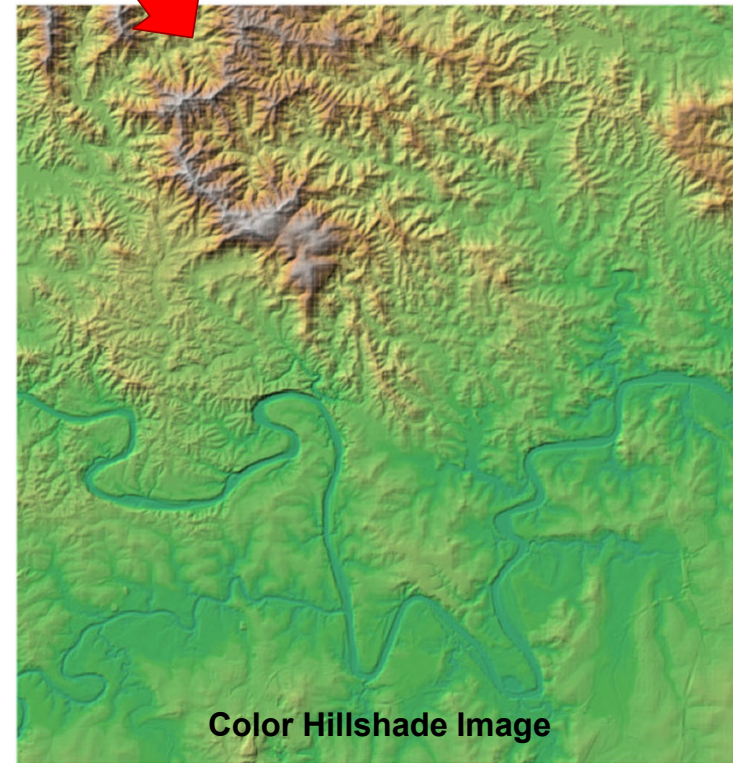
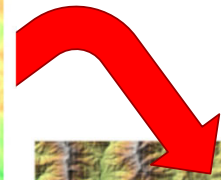
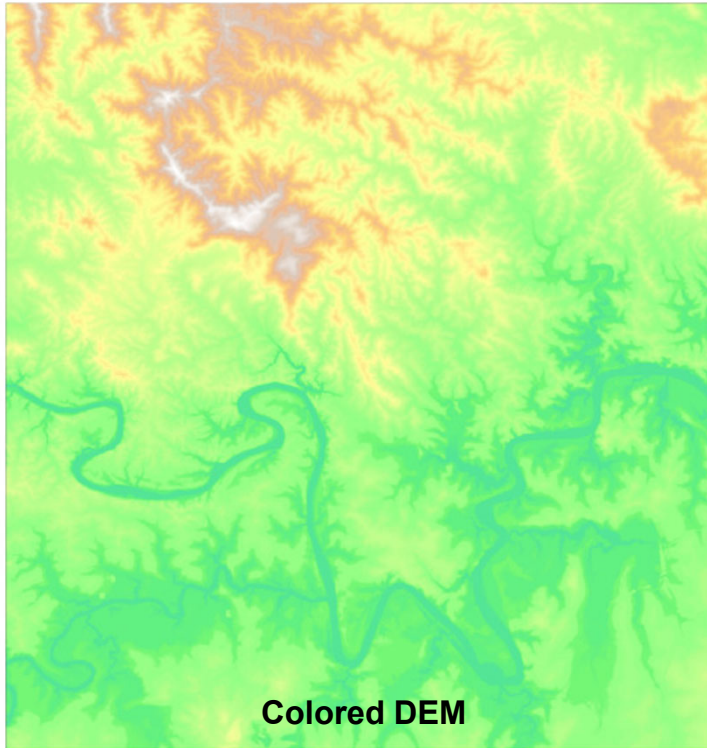
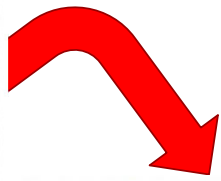
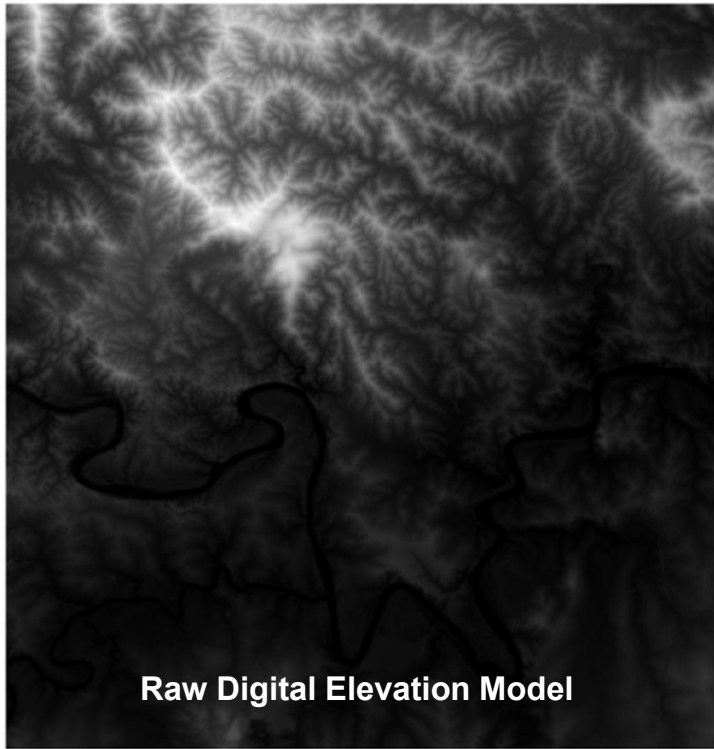
Kurt Menke

Kurt Menke



- Do a mix of spatial analysis/cartography/teaching
- **QGIS Author** <https://locatepress.com/>
- **QGIS user since 2005 (v 0.7)**
- **QGIS teacher since 2009 (v1.0)**
- **OsGeo Charter Member**



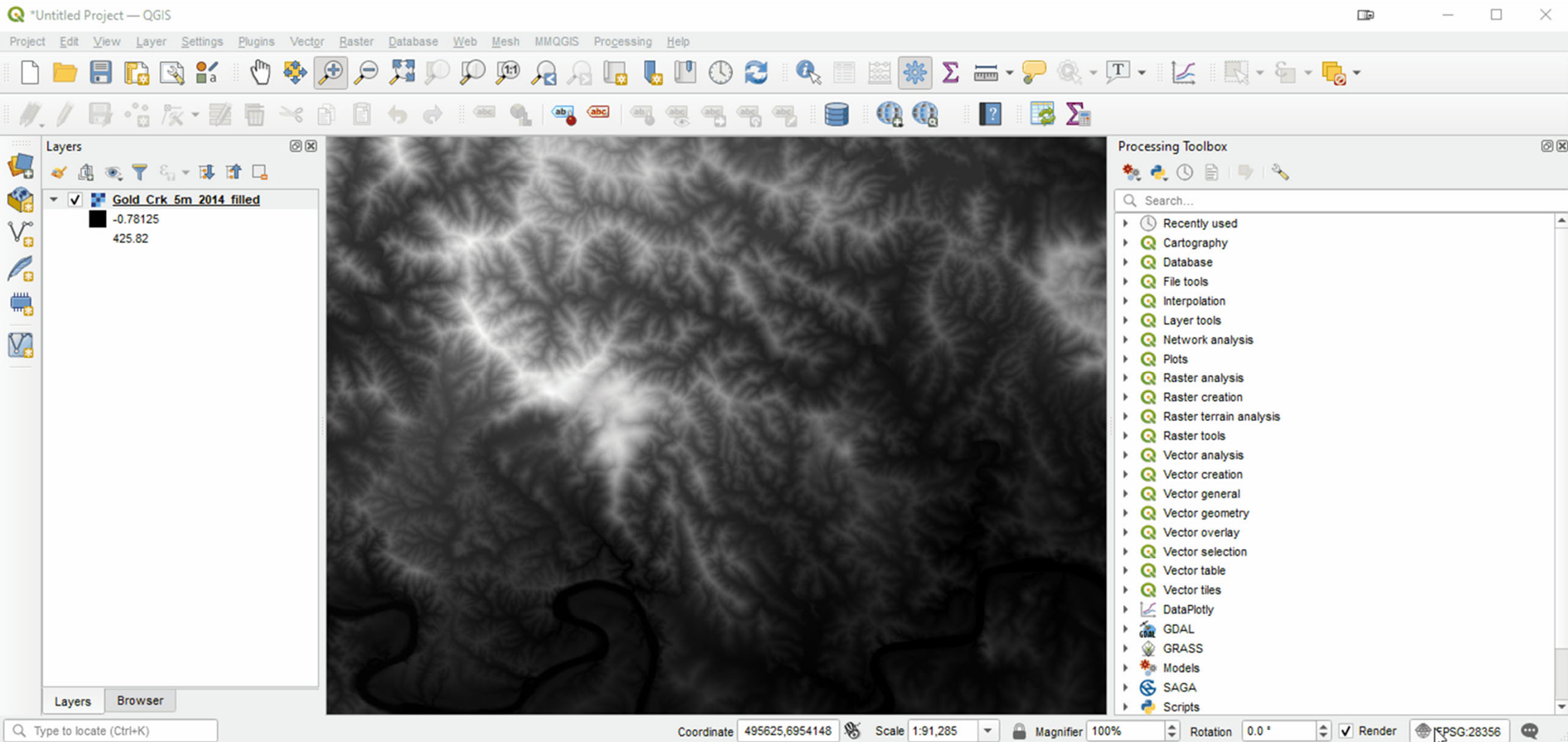


QGIS Styling Panel

Nyall Dawson @nyalldawson
I've said it once and I'll say it again... @madmanwoo's #QGIS style dock is the single greatest advance in cartography since Mercator's discovery of the North arrow in 1972.
Twitter Feb 15th

The screenshot displays the QGIS desktop environment. At the top, the title bar reads '*Untitled Project — QGIS'. Below it is a menu bar with options: Project, Edit, View, Layer, Settings, Plugins, Vector, Raster, Database, Web, Mesh, Processing, Help. A toolbar with various icons is positioned below the menu bar. The main map area shows a map of the United States with county boundaries highlighted in a dark grey color. On the left side, the 'Layers' panel is visible, showing a single layer named 'countyp010_census' which is checked. On the right side, the 'Processing Toolbox' is open, displaying a search bar and a list of tool categories such as 'Recently used', 'Cartography', 'Database', 'File tools', 'Interpolation', 'Layer tools', 'Network analysis', 'Plots', 'Raster analysis', 'Raster creation', 'Raster terrain analysis', 'Raster tools', 'Vector analysis', 'Vector creation', 'Vector general', 'Vector geometry', 'Vector overlay', 'Vector selection', 'Vector table', 'Vector tiles', 'DataPlotly', 'GDAL', 'GRASS', and 'Models'. At the bottom of the interface, there is a status bar with fields for 'Coordinate' (2975760,-2409153), 'Scale' (1:26,552,300), 'Magnifier' (100%), 'Rotation' (0.0°), 'Render' (checked), and 'EPSG:2163'. A search bar at the bottom left contains the text 'Type to locate (Ctrl+K)'.

Blending Modes & Color Hillshade



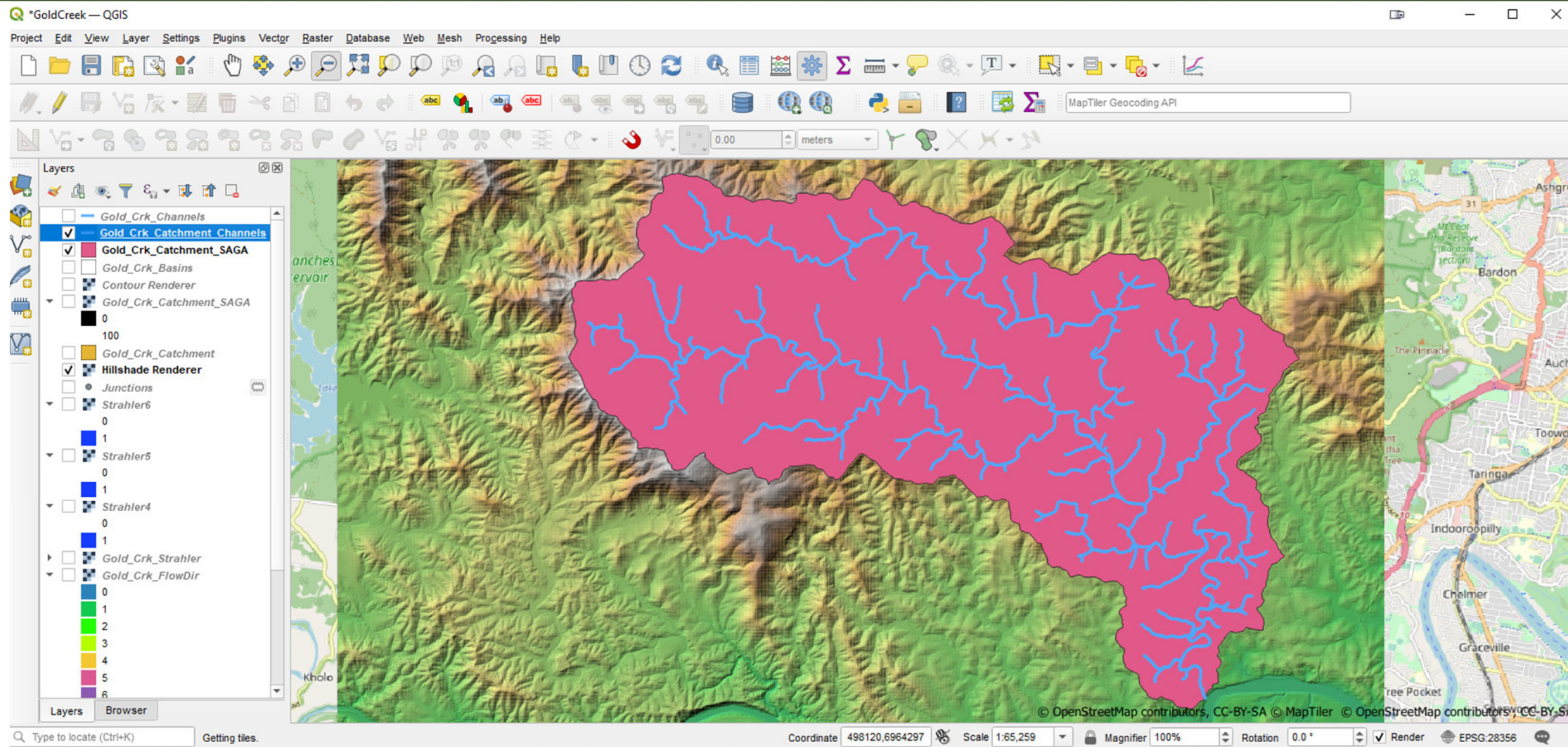
Generating Contours



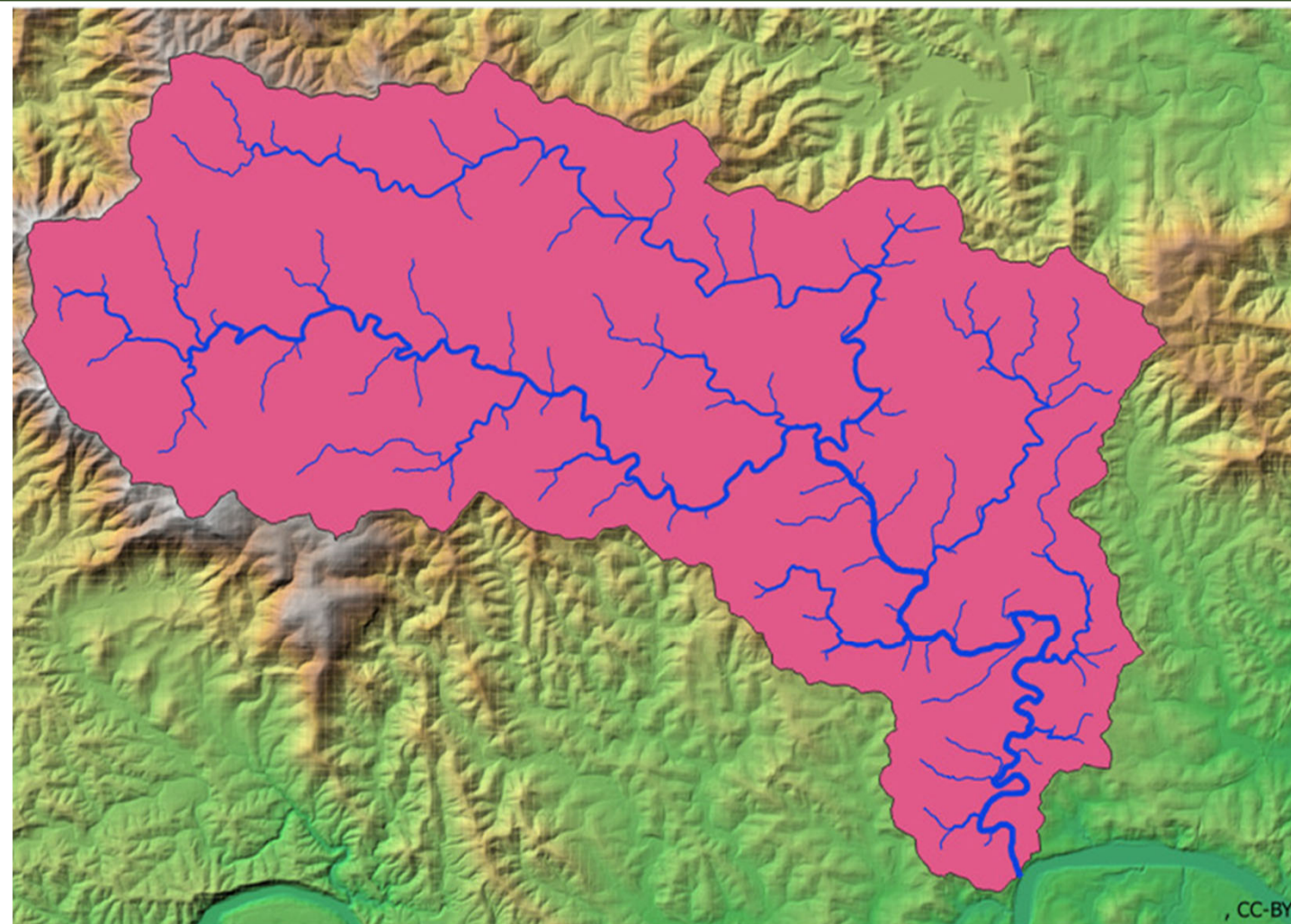
A screenshot of the QGIS 3.14 Pi interface. The main map area displays a hillshade rendering of a terrain with a network of stream channels. The 'Layers' panel on the left shows a legend for 'Gold_Crk_5m_2014_filled' with a vertical color scale ranging from -0.779143 (dark green) to 95.5490303471 (dark brown). The 'Layer Styling' panel on the right is open for the 'Gold_Crk_Basins' layer, showing a 'Single symbol' type with a 'Fill' option checked and a color swatch set to a dark brown. The status bar at the bottom indicates the current coordinate is 485704,6958742, the scale is 1:37,689, and the rotation is 0.0 degrees. The interface also shows the 'Processing Toolbox' and 'Layer Rendering' tabs at the bottom right.

Type to locate (Ctrl+K) 1 legend entries removed. Coordinate 485704,6958742 Scale 1:37,689 Magnifier 100% Rotation 0.0° Render EPSG:28356

After the Analysis



Styling Channels by Strahler Order



Layer Styling

Gold_Crk_Catchment_Channels

Graduated

Value: 123 ORDER

Symbol: [Blue line symbol]

Legend format: %1 - %2 Precision 4 Trim

Method: Size

Size from: 0.300000 to 1.000000 Millimeters

Classes Histogram

Symbol	Values	Legend
✓ [Blue line]	1.000000 - 1.750000	Strahler 1
✓ [Blue line]	1.750000 - 2.500000	Strahler 2
✓ [Blue line]	2.500000 - 3.250000	Strahler 3
✓ [Blue line]	3.250000 - 4.000000	Strahler 4

Mode: Equal Interval Classes: 4

Symmetric Classification

Classify [Add] [Remove] Delete All Advanced

Link class boundaries

Live update Apply

Styling the Catchment with an Inverted Polygon Shapeburst Fill

The screenshot displays the QGIS interface with a 3D terrain map of a catchment area. The map features a blue stream network overlaid on a green and brown hillshade. The 'Layers' panel on the left lists several layers, with 'Gold_Crk_Catchment_Channels' and 'Hillshade Renderer' checked. The 'Layer Styling' panel on the right is configured for the 'Gold_Crk_Catchment_SAGA' layer. The 'Inverted polygons' style is selected, and the 'Fill' section shows 'Shapeburst fill' chosen. The 'Symbol layer type' is set to 'Outline: Simple line'. The 'Color' is black, 'Stroke width' is 0.460000 millimeters, 'Offset' is 0.000000 millimeters, 'Stroke style' is 'Solid Line', and 'Join style' is 'Bevel'. The 'Layer Rendering' section has 'Live update' checked and 'Apply' button visible. The status bar at the bottom shows the coordinate as 495974,6956078, scale as 1:69,160, and projection as EPSG:28356.

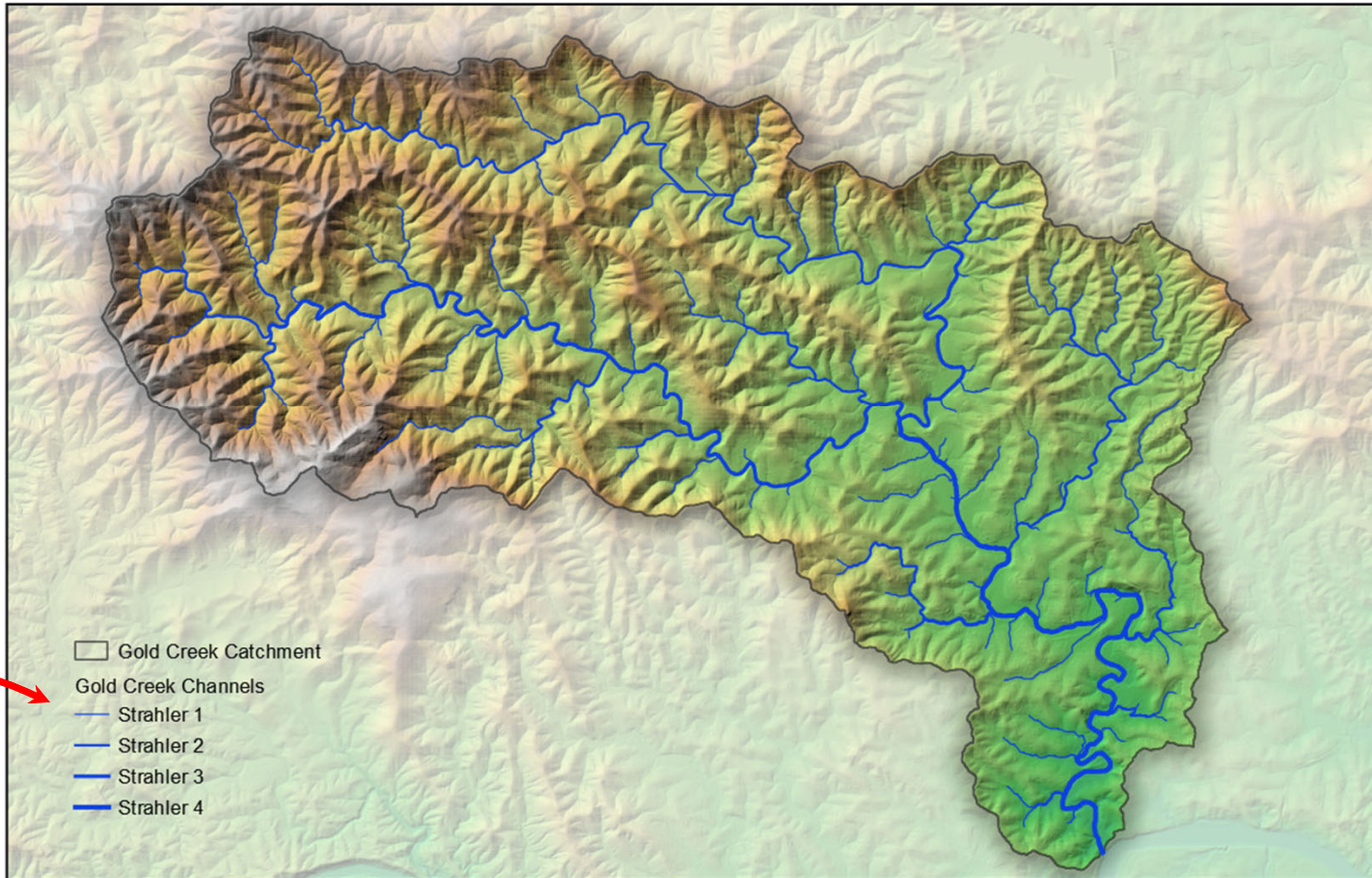
QGIS Print Composer

The screenshot displays the QGIS Print Composer interface. At the top, the title bar reads '*Gold Creek Catchment'. Below it is a menu bar with 'Layout', 'Edit', 'View', 'Items', 'Add Item', 'Atlas', and 'Settings'. A toolbar contains various icons for navigation and editing. A horizontal ruler is positioned above the main canvas, with a vertical ruler on the left side. The central canvas is currently blank. On the right side, the 'Item Properties' panel is open, showing settings for 'Map 2'. The 'Main Properties' section includes a 'Scale' of 57,000, 'Map rotation' of 0.00°, and 'CRS' set to 'Use Project CRS'. The 'Layers' section has checkboxes for 'Follow map theme' (set to '(none)'), 'Lock layers', and 'Lock styles for layers'. The 'Extents' section shows coordinate values: X min (479,710.330), Y min (6,954,591.963), X max (496,029.739), and Y max (6,964,751.199). At the bottom right, the status bar indicates 'x: 311.818 mm', 'y: 126.144 mm', 'page: 1', and a page number '74'.

Adding to the Map Composition

Title

Gold Creek Catchment



Map
Legend



Style Manager & Custom Legend Patches

The screenshot displays the QGIS desktop environment. The main map window shows a topographic map of a catchment area with a network of blue stream lines. The 'Layers' panel on the left lists several layers, including 'Gold_Crk_Catchment_Channels' which is expanded to show 'Strahler 1' through 'Strahler 4'. The 'Layer Styling' dialog box is open on the right, showing the 'Gold_Crk_Catchment_Channels' layer selected. The 'Graduated' style is applied with a 'Size' method. The 'Classes' tab is active, showing a legend table with four classes based on Strahler order values.

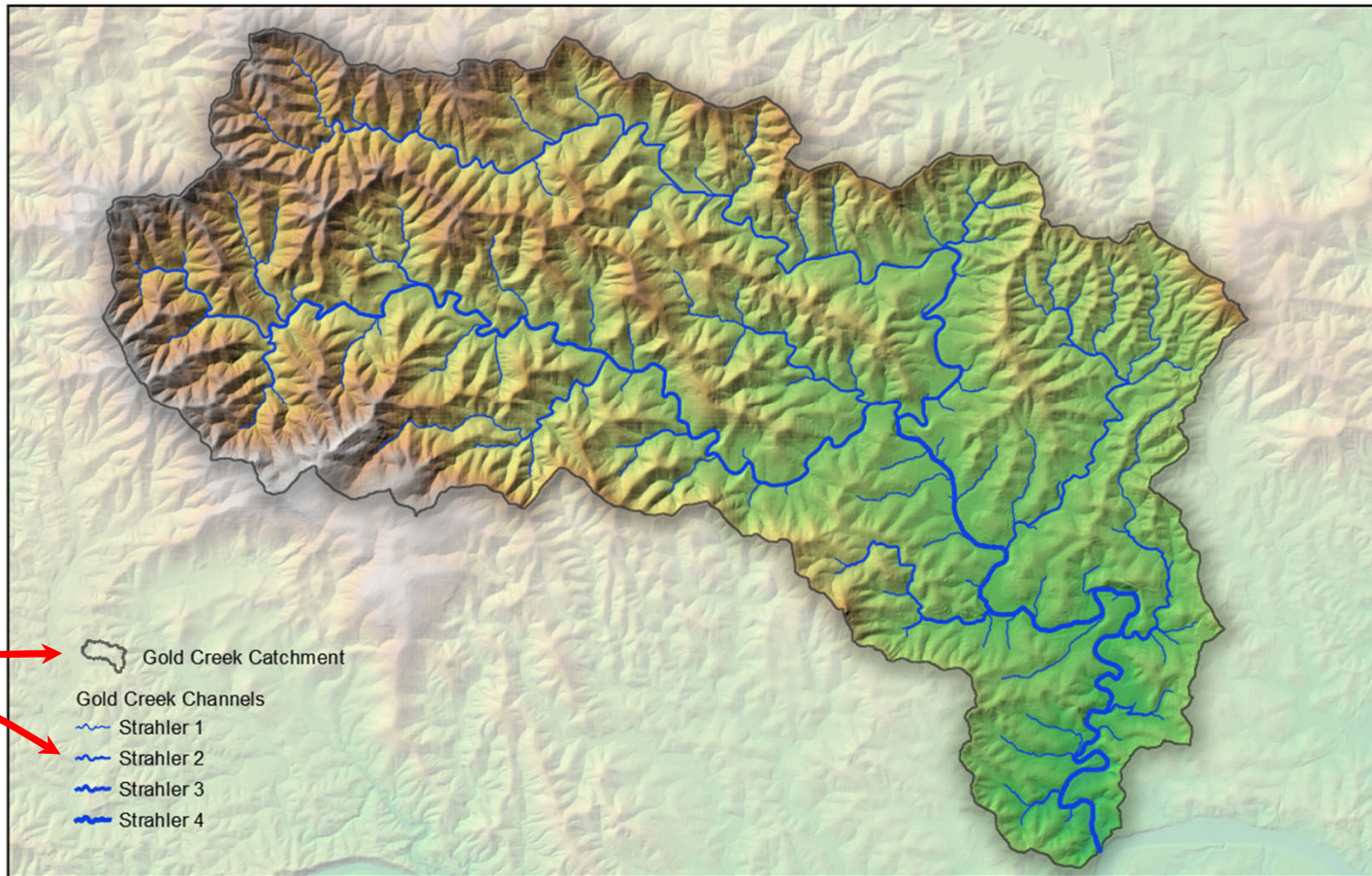
Symbol	Values	Legend
	1.000000 - 1.750000	Strahler 1
	1.750000 - 2.500000	Strahler 2
	2.500000 - 3.250000	Strahler 3
	3.250000 - 4.000000	Strahler 4

At the bottom of the interface, the status bar shows the coordinate as 497626,6956162, a scale of 1:72,665, a magnifier of 100%, and a rotation of 0.0°. The coordinate system is set to EPSG:28356.

Custom Legend Patches



Gold Creek Catchment



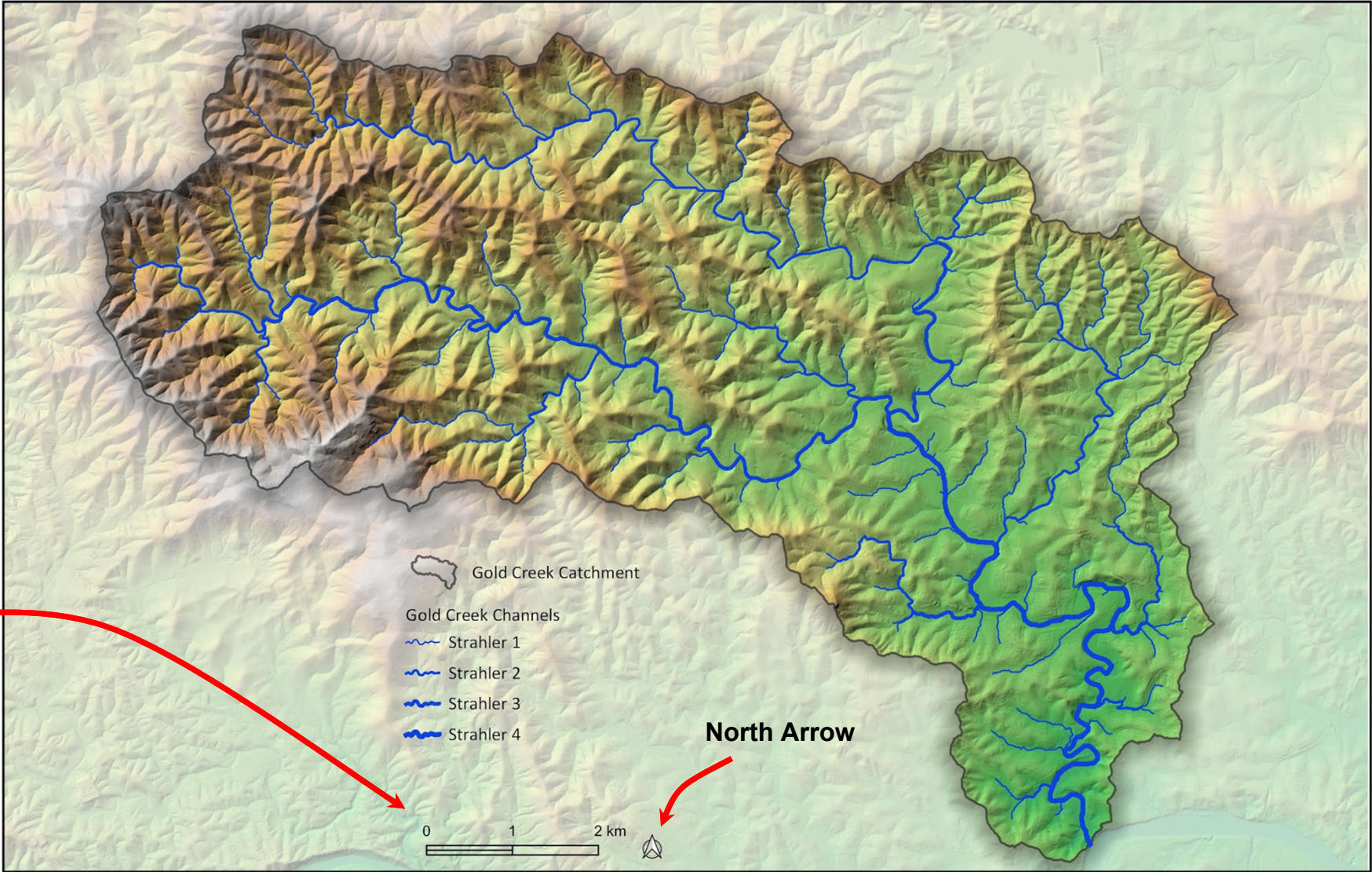
Custom
Legend
Patches



Gold Creek Catchment

Learn about settings for both scale bars and north arrows

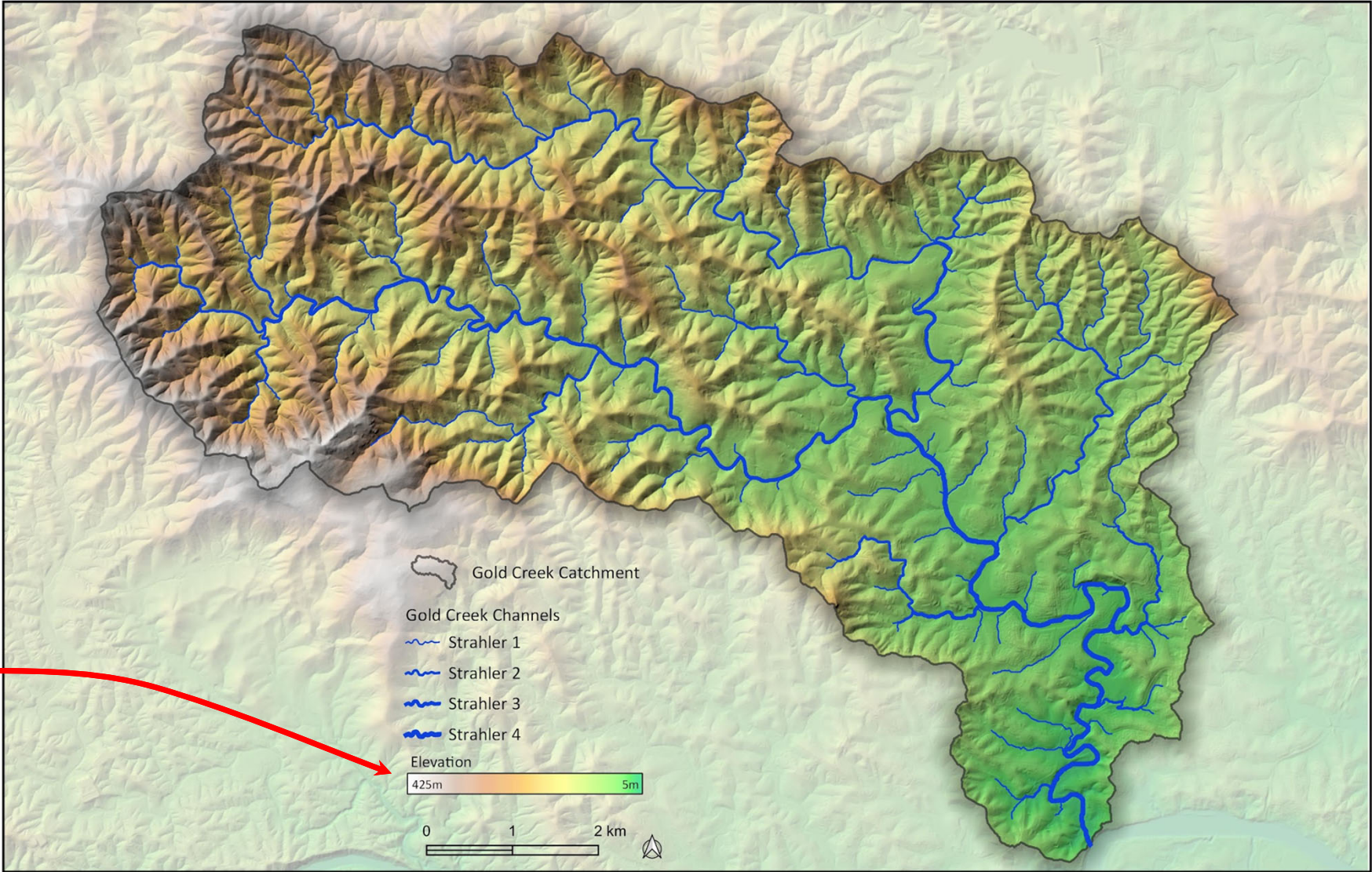
Scale Bar
Allows the map reader to judge distances and scale



Gold Creek Catchment

Create a custom elevation gradient legend for elevation

Legend for Elevation

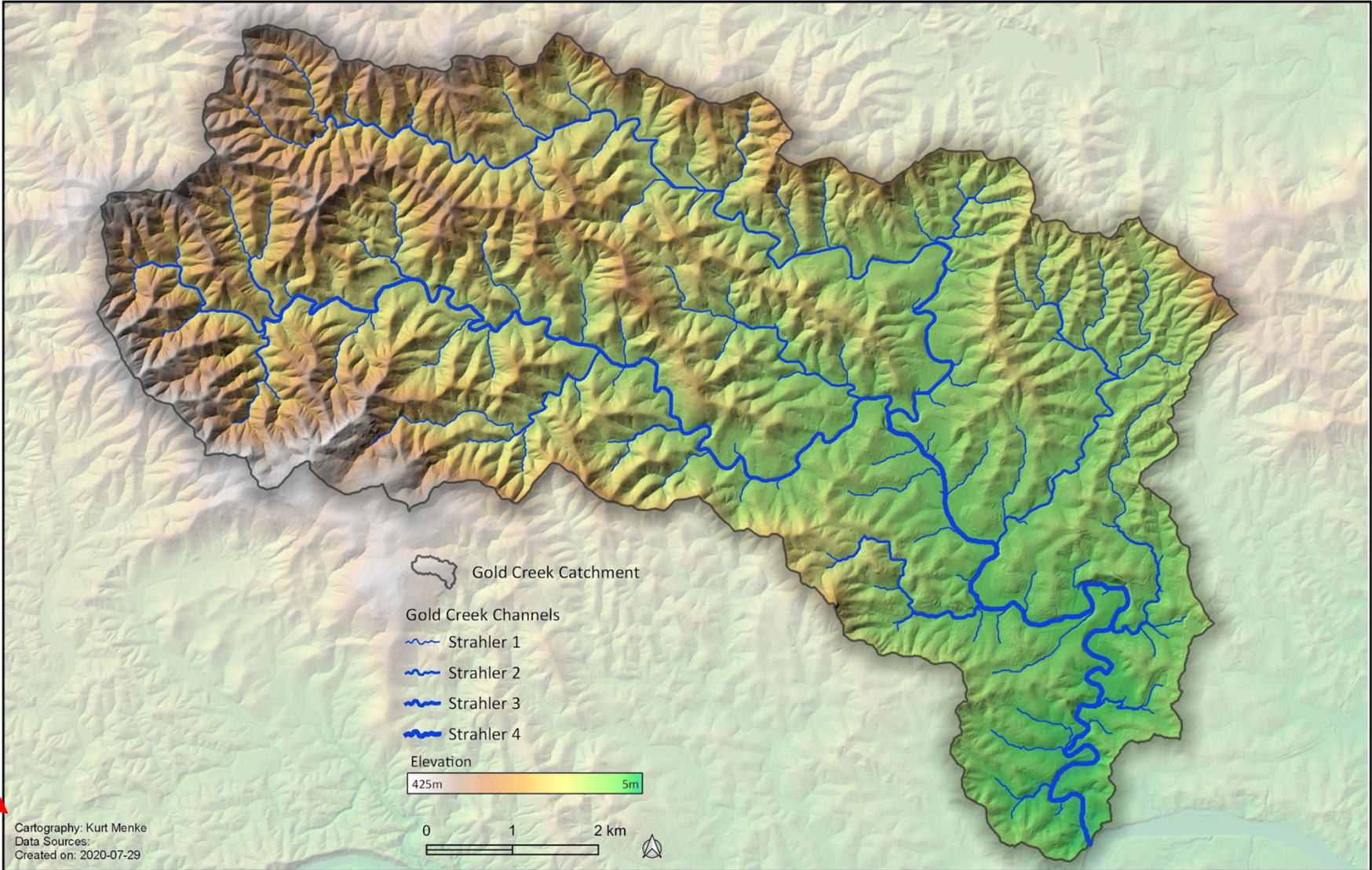


Gold Creek Catchment

Learn about using:

- Variables
- Functions

Create smarter auto-updating text



**Credits
Date**

Map Themes and Locator Maps

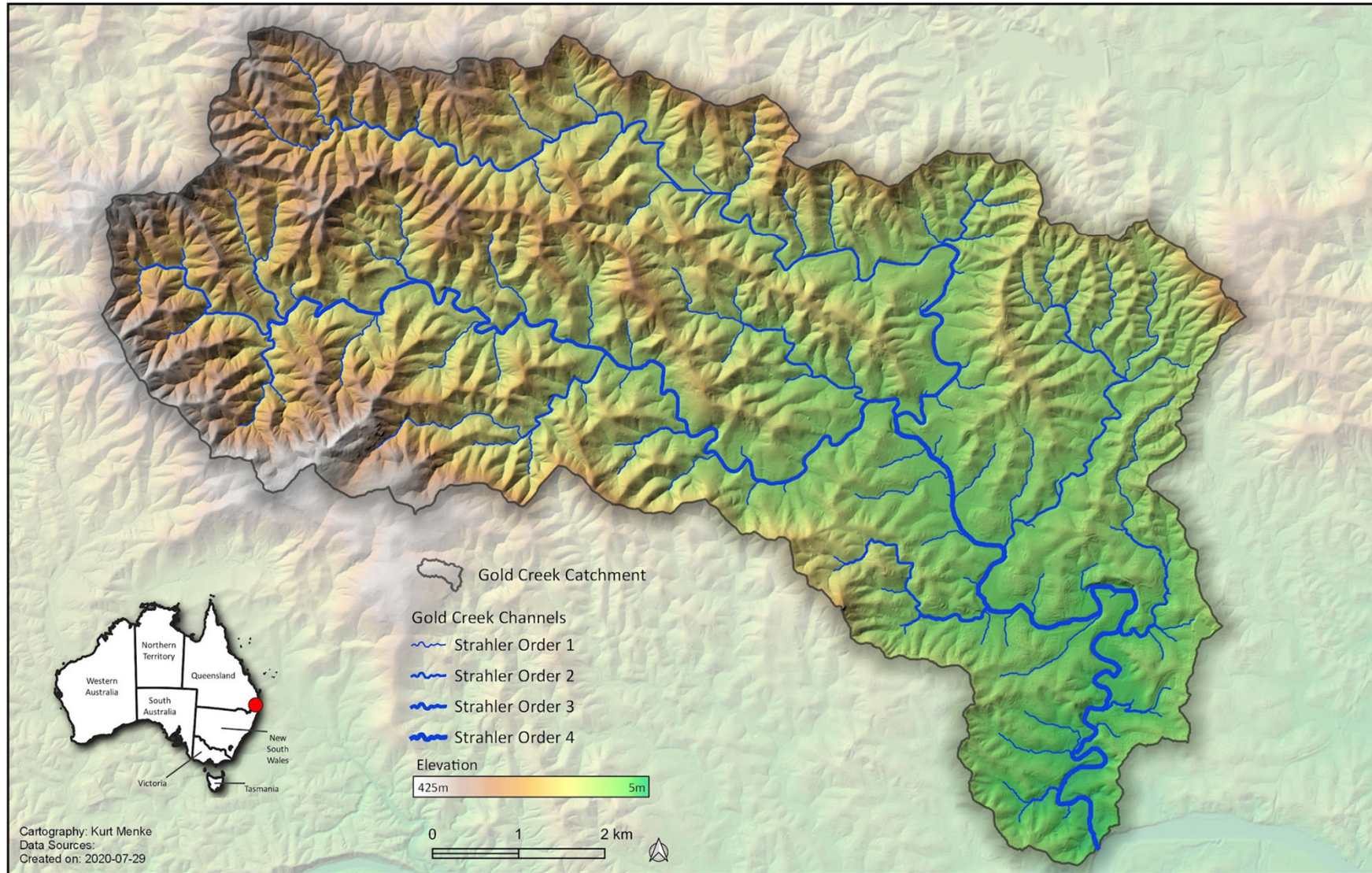
The screenshot displays the QGIS desktop environment. The main map window shows a topographic map of a catchment area with a blue stream network. The 'Layers' panel on the left lists several layers, including 'Gold_Crk_Catchment_Channels' and 'Gold_Crk_Catchment_SAGA'. The 'Layer Styling' panel on the right is open for the 'Gold_Crk_Catchment_Channels' layer, showing a 'Graduated' style with a 'Size' method. The 'Classes' section shows a table with 4 classes based on Strahler order values.

Symbol	Values	Legend
	1.000000 - 1.750000	Strahler 1
	1.750000 - 2.500000	Strahler 2
	2.500000 - 3.250000	Strahler 3
	3.250000 - 4.000000	Strahler 4

At the bottom of the interface, the status bar shows the coordinate as 497664,6955403, a scale of 1:72,665, a magnifier of 100%, a rotation of 0.0°, and the EPSG:28356 projection.

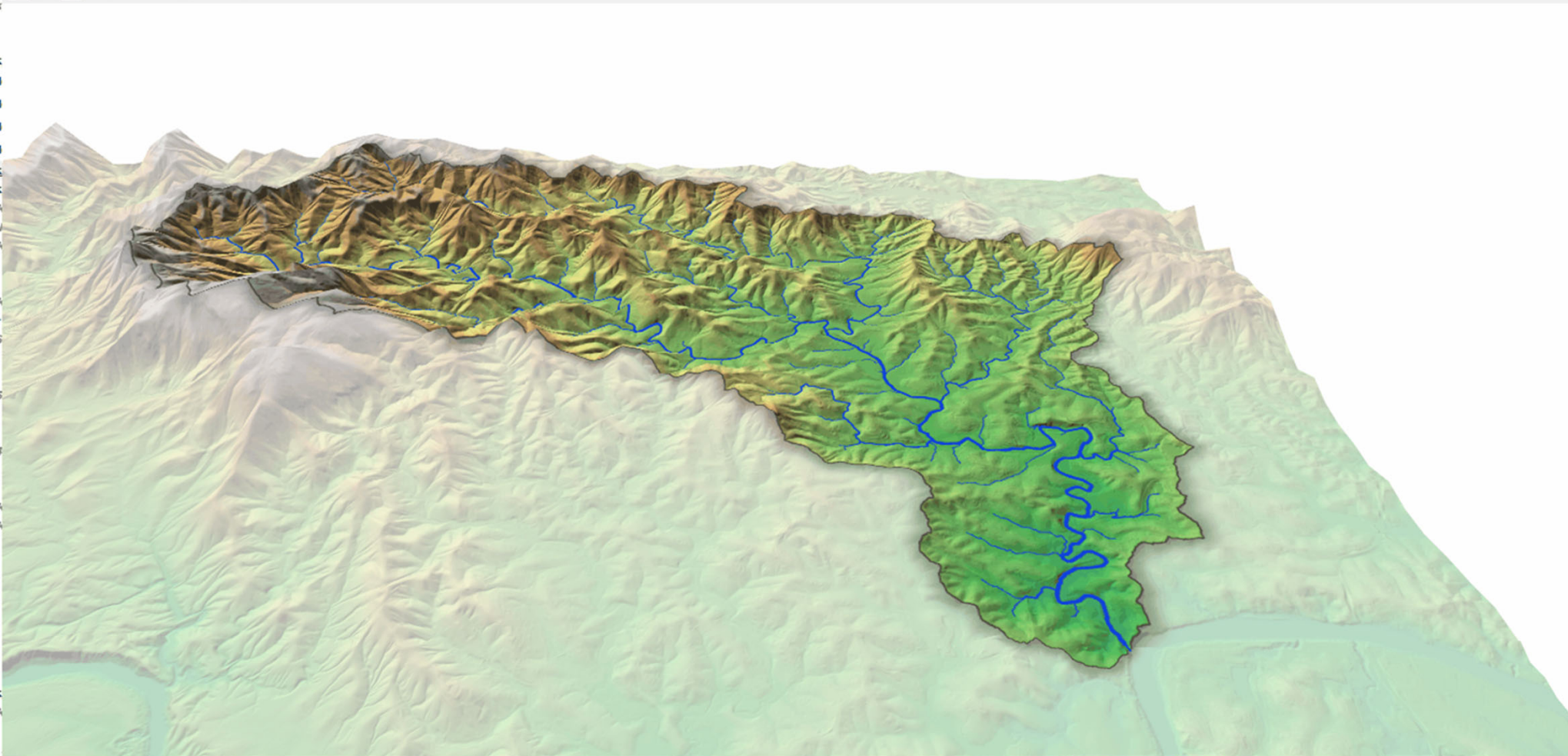
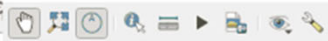
Final Map

Gold Creek Catchment



Your Catchment in 3D

3D Map 1



QGIS for Hydrological Applications

Second Edition

Recipes for
Catchment Hydrology
& Water Management

QGIS 3.22+

Hans van der Kwast
Kurt Menke

LOCATE
PRESS



<https://locatepress.com/books>

DISCOVER QGIS 3.x

Second Edition

A Workbook for Classroom
or Independent study

Kurt Menke

LOCATE
PRESS

Thanks!
Kurt Menke



kurt@septima.dk

 @GeoMenke

@Geomenke@fosstodon.org

