Maptime Eugene Willamette River Lidar Demo

For ArcGIS Desktop and Photoshop

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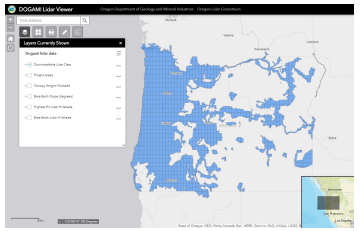
In this demo we will:

1_learn how to adjust elevation settings to make a floodplain visualization of the Willamette River using a lidar DEM in ArcGIS

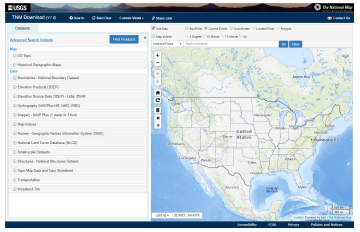
2_learn how to blend images using layer masks and the gradient tool to make a composite lidar/aerial photo image in Photoshop

3_make a animation that blends lidar with photo imagery in Photoshop

Download and open map package in ArcGIS desktop: willamette_river_maptime_36k_16_9.mpk



Original data for the lidar DEM layer (will_salem_maptime1.tif) was downloaded from the DOGAMI Lidar Viewer: https://gis.dogami.oregon.gov/maps/lidarviewer/



Original NAIP imagery data for the photo layer (will_salem_photo_merge_1.tif) was downloaded from the The National Map (USGS): https://viewer.nationalmap.gov/basic/

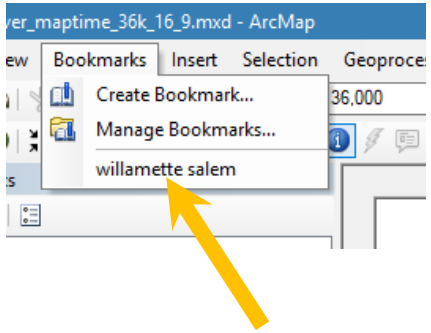
In ArcGIS Desktop, the lidar and imagery data were mosaicked using the *mosaic to new raster* tool, clipped using the *clip (data management)* tool, and resampled to 5 meter resolution using the *resample* tool

Use *data frame* 

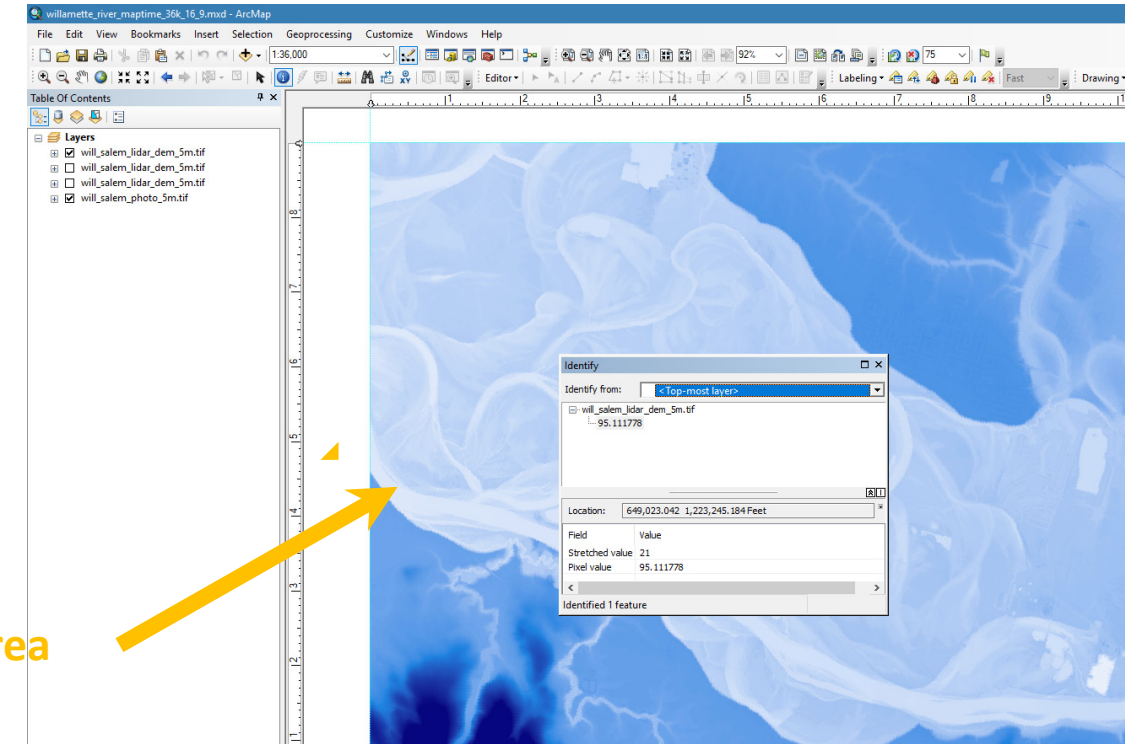
ol to rotate data frame to 75 degrees.

Select *Layout View*

Go to Bookmarks>select *willamette salem* bookmark

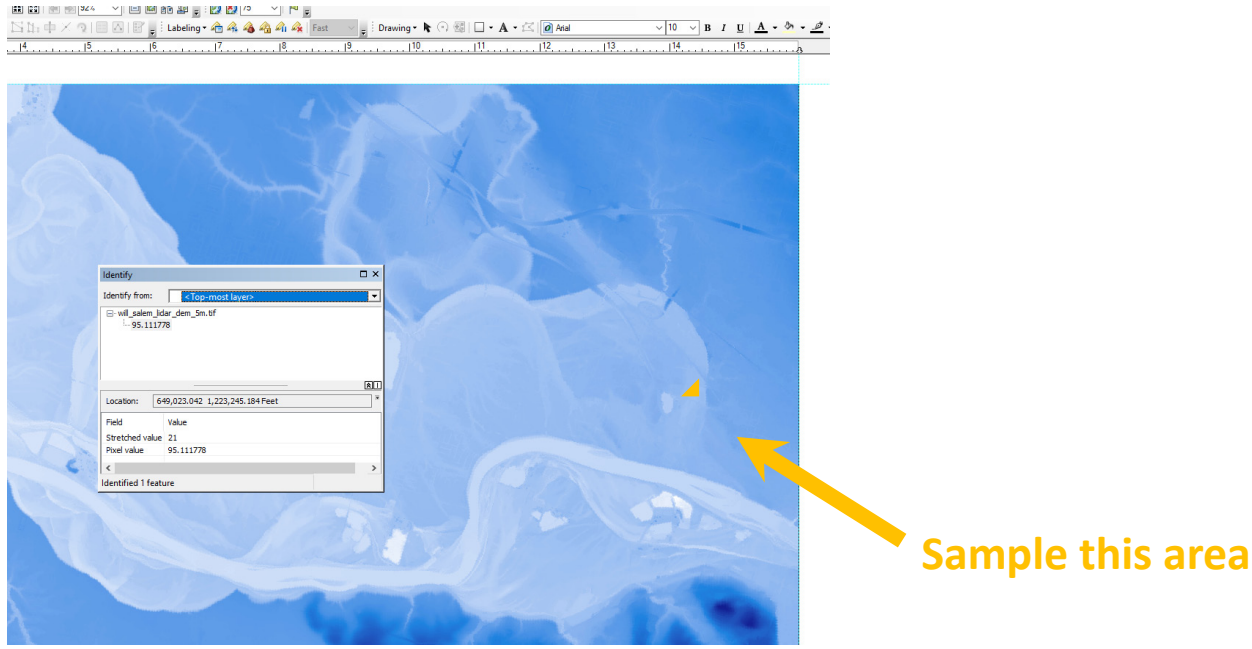


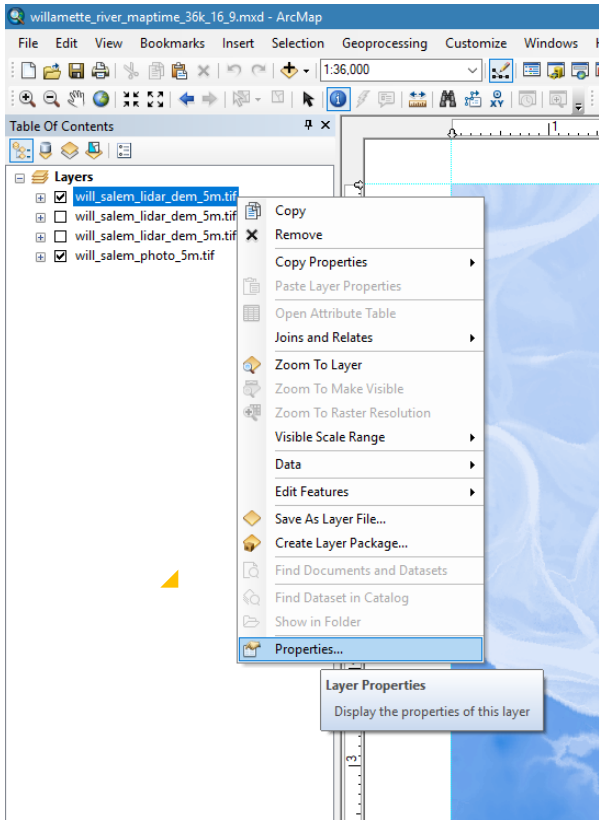
Sample the upstream (left side of screen) section of the Willamette River DEM using the *Identify* tool and write down (or remember) the *pixel value* (elevation)



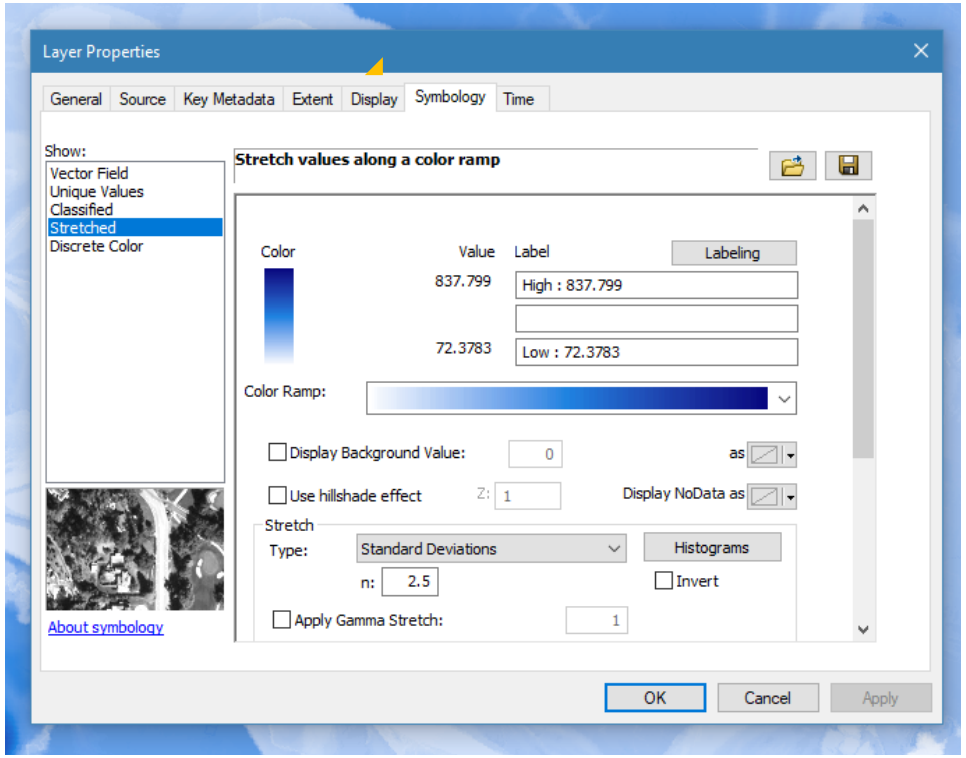
Sample this area

Sample the land adjacent to the downstream (left side of screen) section of the Willamette River DEM using the *Identify* tool and write dow (or remember) the *pixel value* (elevation)



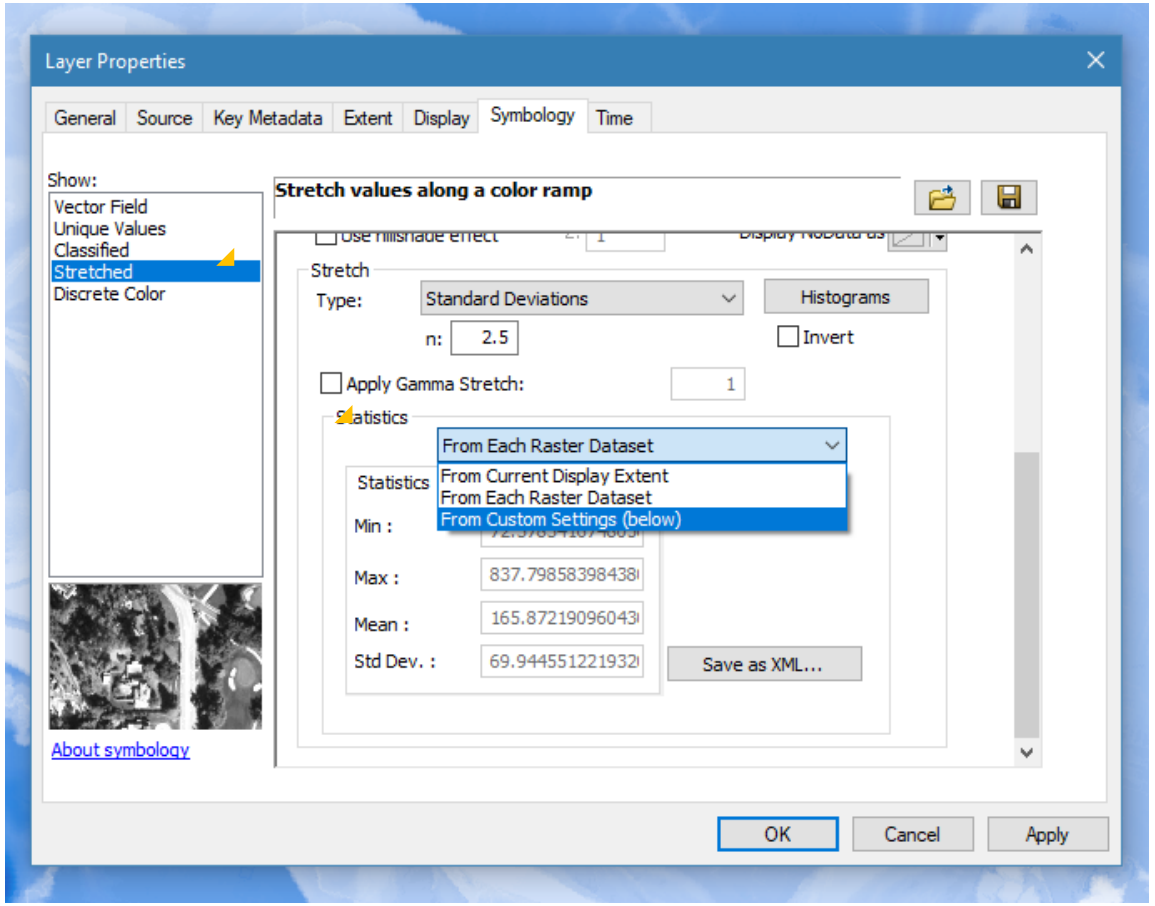


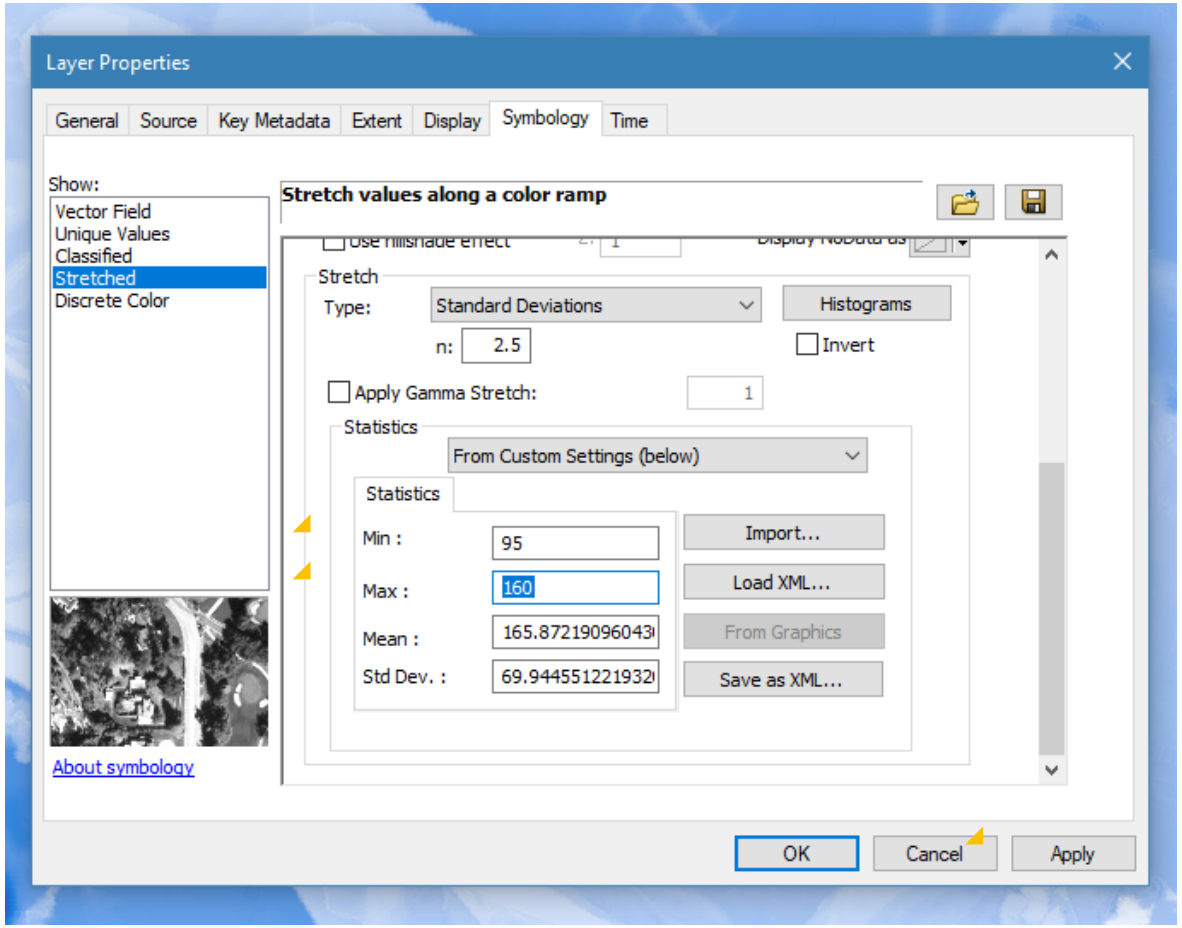
Select will_salem_maptime1.tif (DEM layer), right click, and go to *properties>symbology* tab



Scroll to bottom and under *stretch>type* select *standard deviations if it isn't already selected*

Under *Statistics*, select *from custom settings (below)* in the drop down menu

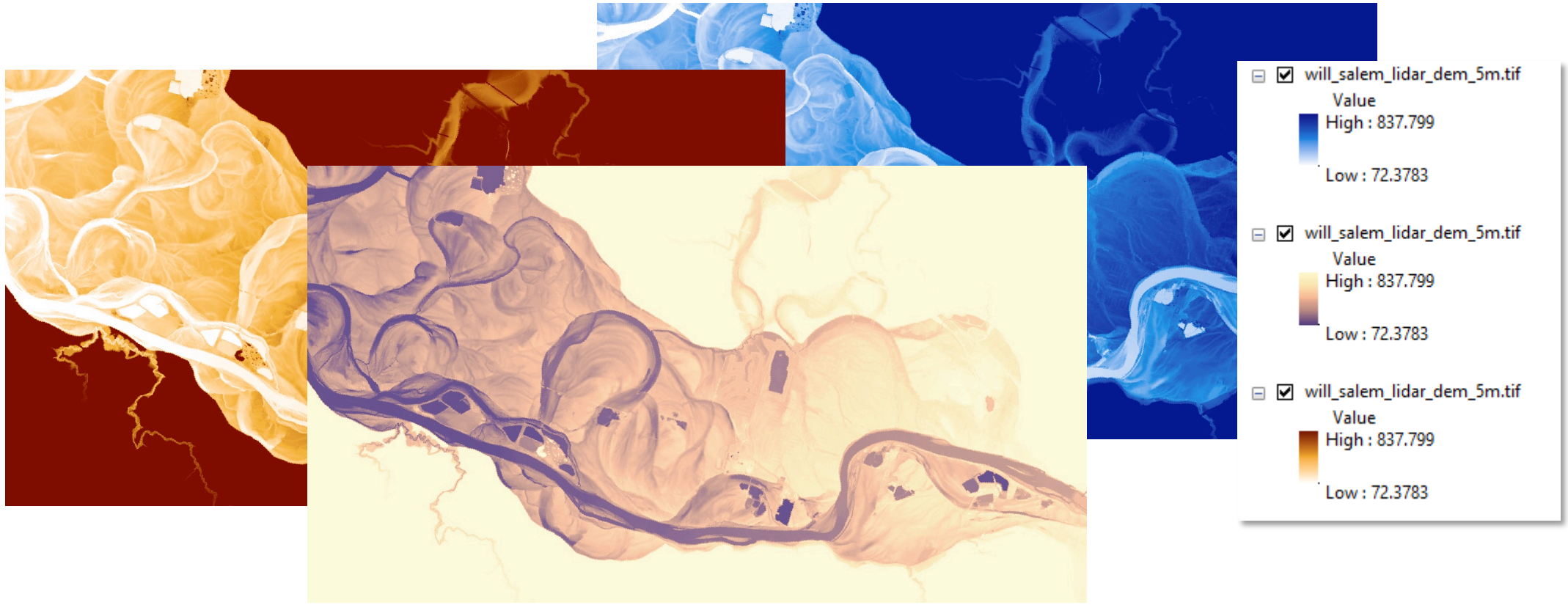




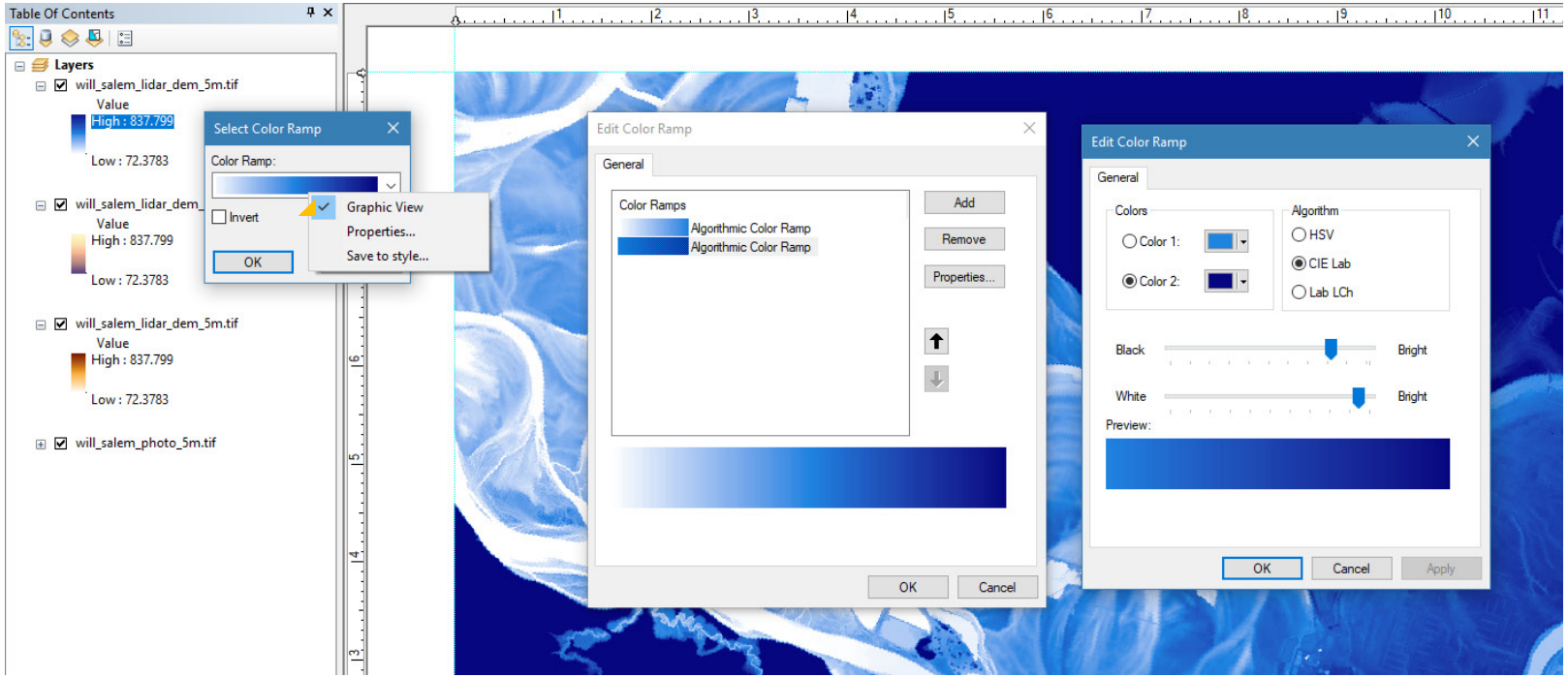
Change the *Min* value to the first elevation that you sampled using the identify tool and then change the *Max* value to the second elevation value that you sampled. Select *Apply*

Refine *Min* and *Max* values until you get the desired visual result

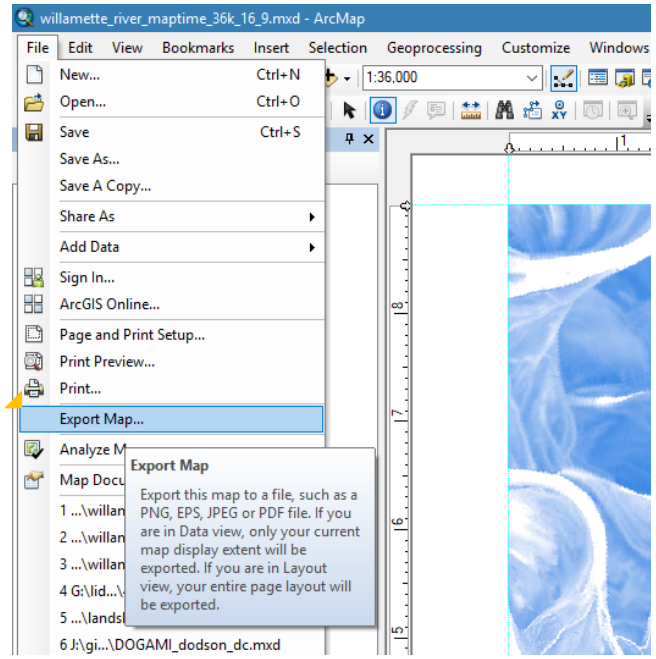
Try out different *color ramps* with the DEM, but stay away from rainbow color ramps (monochromatic or perceptually uniform color ramps work best).

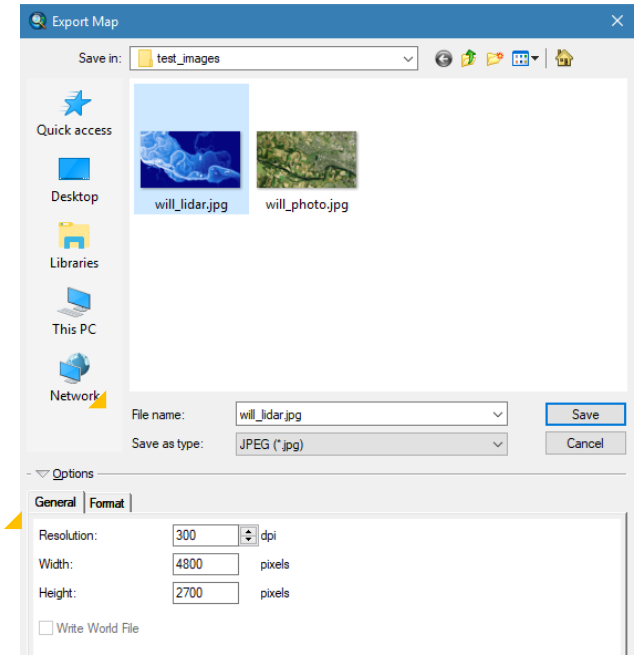


Create your own or edit an existing *color ramp.*
Right Click on the color ramp and select *properties* to navigate to and edit the color settings of an existing color ramp. Save to style when complete.

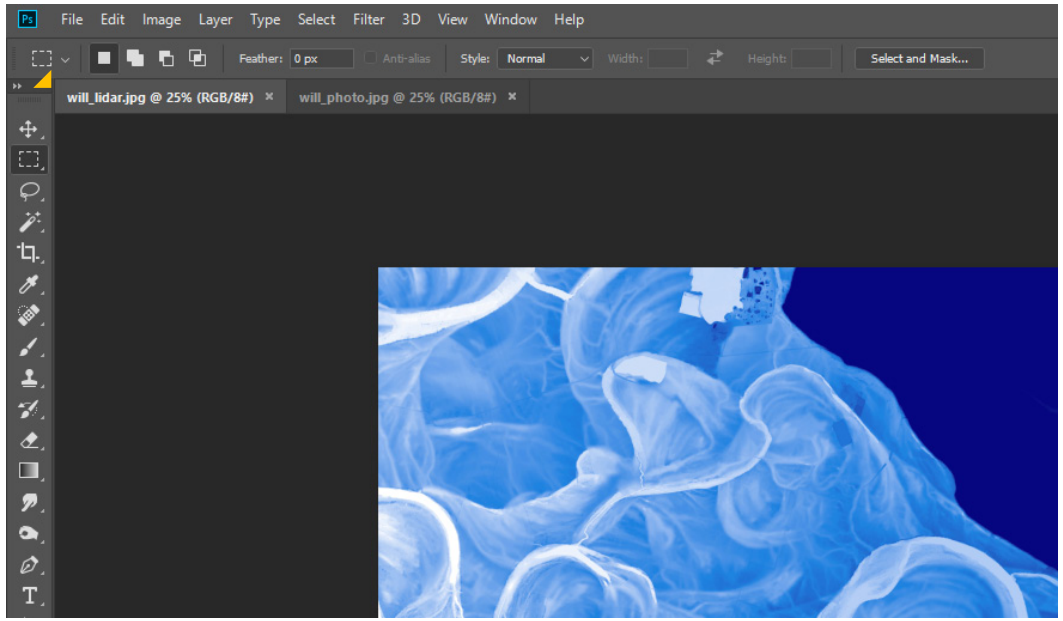


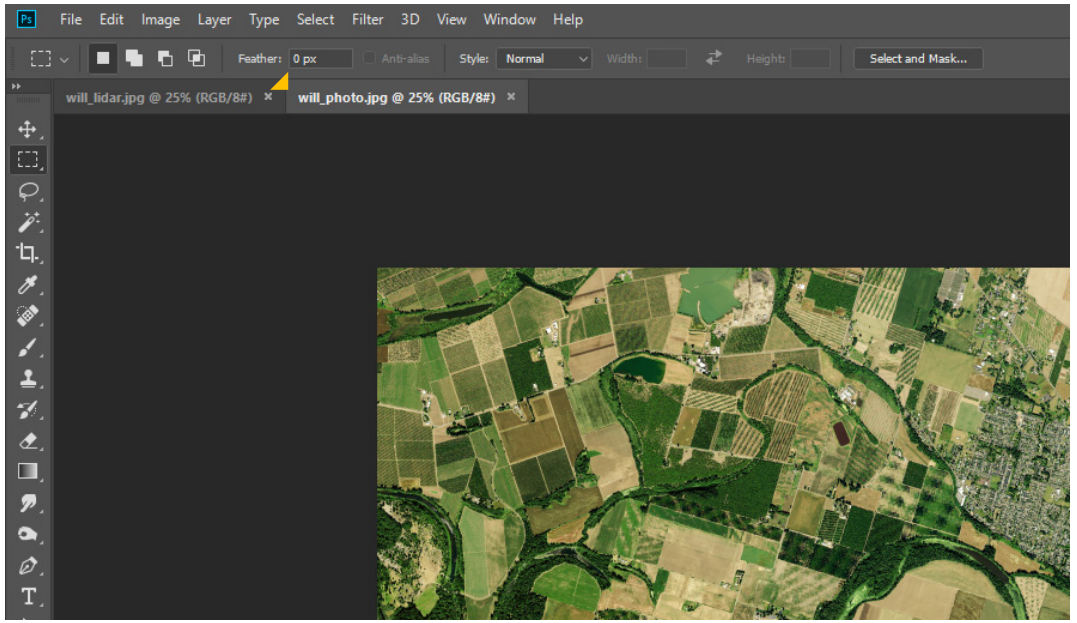
Once you are happy with the look of the DEM, go to *File>Export map*—navigate to where you want to save your files. Change *file name* to *will_lidar* for the DEM export and select .jpg as the *file type*. Make sure *resolution* is set to 300 dpi. Turn off the DEM layer(s) and export the imagery layer—name it *will_photo*.



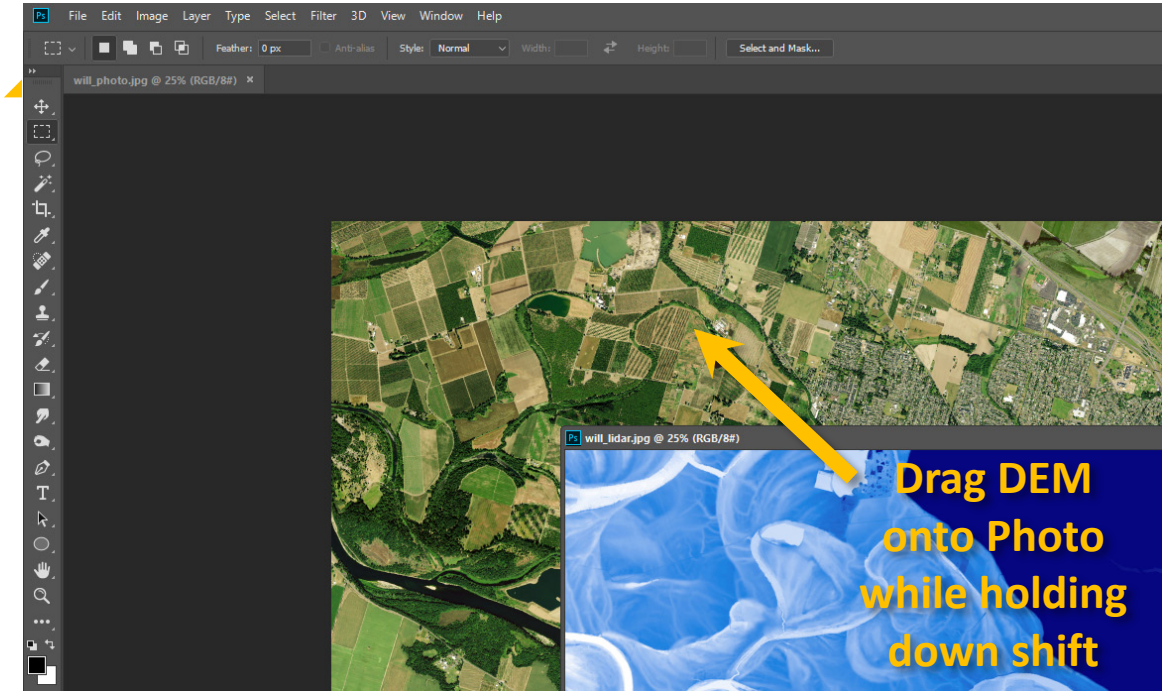


Open *Photoshop* and open the will_lidar.jpg and the will_photo.jpg that you exported from ArcGIS.

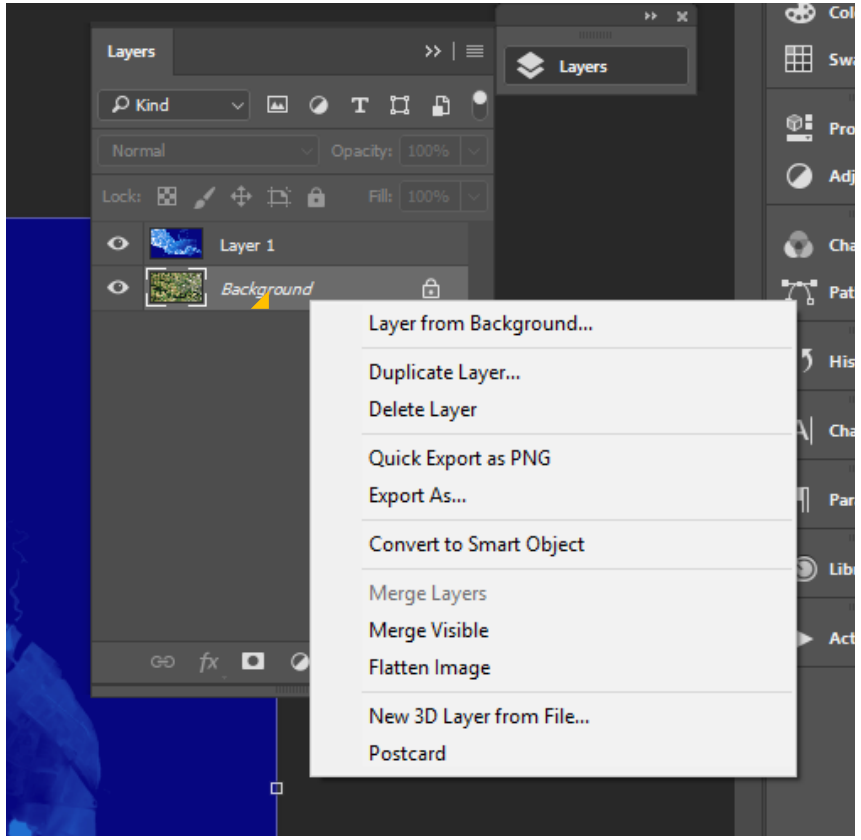


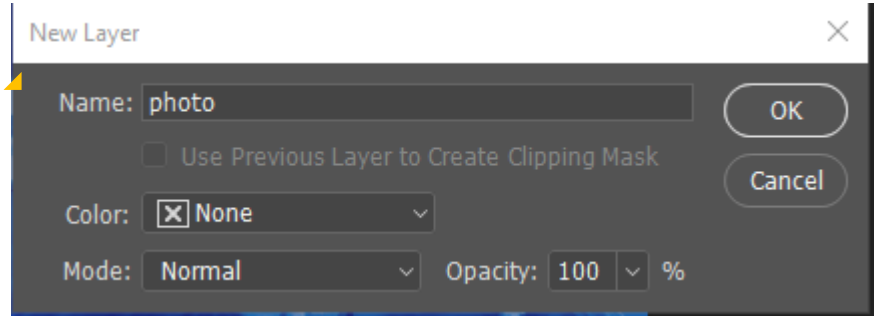


Using the *Move tool* drag the will_dem.jpg off the top bar. Hold down shift and click on that same jpg and drag it onto the will_photo.jpg file. Close the will_dem.jpg file.



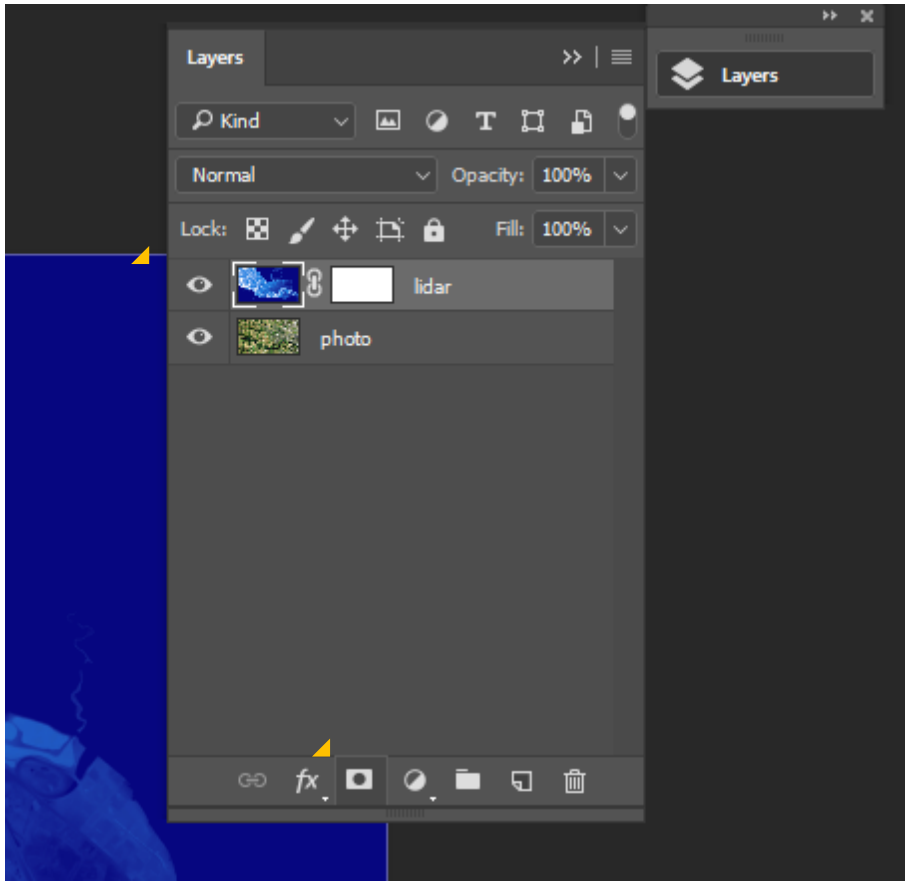
Add the *layers window* (*Windows*>*Layers*). Open Layers window. Right click on the *background* layer and select *Layer from background*. Rename new layer "*photo*". Select *OK*. Double click layer 1 in layers window and rename "*lidar*".



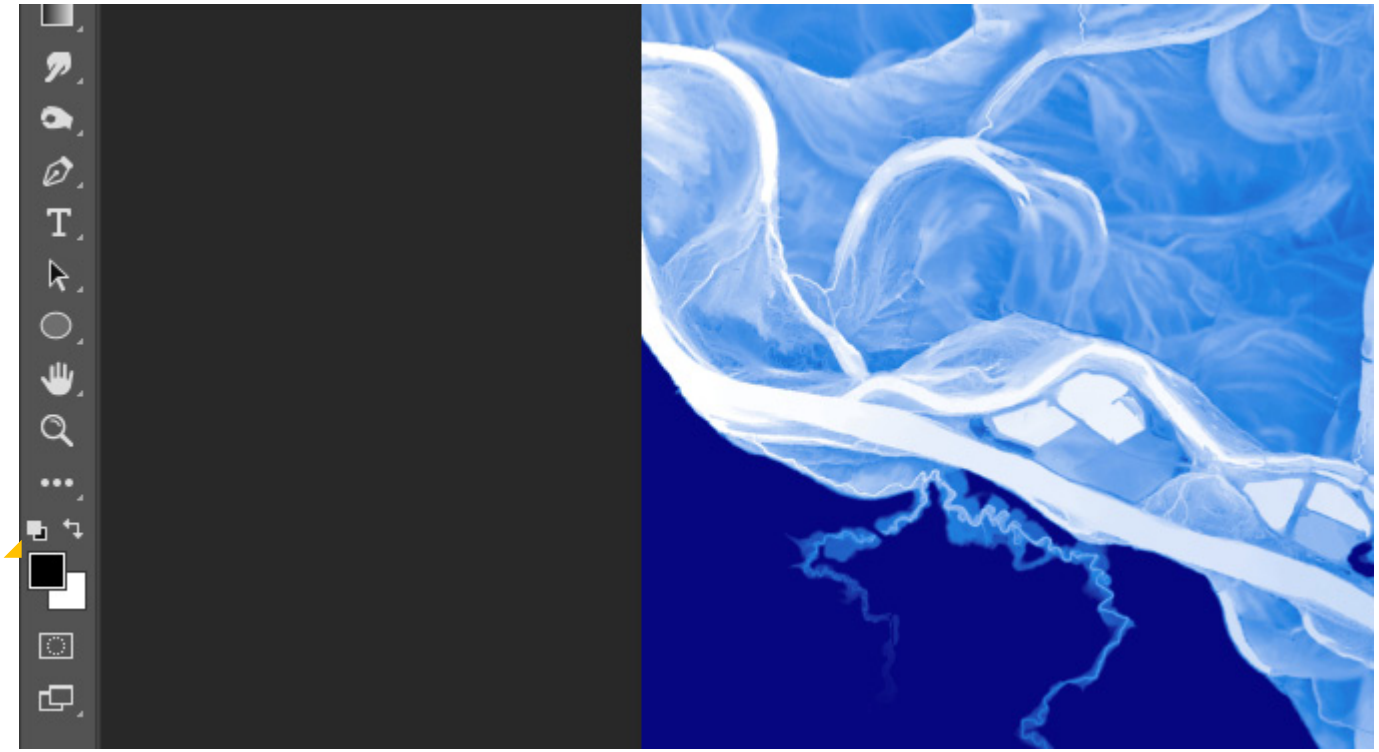


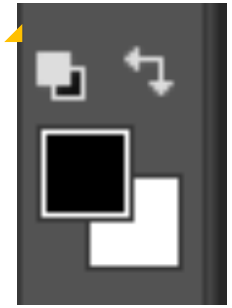
After renaming the layers, go to *File*>*Save*, and save as a .psd file—*will_blend.psd*

Select the lidar layer and add a layer mask using the *add mask* button on the bottom of the layers panel



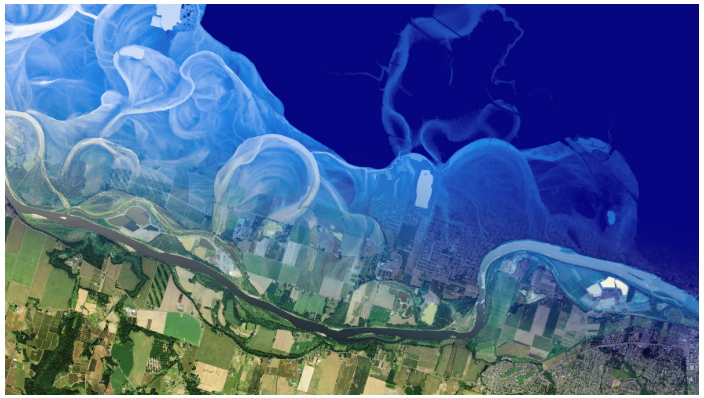
Check that your default *foreground and background colors* are black and white. If not select the small swatches next to them to reset.



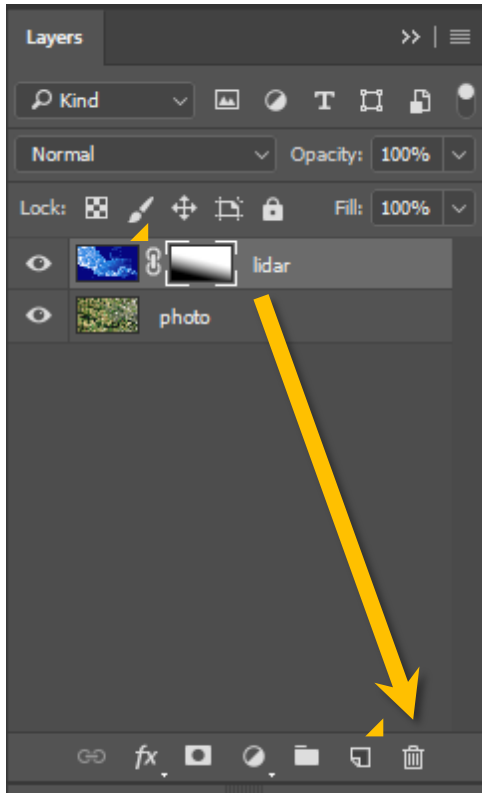


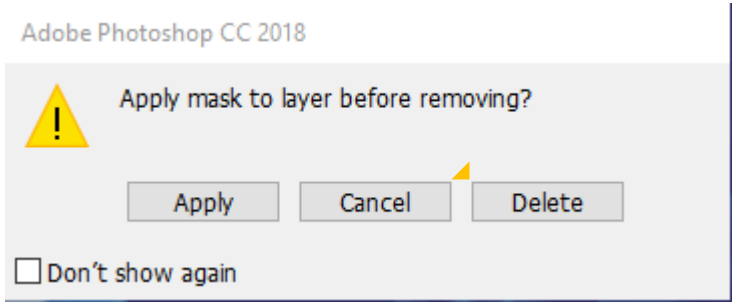
Select the *layer mask* on the lidar layer and then *gradient t*  . Click (and hold) in the top left corner of the image and move the cursor to the bottom right corner of the image and release. When you add black to the layer mask, it masks out the image to show the image below. By fading from black to white using the gradient the mask produces an image that fades from the lidar into the photo.

Repeat this process with the *gradient tool* selected to get different fade directions and lengths. If you get one you like you can save it as a .jpg or other image file

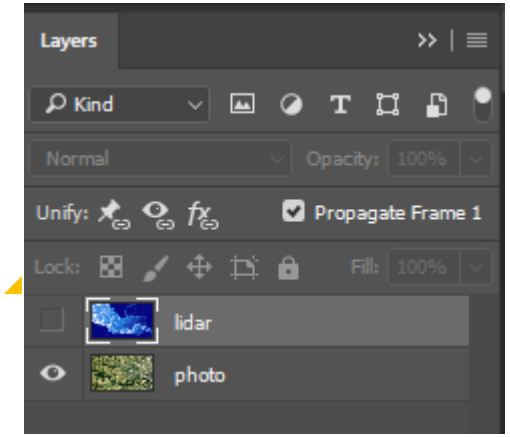


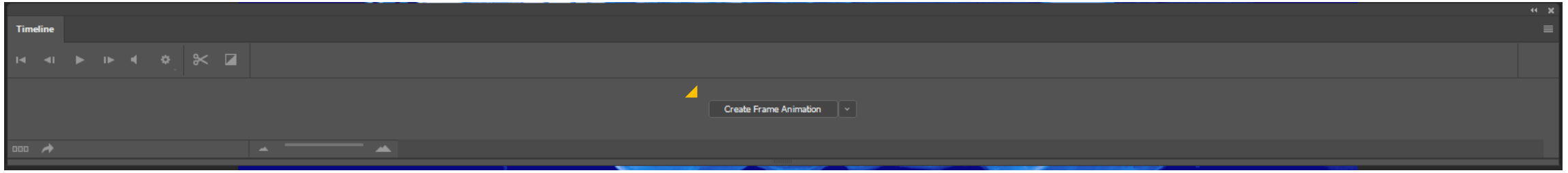
Drag the *Layer mask* into the trash can at the bottom of the layers panel to delete it. When Photoshop asks *"Apply layer mask before removing"* select *delete*.



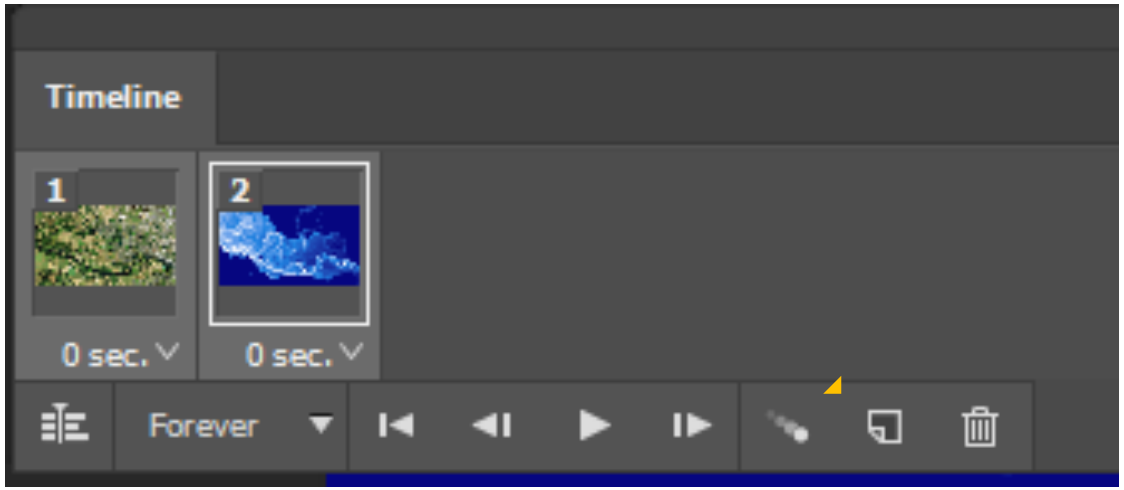


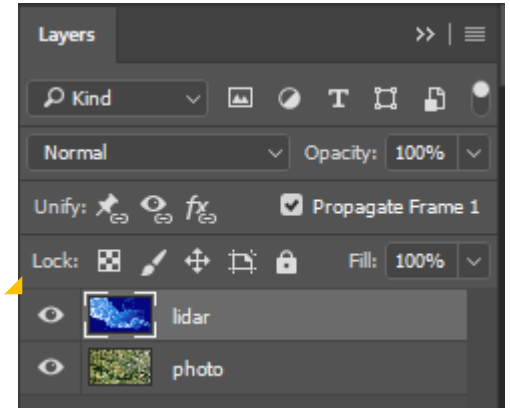
Turn off the lidar layer in the layers window by clicking on the eye box next to it, then open the *Timeline window*—*Window*>*Timeline*.
Select *Create Frame Animation* in the *timeline* window



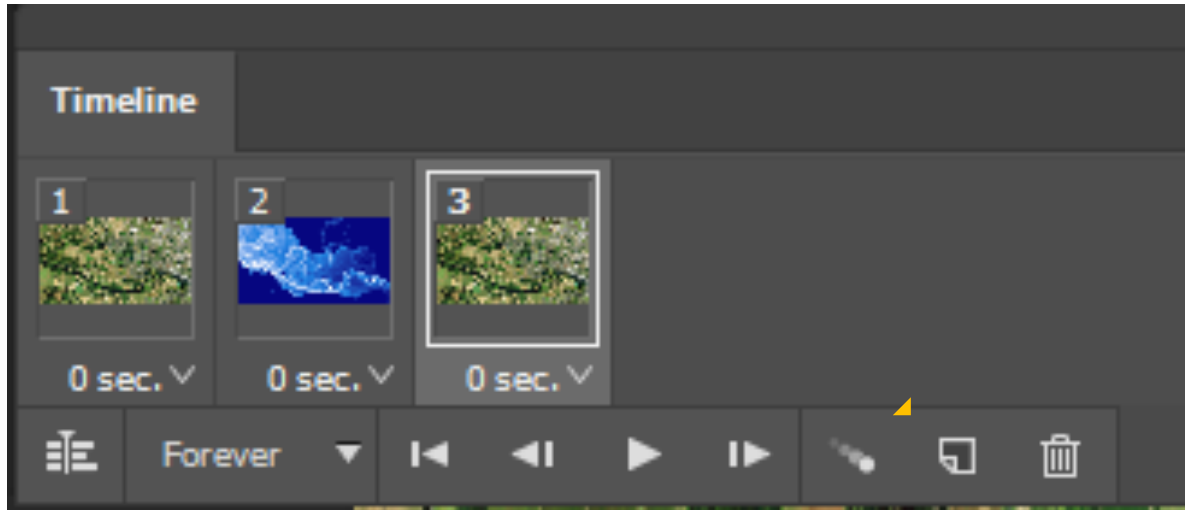


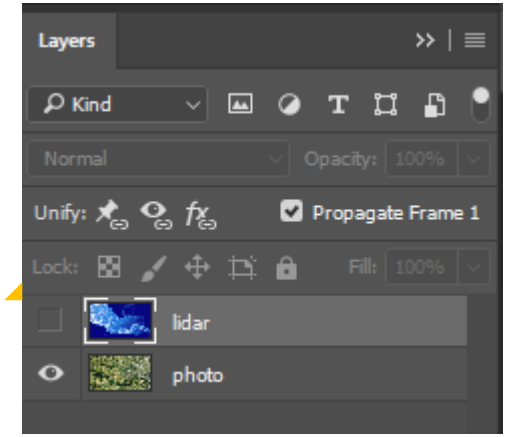
Create a new layer with the new layer icon at the bottom of the window and then turn on the lidar layer in the layers window by clicking on the eye box next to it.



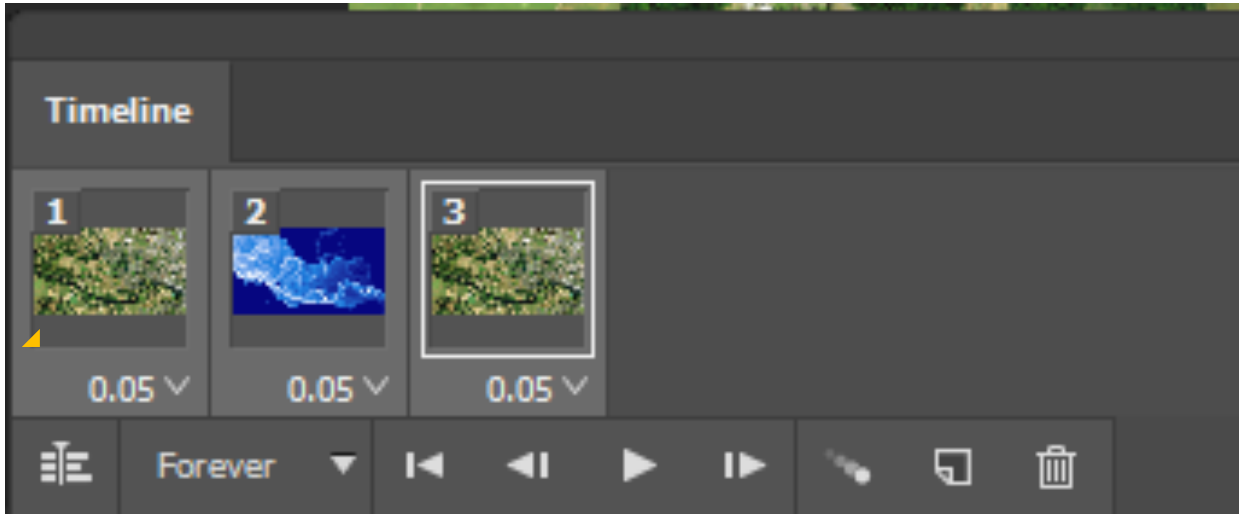


Create an additional new layer with the new layer icon at the bottom of the window and then turn the lidar layer off again.

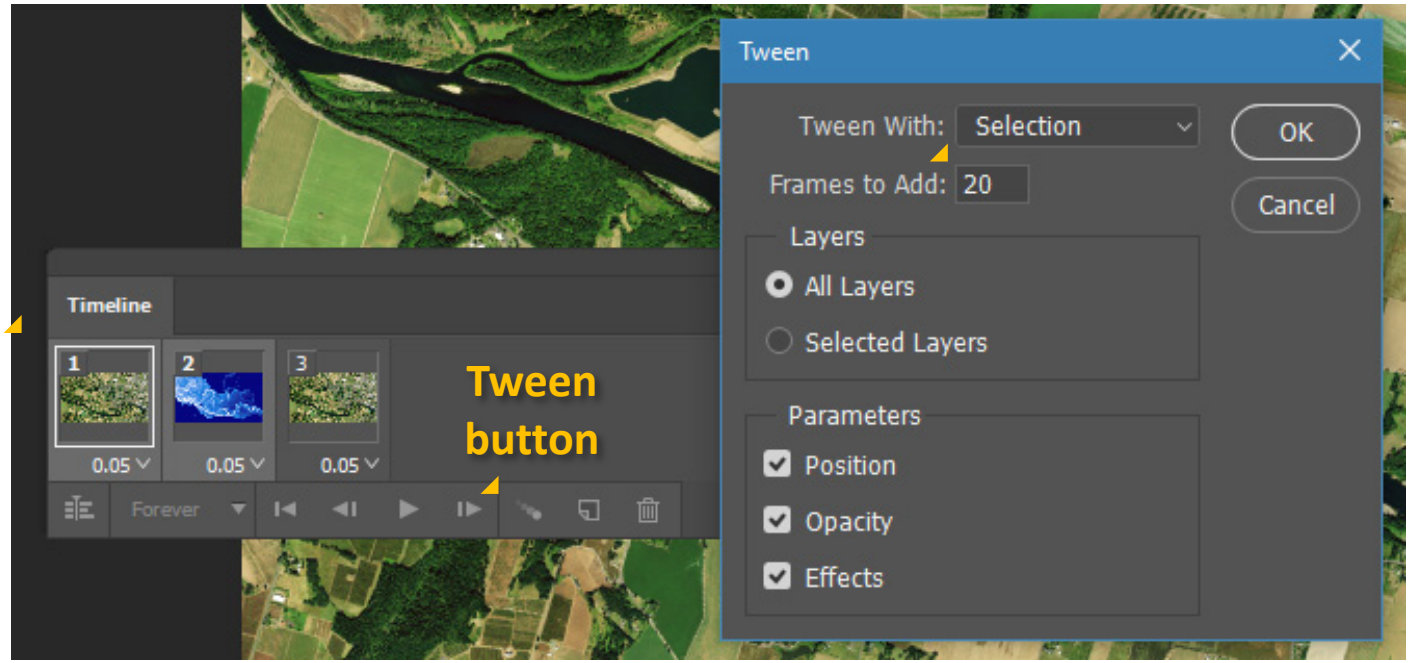




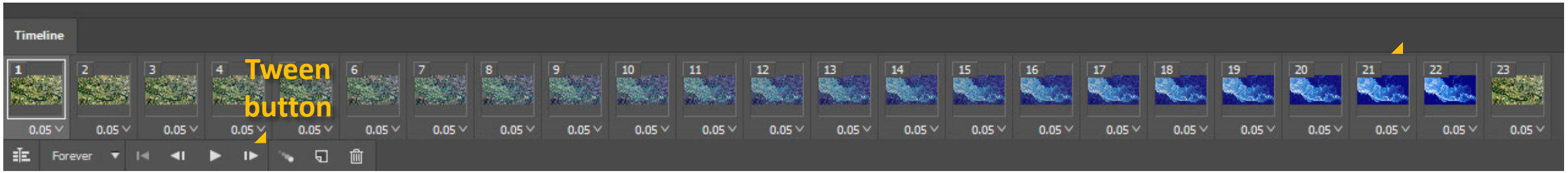
Hold down shift and select all three layers in the timeline window. Right-click on the time below the layers and select other in the pop-up menu. ***Set the time to 0.05 seconds.***



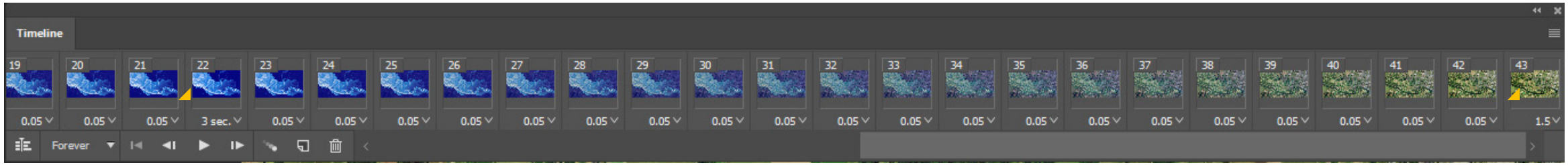
Deselect the timeline layers then reselect the first two (using shift). Select the *tween* button at the bottom of the window. In the menu that pops up, add 20 in the *frames to add* box and select ok.



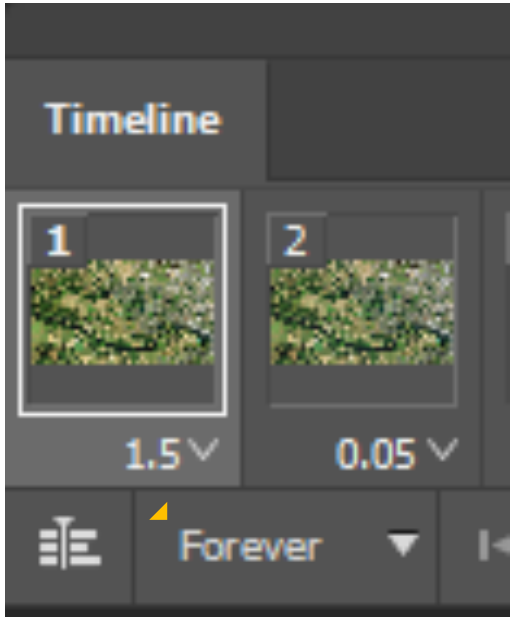
20 new layers will be added to your timeline. Deselect the layers, then reselect the last two (12 and 12). Repeat the *tween* process from the last step.

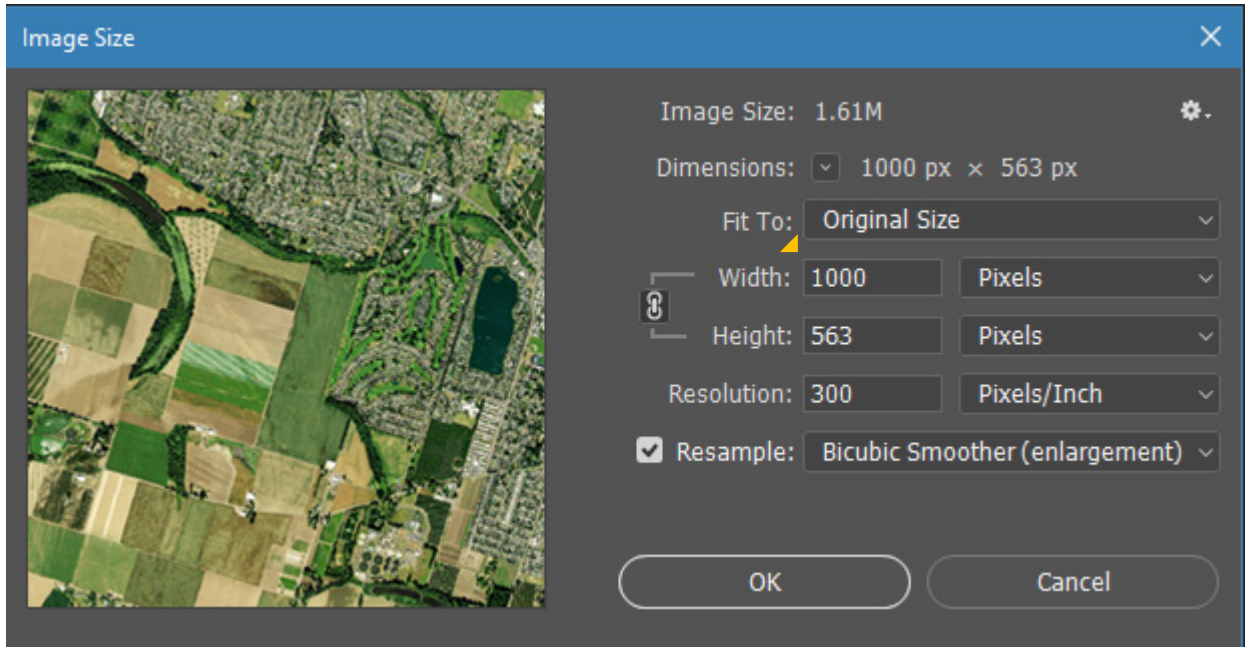


You should now have 43 layers. Change the time on the first and last layer to 1.5 seconds and the time on layer 22 (the middle layer) to 3 seconds



Check that your animation is set to "*forever*" in the *timeline* window. Open *Image*>*Image size* and change the width to 1000 pixels.





Go to *File>Export>Save for Web (Legacy)*

Set the *file type* to gif near the top right of the screen and set the *looping* to forever near the bottom right of the screen. Select *save* and save as will_blend_animation.gif