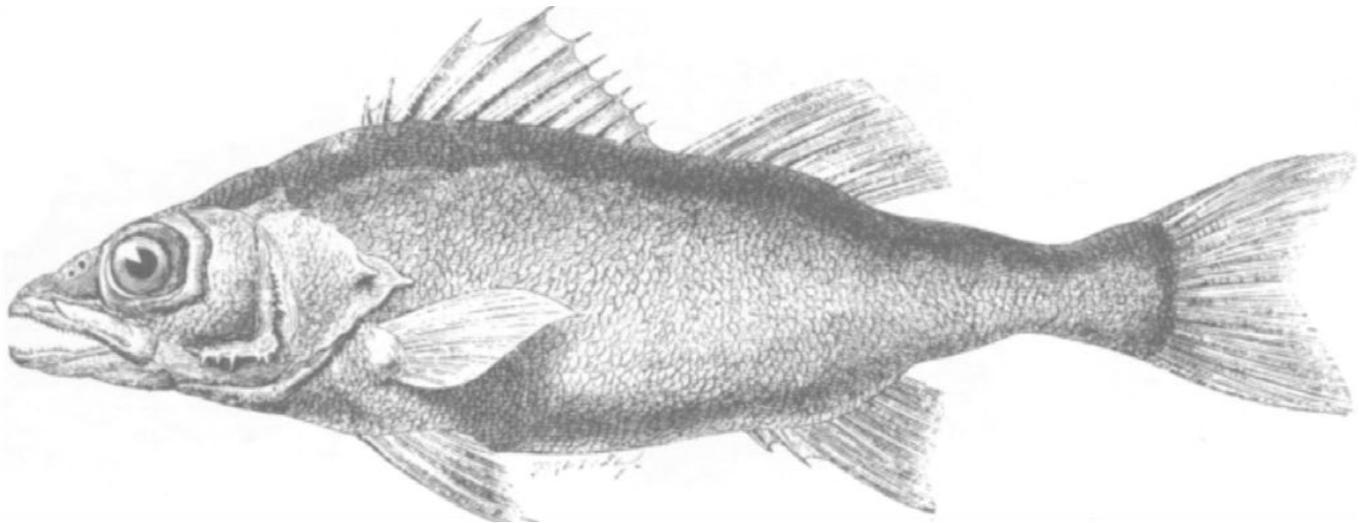




video  
**48**

Scanning Line Art



**This grayscale sketch will be converted to line art.**

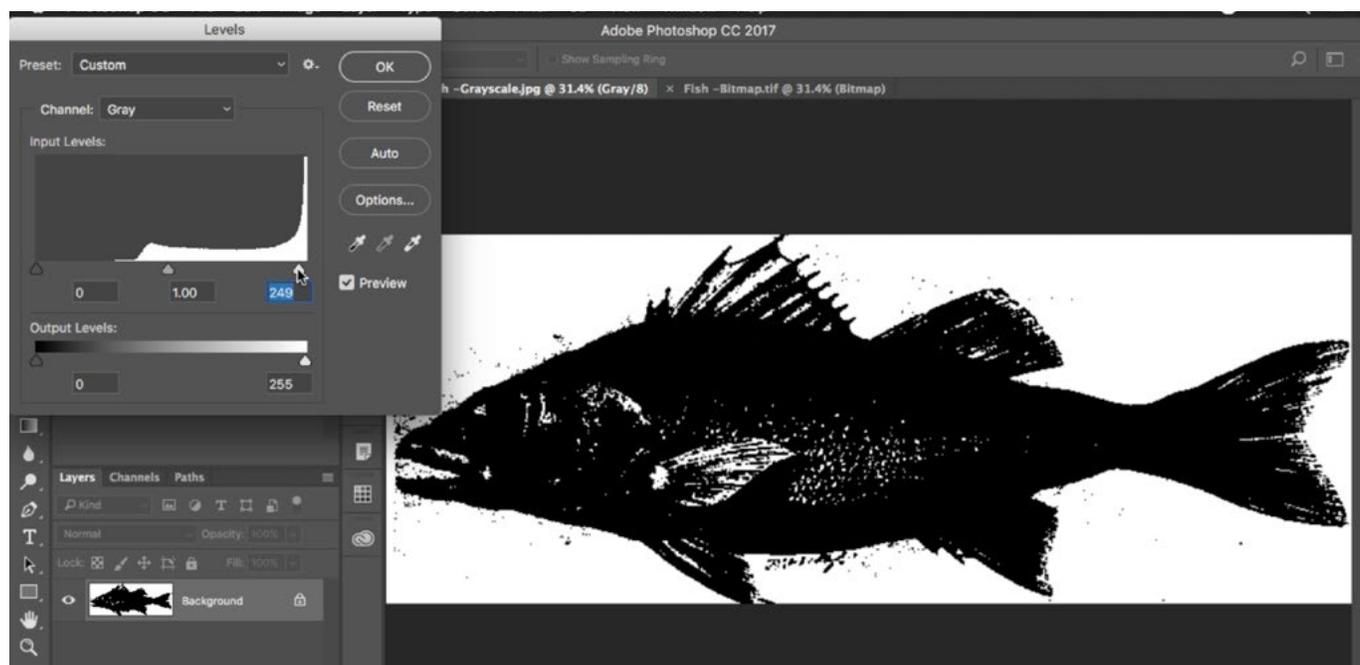
## Scanning Line Art

Line art is anything consisting of solid black lines on a white background. There is no shading or color whatsoever. Some good examples of line art would be signatures, pen drawings and some logos. In this lesson, we're going to talk about how to scan line art for a high quality result that can be used either on screen or for print.

You may find that your scanner has a Line Art Mode, and when you use that mode, you'll end up with a result that consists of solid black and solid white. The result may not look that great, however, because some of the detail may be lost and some of the detail may look less refined than it does in the original image. I would instead recommend that you set your scanner to Grayscale mode. If you don't have a scanner, you can also use an iPhone or a regular camera to take a picture of the image and then convert it to grayscale.

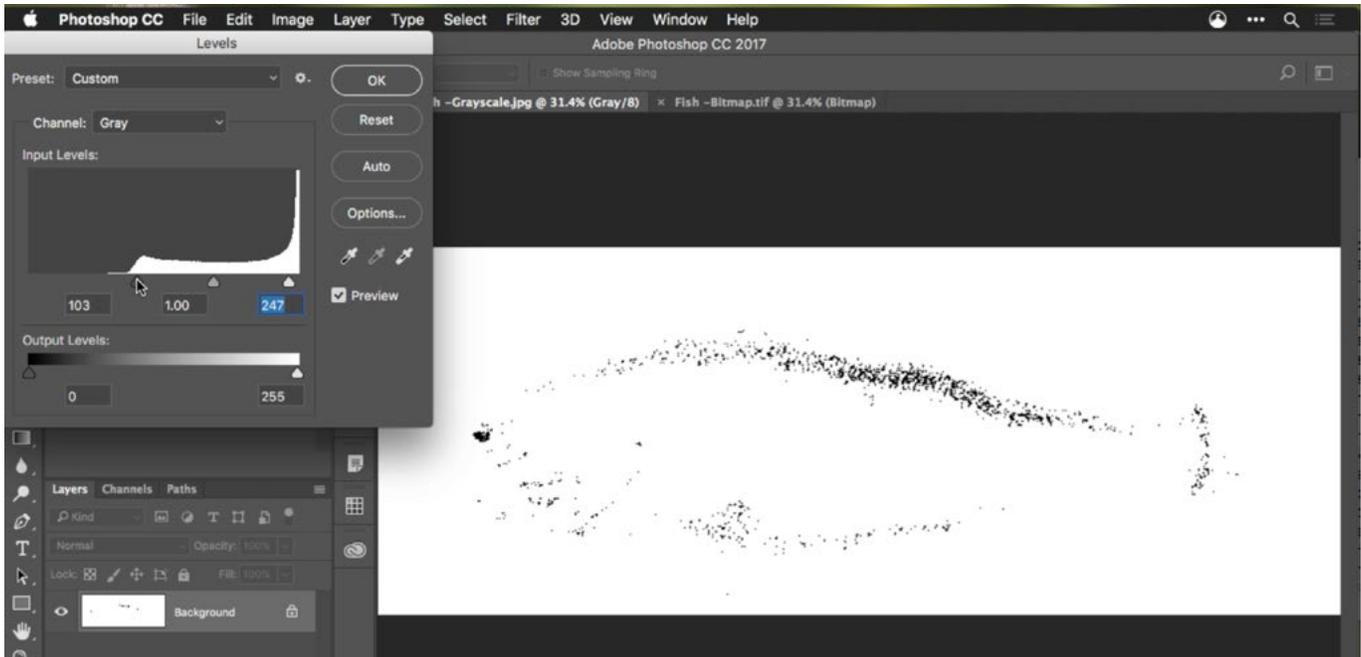
The first thing we'll do is adjust the image to ensure that the background is solid white and at least some of the lines in the image are solid black. To do this, I'll go to the main menu and choose Image > Adjustments > Levels. In the Levels dialog, there are three sliders beneath the bar chart. The slider on the right will force things to white. The slider on the left will force things to black. We first want to make sure that the background is perfectly white, but it can be difficult to tell if

it's perfectly white just by looking at it. We can use a hidden feature to tell what areas are completely white. I'll hold down the Option key (Alt on Win) and start dragging the white slider to the left. When I do this, I'll get a different view of my picture, showing me what areas are white. Anything that is not perfectly white will appear as black in this temporary view. I will drag that slider to the left until all parts of the background are perfectly white.



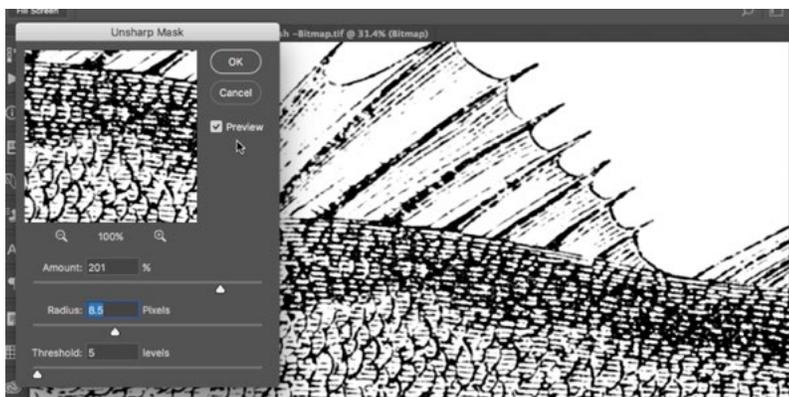
**A Levels adjustment is being made and we are dragging the white slider to ensure that the white areas are truly white, with no shades of gray. We're holding down the Option key while using the slider in order to give us a view that shows what areas are perfectly white.**

Next, I want to make sure that the darkest portion of the sketch is truly black. In this example, I can tell that no areas are black because the histogram chart contains no bars on the left side of the chart (the side representing the blacks). To force areas to black, I will move the black slider (the one on the left). Again, I will hold down the Option key as I drag that black slider. This will give me a different view of the picture where the areas that are truly black will appear as black. The rest of the areas will appear as white. I will move the slider until I can see a little bit of black showing up in the image (see screen shot). Finally, I will use the middle slider to fine-tune the result. This middle slider controls the mid-tones, or everything in the image that is not white or black. I'll click OK to close the Levels dialog.



In the Levels dialog, we are dragging the black slider to ensure that there are some areas of black in the image. We're holding down the Option key while using the slider in order to give us a view that shows what areas are black.

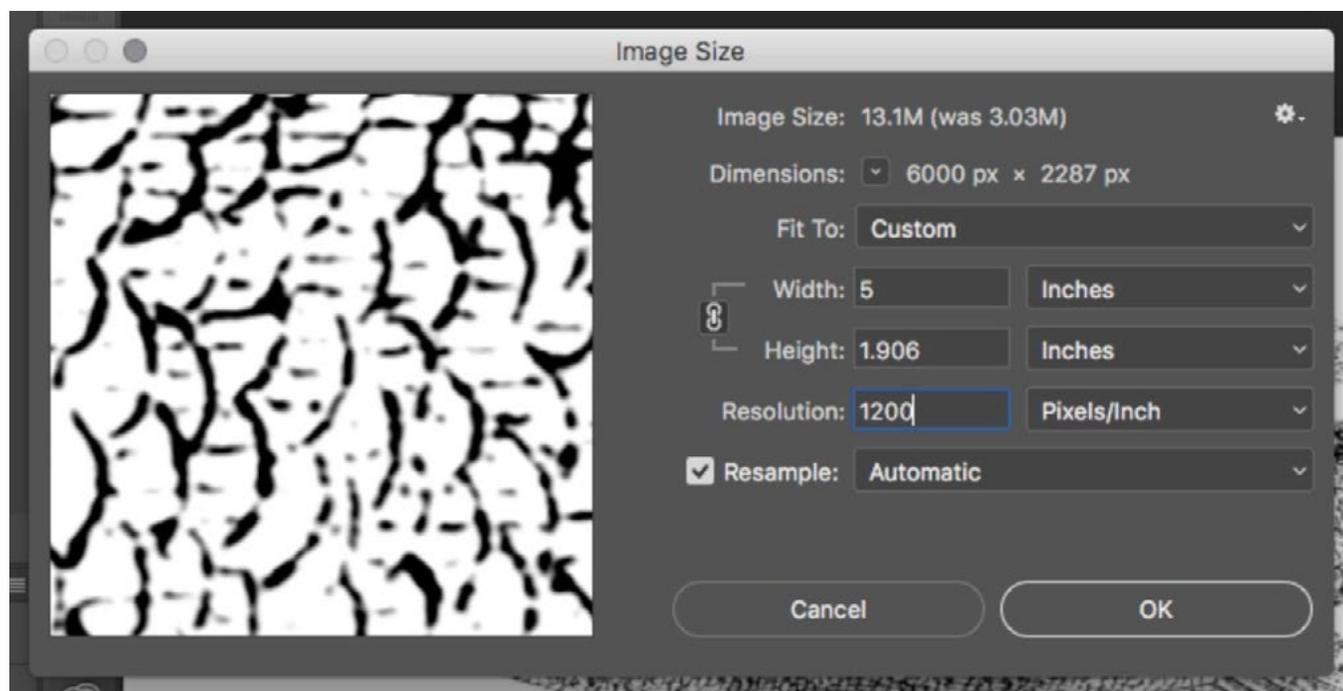
Now, the image is still made up of some gray tones, and we want it to be made up of only solid white and solid black. I will go to the Filter menu and choose Sharpen > Unsharp Mask. In the dialog box that appears, I'll set the amount slider to around 200% and the Threshold slider to 5. (These are approximate settings.) Then I will move the Radius slider back and forth, trying to find a sweet spot where the level of detail looks good. If this setting is too low, it may look blurry or noisy, and if this setting is too high, we will start to lose detail. Once the preview looks suitable, I'll click OK.



The Unsharp Mask filter is being applied in order to force more of the gray tones to black or white.

At this point, the image is suitable for on-screen use. But it is not made up of only solid black and solid white, which is what we'd need for printing. When saving line art like this for on-screen use, don't save it as a JPEG. Instead, use the PNG file format. JPEG works well for photographs, but delivers an unappealing artifact when used for graphics and line art.

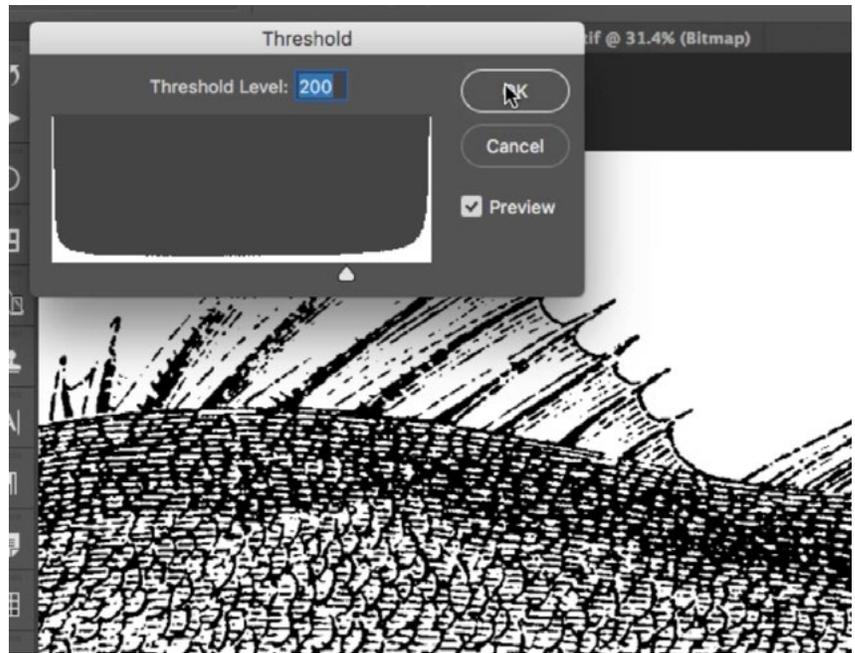
To prepare the image for print, we need to think about how large the image will be printed and whether the resolution is acceptable for that particular purpose. I'll go to the main menu and choose Image > Image Size. In the Image Size dialog, I will enter in the desired print size in the Width and Height fields. Then I'll enter in the resolution. If you're printing on a home printer, use your printer's resolution setting, which may be 300. If you are printing on a press, you can use a setting of 1200, as printing presses have much higher resolutions. There is no need to go higher than 1200. I'll make sure the Resample check box is turned on and then click OK.



To prepare the image for print, we are changing the image size to the dimensions we want to use for print and setting the resolution to match that of the printer.



Above: We zoomed in on the image and could still see gray pixels around the edges. Right: A Threshold adjustment is being made to eliminate all of the gray pixels and convert them to black or white pixels.



Now, we need to zoom up on the image to see if there are any shades of gray. I'll zoom up to a pixel-level view and look at the edges of the line art. Here, I can see that the edges are soft and include pixels that are gray (not black). When printed, these edges will not be smooth. They'll instead be broken into solid little specks, and this is undesirable. We need every pixel in the graphic to be solid black, on a solid white background. To accomplish this, I'll go to the main menu and choose Image > Adjustments > Threshold. The dialog box that appears will include a bar chart, which represents all the brightness levels in the picture. Black is on the left,



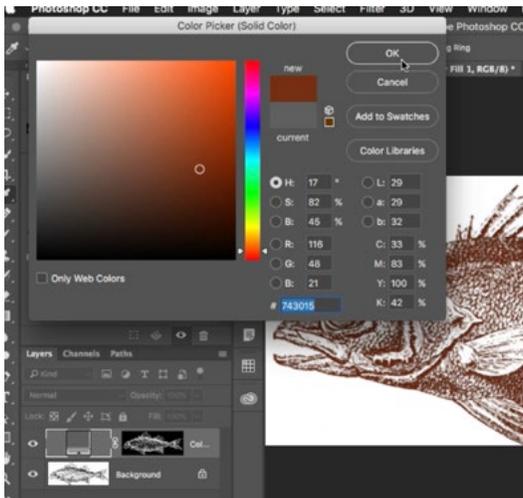
After applying the Threshold adjustment, there are no longer any gray pixels.

white is on the right and all the shades of gray are in the middle. The slider in the center is the Threshold slider. Anything to the left of it will be solid black. Anything to the right of it will be solid white. I'll move this slider back and forth, trying to find the best compromise between highlight and shadow detail. Then I'll click OK. Now, when I zoom up on the picture, there are no longer any shades of gray.

Because there are no shades of gray in the image, I can change the image mode to Bitmap, which will reduce the file size quite a bit. You can change the mode of the document by going to the main menu and choosing Image > Mode and then selecting Bitmap. A dialog box will pop up and it will include a Use menu. Because we already converted the image to include only blacks and whites, this setting won't matter much, but I like to set it to 50% threshold, just in case there were any leftover shades of gray that need to be dealt with. To save this image for printing, I will use the TIFF file format.

When saving line art for on-screen use, you may want to change the color. If that's the case, don't apply the Threshold adjustment and don't change the image to Bitmap mode. Instead, open the Channels panel, hold down the Command key (Ctrl on Win) and click on the thumbnail for the Grey channel. This will place a selection around everything in the image that's white. We want the blacks

selected, so go to the Select menu and choose Inverse. Now, in order to make the image a color, you'll need to change the image mode from Grayscale to RGB and you can do that by going to the main menu and choosing Image > Mode > RGB. Next, go back to the Layers panel and click on the Adjustment Layer icon at the bottom of the panel. Choose Solid Color. The Color Picker will appear and you can choose the color you want to use for the line art. Finally, you'll want to fill the background layer with white so that the original art isn't affecting the color layer.



**A Solid Color fill layer is being used to change the color of the line art.**

