

Photoshop CS3's ACR 4.1 includes an effective new defringing filter to deal with the unsightly effects of sensor flooding.

BY ELLIS VENER

Get rid of *fringe*

ADOBE CAMERA RAW 4.1



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Late last summer I spent a sunny afternoon in a helicopter over Cape Cod shooting aerials. During editing I noticed random purple and pink fringing around some of the specular highlights, spoiling a few of the best captures. The fringe was no more than a couple of pixels wide, but annoying enough to keep me from sending the photos to my stock agency.

The term for this phenomena is *sensor flooding*. It can happen when a pixel that's pure white abuts an area that's relatively dark. Thomas Knoll of Adobe confirms that the strength of the signal from the white pixel may throw off the Bayer matrix color interpolation calculations for the surrounding pixels.

How? In a standard CMOS or CCD sensor, the intensity of light striking a pixel regulates how much electricity flows from one side of the pixel's electrical connection to the other. This electrical charge is converted into binary digital form and is recorded as a luminance value. Since the light hitting each pixel is filtered through a red, green or blue filter to make a full set of color values for each pixel, the image processing software looks at the surrounding eight pixels and makes a sophisticated guess as to what the sum of the red, green and blue values should be at each pixel to create a shade of color continuous with its neighbors. If a couple of the pixels in a matrix are fully charged, but their neighbors have a significantly lower charge, it could throw off the calculations

Top, left: I processed a Canon EOS 1Ds Mark II raw image file in ACR 4.1 with the Defringe control turned off. You can see pink fringing along the specular highlights in the water (inset).

Left: I processed the image in ACR 4.1 with the Defringe control set to Highlight Edges, opened it in Photoshop CS3 and saved it as a TIFF file. I opened the TIFF again in ACR4.1 and applied the same defringing filter a second time. Persistent trouble spots were treated in Photoshop CS3 by going to Select > Color Range and creating a new Hue/Saturation adjustment layer.

for producing an accurate color value for the surrounding pixels, which sometimes results in pink, magenta or purple fringing. Think of it as the electronic version of TMI: Too much information.

Evidently, others were having this problem, too—one of the new features in ACR 4.1, the first update to Adobe Camera Raw 4 for Photoshop CS3, was designed to treat this problem. Called Defringe, you'll find the feature in the Lens Correction tab. Problem solved? So far the answer is a qualified yes.

In ACR 4.1 and later versions (and in Lightroom 1.1), Adobe corrects the miscalculation with another set of algorithms. Essentially, the solution is a software filter with three strength settings: Off, Highlight Edges and All Edges. The default setting for Defringe is Off. Highlight Edges takes care of much of the problem, and All Edges does a more aggressive job.

Unfortunately, applying All Edges has a side effect: desaturation. To get around it, you can go at it twice by using a really cool ACR 4.1 feature. Choose the Always Open option for TIFF and JPEG file handling in the Camera Raw preferences (in the Bridge CS3 menu). ACR will now process these files like raw files. When you process a file once with Defringe set to Highlight Edges, it may solve most of the fringing, but not all. If you open the file in Photoshop, save it as a TIFF, then open it again in ACR 4.1 and choose Highlight Edges once more, it will clean up the remainder of the fringing without the desaturation. It's a pretty neat way to save an image.

It doesn't solve the problem completely for every image. For a couple of really tough spots, I zoomed in to 400%, used Select > Color Range to select the most troublesome pixels, created a new Hue/Saturation adjustment layer, and played with the sliders until the pixels matched their surroundings. ■

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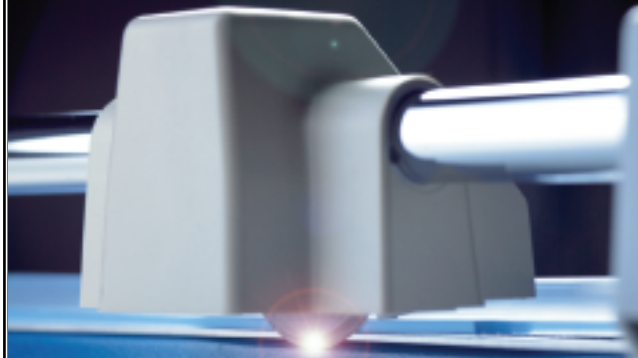
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