

What is DoF and how does it effect the final image ? Part 3

In Depth Of Field Part 1, I introduced the term Depth Of Field (DoF), which we will define as:

Depth Of Field = How Much Of The Photo Is In Acceptable Focus

Part 1 also included how Aperture affects DoF.

In Part 2, I covered how the size of the sensor in your camera affects how much you can control the amount of focus in your photos.

We learned that,

The Larger The Sensor, The Greater The Control Over Depth Of Field

Today, we're going to look at how zooming your lens affects DoF.

In this article I'm going to use the term Focal Length to refer to the zoom value used. Bigger numbers mean more zoom. For example, 100mm is twice the zoom of 50mm etc. (All Focal Length values used in this article are Full Frame equivalents, i.e. 50mm on a Consumer DSLR is 75mm equivalent.)

The first thing to learn is that Focal Length by itself *does not* affect DoF. This means that if you keep the subject the same size in the frame, the amount in focus will be the same.

This is illustrated below.



27mm Centre Crop

What is DoF and how does it effect the final image ? Part 3



63mm Centre Crop

These 2 equal sized centre crops at different Focal Lengths show how the DoF is unchanged by increasing the zoom, but keeping the subject the same size. The perspective changes a lot, but you can see that the same amount of the scene is in focus.

This is an interesting academic point, but perhaps not the most useful in terms of practical application. What Photographers usually want to know is the difference that zooming from the same position will make to their photos.

The following series shows how zooming in, aside from producing tighter framing, changes the DoF. (The Aperture is held constant at f/5.6.)



27mm

What is DoF and how does it effect the final image ?

Part 3



38mm



53mm



What is DoF and how does it effect the final image ? Part 3

75mm



113mm



158mm

You can see that as the lens zooms in, the amount in focus decreases. At 27mm even the background bottles are only slightly out of focus. By 158mm, even the second bottle is becoming blurred.

This allows us to make the following statement:

As Zoom Increases, Depth Of Field Decreases

This means that Wide Angle Lenses tend to keep more of the image in focus, and Telephoto Lenses blur backgrounds more.

Remember that Focal Length works in combination with Aperture and Sensor Size to determine Depth Of Field.