PHOTOSHOP TUTORIAL 14
How To Prepare Your Image For Display on a Digital Projector (in Photoshop CC)

Introduction.
This tutorial is aimed at photographers that convert their images for Projected Image competitions, either for their local camera club or for National or International Exhibitions.

Monitor calibration.
This is an essential part of the process for serious image maker.
Without calibration, your computer monitor could display inaccurate colours, brightness and contrast. Images which look good on that uncalibrated monitor may look surprisingly different when displayed on a properly calibrated projector.

Use a tool such as the **X-Rite ColorMunki** or **X-Rite i1 Display Pro** to calibrate your monitor and then verify that it looks accurate by scrutinizing a test chart on screen. It's possible to create a faulty calibration without warning, so check the calibration results each time and repeat the calibration if needed. Calibrations should be performed routinely – say, every few months.

The information that you will need to know before you convert your image for projection is as follows:
(A) The colorspace of the projector (normally **sRGB**).
(Please note that if the colorspace of the projector is **sRGB** and you submit an image in say **Adobe RGB (1998)** colorspace, the colours may not look correct when projected.)

(B) File type and bit depth of your intended image for projection (normally an **8 bit jpeg file**).

(C) Maximum Image Size of your image intended for projection.
   (**1600 pixels wide maximum x 1200 high maximum** is currently becoming popular).

Preparing image.
In the example that I am about to show, I am starting with a full resolution image that has already been prepared and sharpened for printing.

When I prepare my images for printing, I always sharpen on a separate layer and I sharpen according to the output, in other words, I apply different levels of sharpening depending on the following conditions:

(A) Size of intended print: (If prints are viewed from a respectable distance, a larger print will need more sharpening than a small print).

(B) Paper Finish (Glossy, Semi Glossy, Pearl or Art): (different papers require different amounts of sharpening to give similar results to each other).

(C) Image subject (detailed areas or soft areas): By applying the sharpening as a layer, it allows me to strip it away and re-apply it as a new layer should any conditions change i.e. Print size, type of paper or convert to display or projection.

Sequence of preparation

1. Make a copy of your original in a separate folder
   (I strongly recommend this step to avoid overwriting your original).

2. Select the copy.

3. Remove any sharpening layer.

4. Re-Size to desired pixel count.

5. Re-Sharpen (viewed at 100%).

6. Flatten image layers.

7. Convert to Profile (Normally sRGB IEC61966-2.1).

8. Change Mode to 8 Bit.

9. Save as a jpeg image in a separate folder from your full resolution images.
   (This once again prevents overwriting the original file).

Converting for Projection.

1. Load the image into Adobe Photoshop.
(I suggest loading a copy of the original high resolution file so that the original file cannot be accidentally overwritten).

2. Remove the sharpening Layer.
The sharpening that I have applied for a full pixel count print will be different from the sharpening demanded by a reduced pixel count projected image, so our first job in the conversion process is to remove the sharpening for the printed output.

3. The Sharpening layer has now been removed.

4. Re-size the image to the desired pixel count.
Select **Image/Image size...**

5. You will now see the following dialogue box.
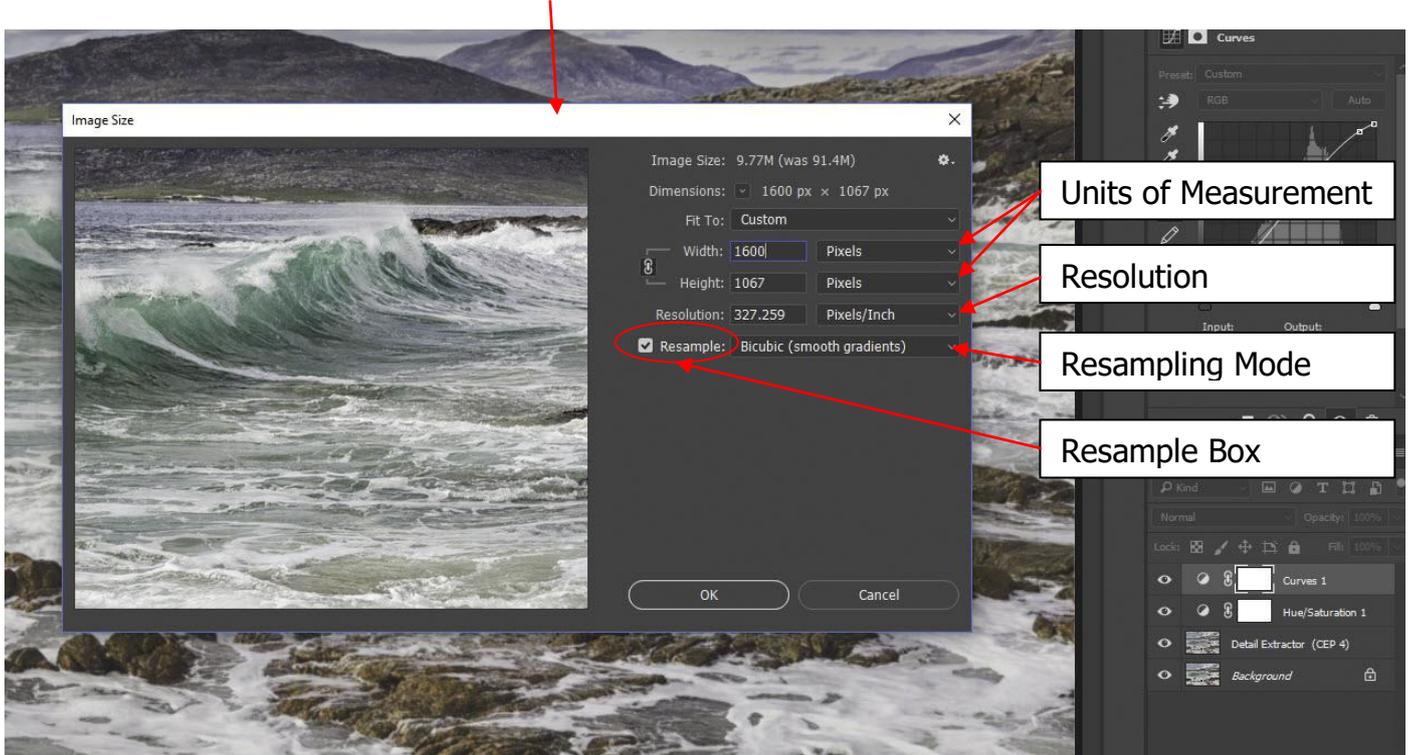
5a Resolution.

Do not change this unless the organizers of a competition ask for either 72dpi or 96dpi
(If you do have to change the dpi it **MUST** be done with the re-sample box unticked)
(Resolution only applies to printed output and the organizers may want this changed to help them to easily print or display your image via different media after the competition).

5b. Tick the Resample box.

Once the Resample box has been ticked, do not change the resolution settings.

5c. Change the units of measurement to pixels.

5d. Type in the width in pixels that you wish to re-size to.

(In this instance I want to resize the image to **1600** pixels wide).
(If the image was in portrait orientation and height was the governing factor I would type in the height).

5e. Set the Resampling Mode to Bicubic (smooth gradients)

This is my preferred method due to the fact that this method reduces the size of the image without sharpening. Colours remain intact and detail is well-preserved. It keeps the image close to the original, so that when you apply sharpening, the result is a higher quality image without any artefacts such as halos.

I always re-sharpen the image to my taste after re-sizing.
In my opinion, the **Automatic** and **Bicubic sharper (Reduction)** methods apply sharpening that is too aggressive.

5f. Then click Ok.

6. The Image has now been resized to 1600 pixels wide and the next step is to re-sharpen it. We need to sharpen the image at 100% so that we see it as it will appear as projected. Double click on the magnification tool to see our image at 100%.
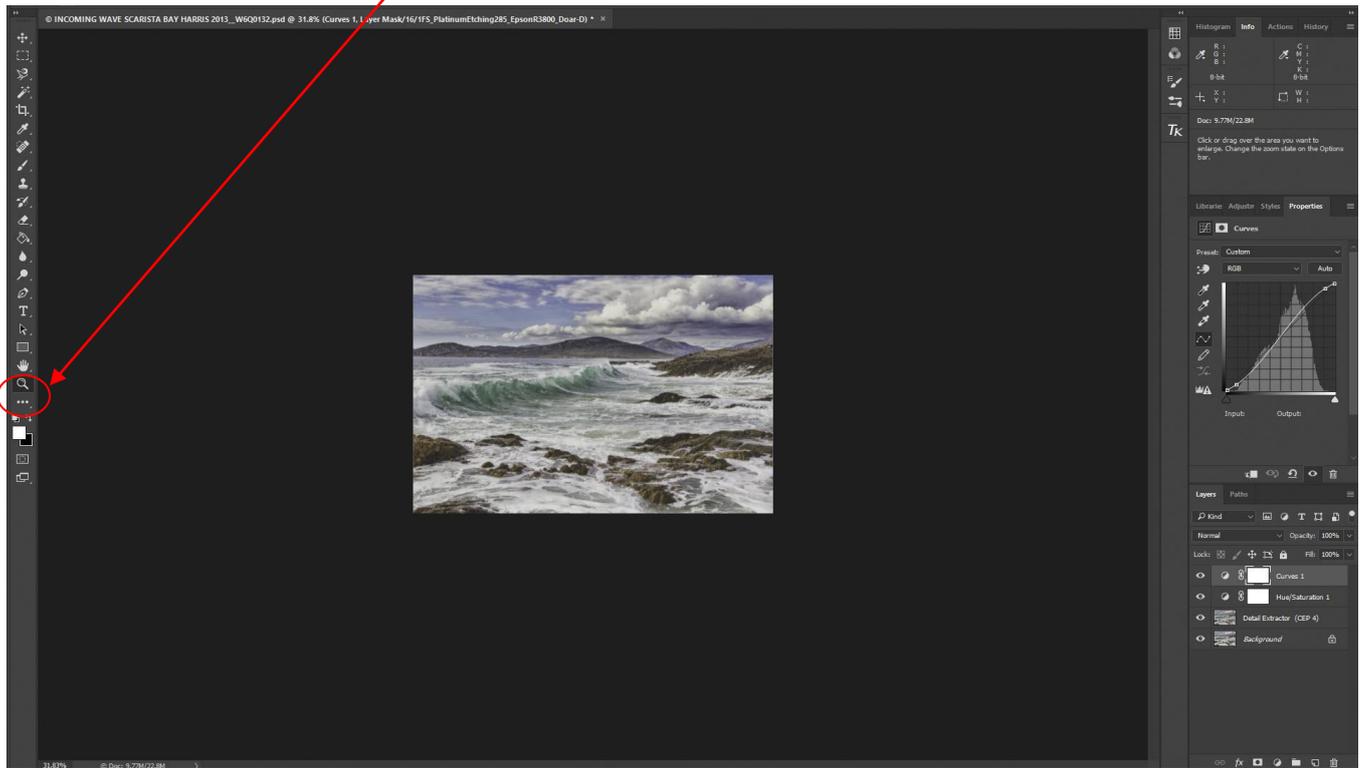
7. Our image is now being viewed at 100% so we can now re-sharpen for projection.

8. Here I have re-sharpened the image.
   On this occasion I have used Google Nik Sharpener Pro 3 and have added a layer mask to give me selective sharpening.

9. We now need to Flatten the image Layers and convert to sRGB IEC61966-2.1.
   This can be done in one move by selecting **Edit/Convert to Profile.**
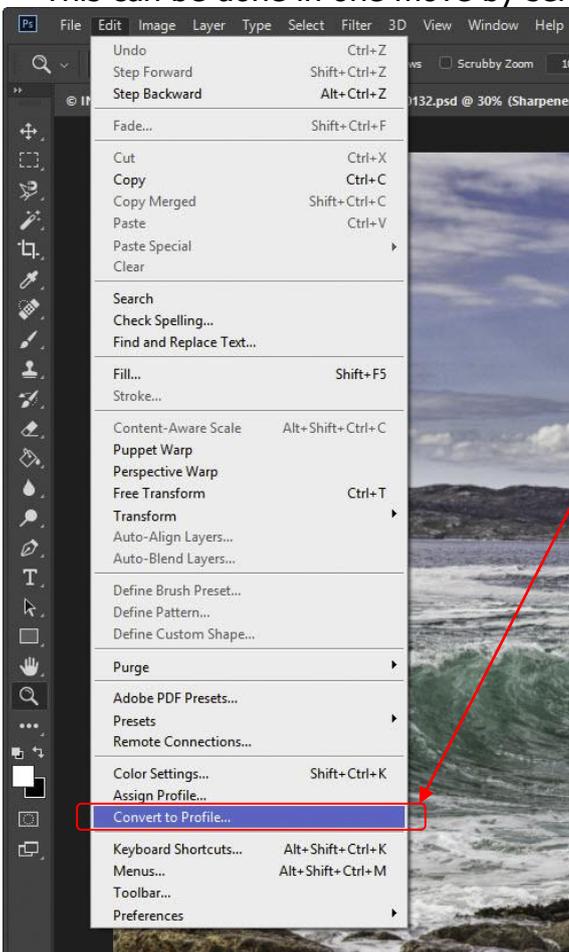
10. You will see the following dialogue box.
Select the following:
Destination Space
Profile: **sRGB IEC61966-2.1**

Conversion Options
Engine: **Adobe Ace**
Intent: **Perceptual** (You could use another rendering intent such as Relative Colormetric, but I prefer Perceptual for Photography)
Use Black Point Compensation: **TICK**
Flatten image to preserve appearance **TICK**

Then click **Ok**.
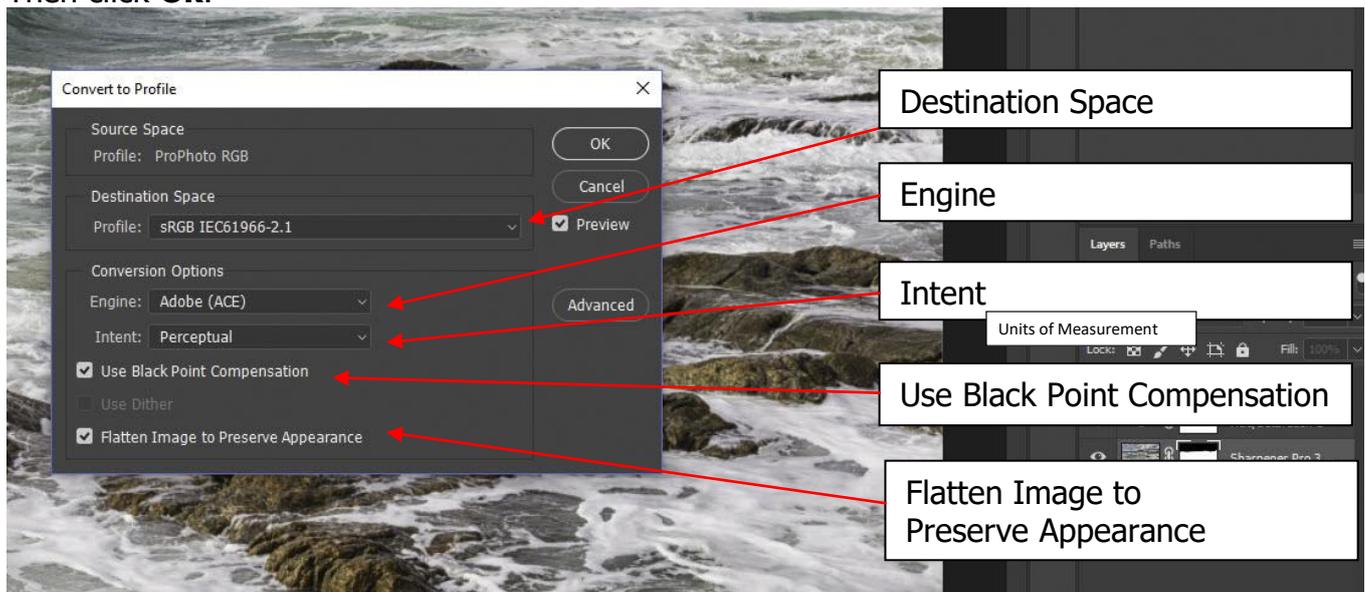
11. The image has now been changed to the above parameters

12. We now need to reduce the image to 8 Bits/Channel by selecting
Image/Mode/8 bits/Channel
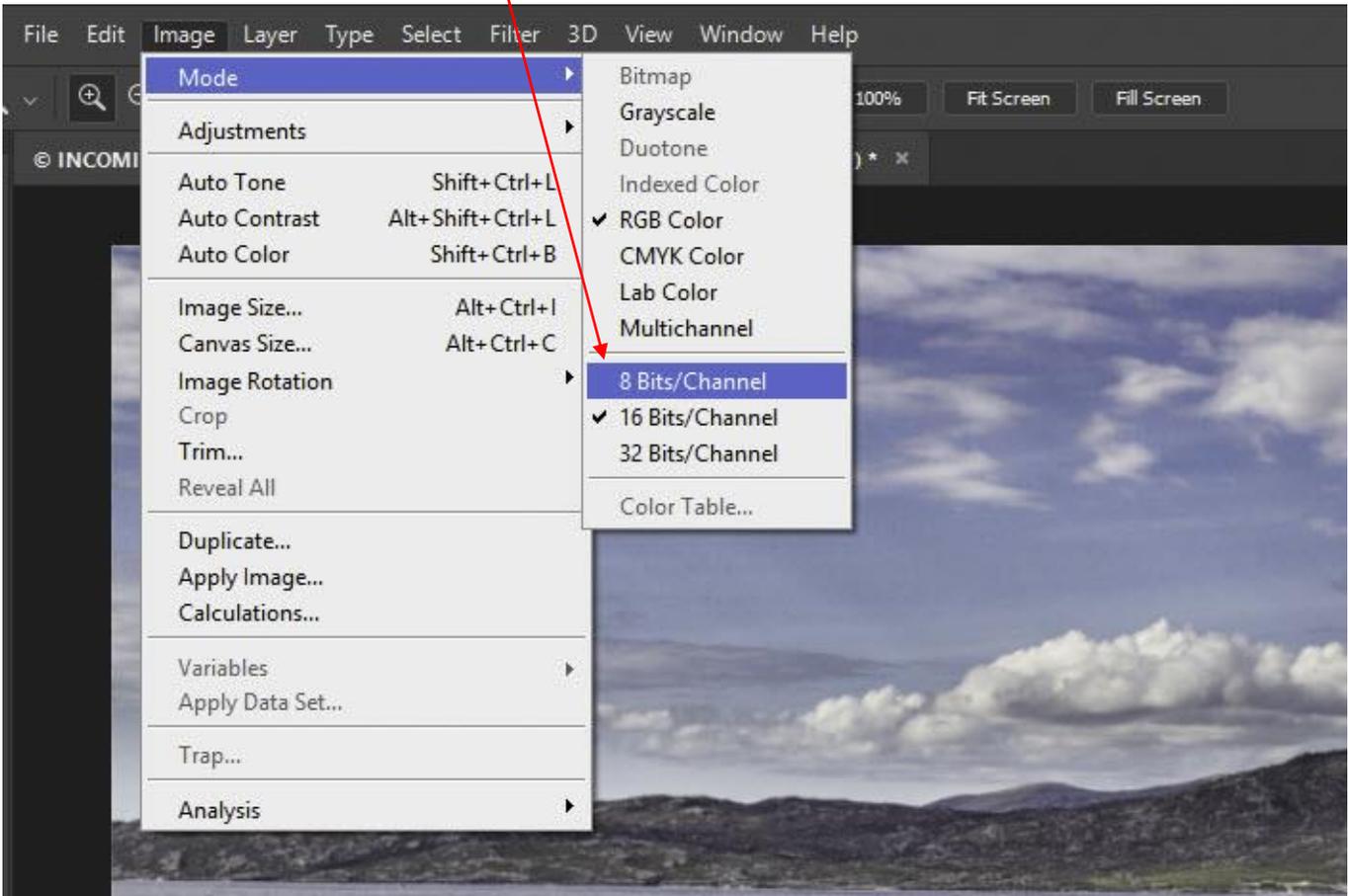
13. The image is now in 8 Bit/Channel and needs to be saved as a jpeg file.

14. To save as a jpeg select **File/Save As..**
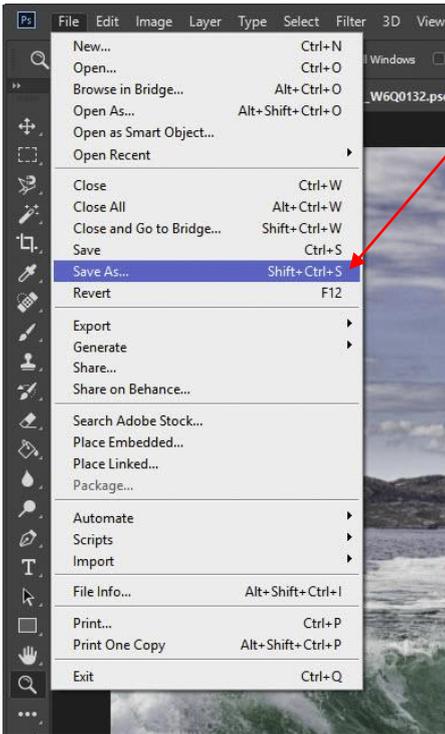
15. Select JPEG from list.
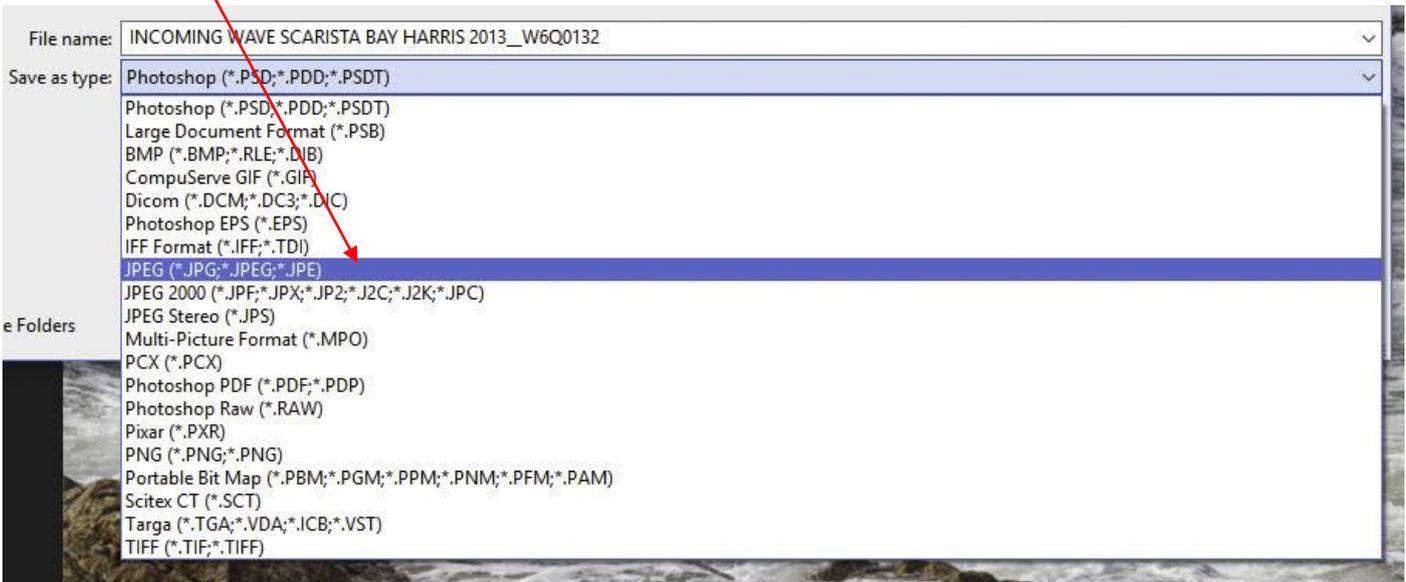
16. JPEG now selected, so press **SAVE**
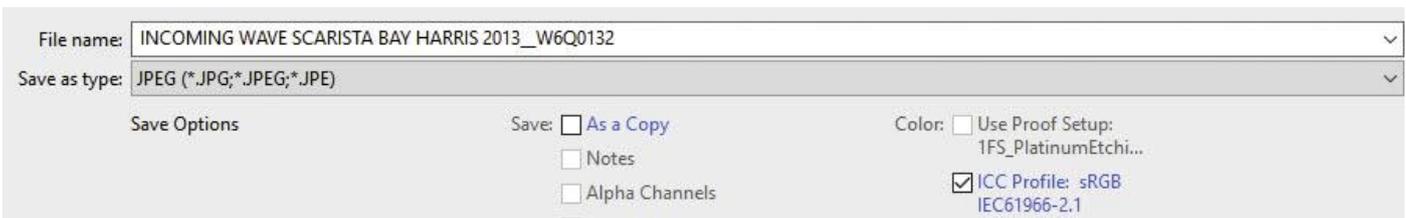
17. Select maximum size and click on OK.
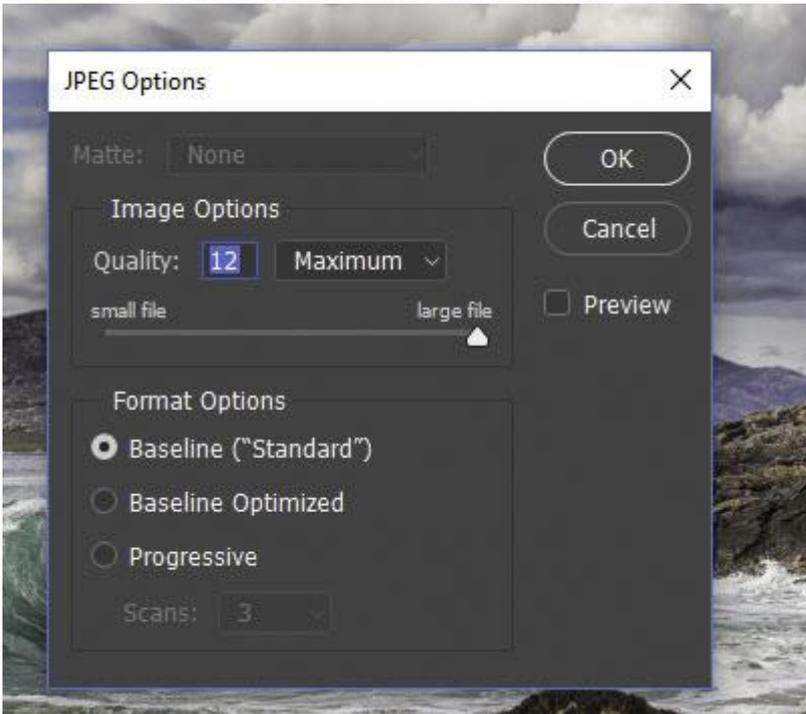
18. Here is your converted image ready for projection, viewed at 100% on your monitor.
(Just like it should be seen on the projector screen)

I do hope that you found this tutorial useful.

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