

## Using the camera microscope (Lab 167)

Please be very careful with both the camera and microscope – both are very expensive pieces of laboratory equipment. Do not move the camera from one microscope to the other unless you have been shown how to do so by Mark, Oona or Cecilia.

- Start up the computer using your JCU login
- Go to the Q-capture icon on the desktop - Have your slide under the microscope ready for photographing
- Go to the Acquire tab menu
- Select acquire video/digital - This will bring up a menu bar on the right hand side of the screen
- Click on the preview tab - this allows you to see the image the camera is going to capture you will notice that the focus on the screen differs to that through the microscope – make sure the image on the screen is in focus before you take the photo. Also note that the field of view is narrow on the screen compared to the microscope - you will need to account for this.
  
- Make note of what magnification you are using (i.e. 4x, 10x, 20x, 40x, 100x) - This is very important when it comes to calibration of the image.
  
- Once in focus take an image of the specimen. If the entire specimen does not fit in the field of view you will need to take several images.

When photographing otoliths:

- Remember you are trying to see the nucleus, hatch mark (1<sup>st</sup> visible ring from the nucleus – this should be quite obvious), and all other rings. You will therefore need to photograph the otolith including these attributes – you may need to change the focus to capture them all.
  
- To facilitate the measurements you may wish to photograph the image in normal colour and in black and white this can be done using the drop down tabs with the PVW 1x1. When you change this to 2x2 the image will become black and white – you need to change both the Pvw – (preview) and the Acq (acquire) make sure they are the same.
  
- Black and white images are generally easier to use as the contrast is greater, however the scale on the black and white images is incorrect. Make sure you place a scale on the non black and white image that you can calibrate from.

Once you have taken the photo you will need to calibrate the images

To calibrate an image

- Go to the measure tab
- Select Calibration

- Click Spatial
- 1st you need to select the magnification you are using – use the name tab for this
- Make sure you press apply after you have selected the right calibration – also check the units are correct should be in microns
  
- Then go to the mark tab - This brings up the spatial calibration marker box
  
- Using the marker length tab you can select the size of the scale bar you wish to place on the image (i.e. 20 $\mu$ m, 50 $\mu$ m, 100 $\mu$ m, 200 $\mu$ m). It is very important that you select the appropriate magnification before imposing the scale. The scale will not automatically stay imbedded in the image to do this you need to move it to where you want it to be by dragging it and then right click on the scale bar.
  
- You then need to save the image. You should include valuable information in the name of the image – the id, the magnification, scale present/absent (black and white images).

Once all this is done you are finished with the photograph of one image – the program is prone to shutting down – so please do the entire process for each image and then save the image to avoid losing them. You can save the images to the desktop or directly on a flash drive – do not keep the images on this computer only – always have a back up.